

Encyclopedia of
**Industrial and
Organizational
Psychology**



Edited by
Steven G. Rogelberg

Encyclopedia of
**Industrial and
Organizational
Psychology**

With much love to my most wonderful wife, Sandy, and our terrific children, Sasha and Gordon

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**Industrial and
Organizational
Psychology**

Edited by
Steven G. Rogelberg
University of North Carolina Charlotte

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Academy of Management
American Psychological Association,
 Association for Psychological Science
Engineering Psychology
Human Resource Management
Industrial Relations
Occupational Health Psychology
Organizational Behavior
Society for Industrial and
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About the Editor

Steven G. Rogelberg, PhD, (Professor, Psychology and Organizational Science) serves as Director of Organizational Science and Director of Industrial and Organizational Psychology, as well as being the Founder/Director of Organizational Science Consulting and Research (outreach and consulting center), all at the University of North Carolina Charlotte. He has authored more than 50 publications and given more than 25 invited addresses/colloquiums addressing issues such as organizational research methods, team effectiveness, health and employee well-being, meetings at work, and organizational development. Besides serving as editor-in-chief on this two-volume series, he edited the *Handbook of Research Methods in Industrial and Organizational Psychology* (2002, 2004). Recent honors include being named Chair of Education and Training for the Society of Industrial and Organizational Psychology (SIOP), serving as Chair of SIOP's Katrina Relief and Assistance effort, serving as Guest Editor for Organizational Research Methods, being named SIOP Program Chair, receiving the 2001 Bowling Green State University (BGSU) Psi Chi Professor of the Year Award, serving as the 2000 BGSU graduation commencement speaker, receiving the BGSU Master Teacher Award, and being named a BGSU Alumni Research Fellow.

Dr. Rogelberg has received more than \$300,000 of external grant funding. He has held three international guest professor appointments, at the University of Sheffield, England; the University of Tel Aviv, Israel; and the University of Mannheim, Germany. Dr. Rogelberg currently provides ad hoc reviews for a number of journals, as well as the National Science Foundation, and serves or has served on the editorial board for *Journal of Management*; *Group Dynamics: Theory, Research, and Practice*; the *SIOP Professional Practice Book Series*; and *The Industrial Psychologist*. His research has been profiled on public television, on public radio (NPR, CBC), and in newspapers (e.g., *Chicago Tribune*, *Los Angeles Times*, *Wall Street Journal*, *London Guardian*). Companies for whom he has provided consulting services include IBM, Grace Cocoa, National Society for Black Engineers, Procter & Gamble, Brush Wellman, Marathon Ashland Petroleum, Center for Self-Directed Work Teams, Toledo Area Regional Transit Authority, Mid-American Information Services, and Marshall-Qualtec. Before completing his PhD in Industrial/Organizational Psychology at the University of Connecticut in 1994, he received his undergraduate BSc degree from Tufts University in 1989.

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Personnel Management Decisions

Introduction

THE FIELD

Psychology is the scientific study of the human mind and behavior. Industrial/organizational (I/O) psychologists focus the lens of psychological science on a key aspect of human life, namely, their work lives. In general, the goals of I/O psychology are to better understand and optimize the effectiveness, health, and well-being of both individuals and organizations.

The specific topics of study in I/O psychology include but are not limited to the following:

- *Team and organizational effectiveness*—organization culture and climate, group dynamics, cross-cultural issues, customer service, labor relations
- *Employee recruitment, selection, and promotion*—recruitment practices, selection strategies and systems, assessment centers, selection process fairness, hiring, consultation and expert testimony on Equal Employment Opportunity and Affirmative Action (EEO/AA)
- *Individual differences, measurement and testing*—human cognitive abilities, physical abilities, personality dispositions, vocational interests, test theory and scale construction, validity and validation strategies
- *Training and development*—executive coaching, management development, training
- *Performance management*—design of job performance measurement systems for feedback and performance improvement, performance appraisal and management
- *Workplace health*—ergonomics, human factors, and safety; overcoming stress; Occupational Safety and Health Administration (OSHA)
- *Employee attitudes and satisfaction*—empowerment, retention, job satisfaction, conflict and stress management, aging and retirement, turnover, organizational commitment

- *Compensation and benefits*—pay, perks, rewards, recognition
- *Communication effectiveness*—organizational communication design, processes, and effectiveness; technology-facilitated communications
- *Employee motivation*—factors that motivate employees, job design and evaluation
- *Change management*—mergers and acquisitions, process reengineering, productivity and quality improvement, downsizing
- *Employee citizenship and deviance*—harassment, bullying, prosocial behavior, violence

Given that I/O psychology is both a science and a practice, enhanced understanding of the foregoing topics leads to applications and interventions that benefit individuals, organizations, and the communities in which people live and work.

The field is experiencing tremendous growth. Take, for example, the following data. Over the 18-year span from 1986 to 2004, there has been a nearly 50% increase in I/O doctoral programs and a greater than 200% increase in I/O master's programs. Membership in the Society for Industrial and Organizational Psychology (SIOP), the principal professional organization of I/O psychologists, has increased more than 65% since 1991. Attendance at the annual SIOP conference has increased 400% in the last 20 years and is now approaching 4,000 attendees. Arguably, I/O is the fastest growing area of psychology.

This growth has been spurred in part by the steadily increasing demand for the services of I/O psychologists. Employment surveys have been taken for many years by SIOP. For the last 25 years, these surveys have consistently indicated near zero unemployment for the society's membership, a clear

indicator of the need for I/O psychologists. The American Psychological Association's *Report of the Employment Status of 1997 Graduates* and the follow-up *Report of the Employment Status of 2001 Graduates* show that I/O psychologists composed the highest proportion of individuals employed full-time (lowest unemployment rates), compared with other fields of specialization (health service provider, social/personality, developmental/educational, physiological/experimental).

RATIONALE FOR ENCYCLOPEDIA

Though the extraordinary growth of I/O psychology over the last two decades signals the vibrancy of this field, it has also created a void in the literature. With the ever-widening range of topics studied, no single extant reference source captures the diversity and sophistication of the field. In addition, with the increasing visibility of I/O psychology, there is a growing need for a resource appropriate for experts but accessible to nonexperts. The *Encyclopedia of Industrial and Organizational Psychology* was designed to fill this void.

The *Encyclopedia* is designed to be an introduction to the topics of I/O psychology for an audience including undergraduate students, beginning graduate students of I/O psychology and related disciplines, lay audiences seeking a nontechnical description of the field and its practices, practitioners wishing to stay abreast of the changes and updates in the field, and even the PhD-level academic seeking a portal into a new specialty area. It should also be noted that although the *Encyclopedia* is designed to be comprehensive in its coverage of topics, it is not meant to provide comprehensive treatments of any given topic.

CONTENT AND ORGANIZATION

There was an explicit effort to cover every topic that is currently studied by I/O psychologists. This is, of course, a lofty and complex goal, in that it is probably impossible ever to have unanimous consensus on what would constitute such a list. Nonetheless, we have tried to be as comprehensive as possible without being overly redundant. To accomplish this, all entries include several associated topics and cross-references. In some cases, a topic that was covered in the context of a larger topic did not receive its own entry; in those cases, the smaller topic is listed with a cross-reference to the entry in which it is discussed.

To help the reader navigate the *Encyclopedia*, a Readers Guide is provided, organizing the content into four parts comprising 14 sections. Additionally, there is a list of the entries are presented in alphabetical order.

As noted earlier, the content of each entry is designed to be a concise summary of the major aspects of the topic. Further, there was an explicit effort to have the entries written in a nontechnical manner so that they would be accessible to the novice. Each entry is designed to provide the reader with a basic description of the topic that will provide a foundation in that area. Following each entry is a Further Reading section that can take the reader to the next level.

HOW THE ENCYCLOPEDIA WAS CREATED

The *Encyclopedia* was developed in six basic steps:

Step 1—Leading I/O psychologists around the world were invited to serve on the senior editorial board. The senior editorial board includes editors of the field's top journals, prolific researchers, and other leaders in the field. The senior editorial board also includes the associate editor, Dr. Charlie L. Reeve, who represents one of the top young talents in the discipline and a future leader.

Step 2—We created a master list of topics for the book. This step involved two primary parts. First, an initial list of topic headwords was assembled by the editor and associate editor. To do this, we did a page-by-page search of eight major I/O psychology textbooks and handbooks. Then, we went through the last three years of the top I/O journals to cull additional topics. This draft list was then reviewed by the entire senior editorial board, which made a series of additions and subtractions. It should be noted that we explicitly made an effort to include topics that are not readily found in published sources to date, but that we felt were just on the cusp of becoming mainstream given their treatment in recent journal articles. Time will tell the extent to which we have accurately forecast the viability of these topics.

Step 3—We identified and invited contributors. The senior editorial board was first asked to nominate individuals to author the list of entries. We also searched PsychINFO to find people publishing on certain topics, and we consulted with our colleagues for additional suggestions.

Just as we wanted the content of the *Encyclopedia* to accurately reflect the content of the field of I/O psychology, we sought to recruit a collection of contributors that would represent our population. As such, we invited authors from all career stages, ranging

from promising young doctoral students to some of the most well-known and talented luminaries in our field. Likewise, we invited a mix of leading academics and practitioners from around the world. In this sense, we believe the list of contributors itself is a valuable resource, a virtual who's who (or in some cases, a "who will be who") of I/O psychologists.

Based on this initial list, we then invited individuals to contribute. We were pleasantly surprised by the phenomenal acceptance rate in the first round of invitations. In relatively few cases did people decline (usually due to time commitments).

Step 4—Contributors were given basic guidelines and instructions regarding the writing of their entries. In particular, we encouraged them to be thorough in describing the entire topic area and to write in nontechnical, accessible language.

Step 5—The editor and associate editor then reviewed all the entries and asked authors for revisions as necessary.

Step 6—We finalized the volumes and compiled the appendixes.

ACKNOWLEDGMENTS

The existence of this *Encyclopedia*, and in particular its high level of quality, is a testament to the efforts of a large number of extraordinary people. First, I would like to thank the senior editorial team, with special recognition to my excellent associate editor Charlie Reeve. I am also indebted to the talented publishing

team at Sage, whose high levels of professionalism and efficiency were much appreciated. Thanks also go to Molly Behringer and Shannon Randall for their administrative help. And, of course, I would like to thank the first-rate scholars and professionals who authored the entries.

I also appreciate the advice, counsel, and friendship of my current and former colleagues in I/O psychology and organizational science at the University of North Carolina Charlotte: Anita Blanchard, Kimberly Buch, David Gilmore, Eric Heggstad, Jo Ann Lee, Charlie Reeve, William Siegfried, Jennifer Welbourne, Chris Henle, Doug Pugh, Beth Rubin, Kelly Zellars, Yang Cao, Teresa Scheid, Wei Zhao, Shawn Long, Clifton Scott, John Kello, Scott Tonidandel, and Ben Pepper.

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On a personal level, I want to thank my wife, Sandy Rogelberg, for her love, her balance, and her unyielding support. I would like to thank my brother, David Rogelberg, for making book publishing a reality for me and being a source of inspiration. I would like to thank my mom, Jane Rogelberg, and dad, Joel Rogelberg, for, well—everything. I also want to thank the best friend a person can have, Peter Kahn.

—Steven G. Rogelberg

A

ABUSIVE SUPERVISION

Abusive supervision refers to sustained displays of nonphysical forms of hostility perpetrated by supervisors against their direct reports. Examples of behavior that fall within the abusive supervision content domain include public derogation, undermining, and explosive outbursts. Key features of the construct are that abusive supervision refers to ongoing manifestations of hostility rather than discrete episodes and that abusers may or may not intend to cause harm. Hence, for example, yelling at subordinates for the purpose of eliciting greater task performance could be considered abusive. It should also be noted that abusive supervision constitutes a subjective assessment, in the sense that behavior that is perceived to be abusive in one context may not be so perceived in another context, and two subordinates could render different interpretations of the same supervisor behavior. Similar concepts that have been the focus of systematic empirical research include bullying, petty tyranny, and downward mobbing.

EPIDEMIOLOGY

According to epidemiological studies, abusive supervision is much more common than physical violence or sexual harassment; one in seven employees reports that his or her current supervisor is abusive, approximately 50% of employees can expect to have an abusive supervisor at some point in their working life, and most abusers target multiple subordinates simultaneously. Half of abusive supervisors are women, most

abusers target same-sex victims, and there are sex differences in terms of the ways in which men and women abuse their subordinates; women bullies engage in more social manipulation (i.e., rumors and insulting comments about one's personal life), and male bullies engage in more covert aggression, acts that on the surface appear rational, such as appraising targets unfairly and preventing them from expressing themselves.

OBSTACLES TO SYSTEMATIC EMPIRICAL INQUIRY

There are challenges associated with studying abusive supervision, not the least of which is the fact that researchers typically rely on subjective reports as to individuals' level of exposure. A problem with this approach to measuring abusive supervision is that some people may underreport their level of exposure because they are reluctant to admit that they have been victimized, whereas others exaggerate their supervisors' hostility. A related obstacle to conducting valid empirical research is that linking abusive supervision and important outcomes requires gathering data from abused subordinates who are willing to identify themselves. Failing that, perceived abuse cannot be linked with data collected from independent sources (e.g., observers, supervisors, archival records). A third challenge is that organizations may be hesitant to allow researchers to administer surveys on the topic. What is clear is that although abusive supervision is a low-base-rate phenomenon that is difficult to study, the research to date consistently suggests that its effects can be severe.

CONSEQUENCES OF ABUSIVE SUPERVISION

Compared with nonabused subordinates, abused subordinates have higher quit rates, and among those who stay in the job, abusive supervision is negatively related to subordinates' job satisfaction, commitment to the organization, and trust in the supervisor, and positively related to psychological distress (i.e., depression, anxiety, and burnout) and conflict between work and family obligations. The cost per serious case of abuse in the workplace has been estimated at between \$17,000 and \$24,000 in terms of absenteeism, turnover, legal costs, and reduced productivity, and the total cost to organizations has been estimated to be more than \$23.8 billion in the United States alone.

Abusive supervision is not strongly related to bottom-line measures of productivity such as sales volume, number of units produced, and work quality. The most likely reason for this is that employees cannot easily modify these kinds of performance contributions, regardless of how they might feel about their boss. For example, assembly-line workers cannot simply stop producing when they do not like something at work, and salespeople on commission cannot stop selling to get back at their boss, at least not without hurting themselves. But research suggests that abused subordinates will retaliate against their supervisor and their organization by withholding citizenship behaviors, contributions such as being helpful and courteous, and showing initiative. Abused subordinates can express their resentment by modifying their citizenship behavior, because these contributions are to a large extent discretionary, meaning that they fall beyond the job requirements. These kinds of contributions are very important because they provide organizations with flexibility and the capacity to cope with uncertainty. Hence, organizations may be at a competitive disadvantage when a substantial percentage of subordinates withhold citizenship because their supervisors are abusive.

Although abused subordinates tend to perform fewer acts of citizenship than do nonabused subordinates, some abused subordinates will nevertheless do so. However, there are differences in the ways abused subordinates respond to their coworkers' citizenship performance. Intuitively, we would expect that employees will have more favorable attitudes toward their job when their coworkers perform more acts of citizenship. This notion is rooted in the assumption that

good citizenship makes the workplace a more attractive and comfortable environment. However, it was found that this was not the case for work groups in which the supervisor was more abusive. In those instances, employees were less satisfied when their coworkers engaged in greater citizenship behavior. Subsequent inquiry explained why this was so. In groups led by abusive supervisors, subordinates performed citizenship behaviors not out of a genuine desire to benefit the organization, but to portray themselves in a favorable light, to make their coworkers look less dedicated by comparison, and to direct their supervisors' hostility at others. Consequently, acts of citizenship may cause fellow coworkers to experience unfavorable attitudes when the supervisor is abusive.

MODERATING FACTORS

Abusive supervision does not affect all employees the same way. In three studies, it was found that the deleterious effects of abusive supervision on employees' attitudes and psychological health were more pronounced when the subordinate has less job mobility (i.e., when the subordinate is trapped in a job because he or she has few attractive alternatives to the current position), when the abuse is selective rather than distributed (i.e., when subordinates are singled out for abuse as opposed to being targeted along with others), and when the target attributes the abusive behavior to stable characteristics of the supervisor (e.g., meanness, incompetence, or indifference) rather than to characteristics of the organization (e.g., time pressures or competitive work climates).

Another study found that subordinates' personalities influenced how they responded to abusive supervision. This study suggested that abused subordinates were more likely to engage in dysfunctional forms of resistance (i.e., nonconformity to downward influence attempts that involves outright refusal and ignoring the supervisor's requests) and that this effect was more pronounced among subordinates who were dispositionally disagreeable (i.e., unconcerned about the quality of their interpersonal relationships with coworkers) and dispositionally low in conscientiousness (unconcerned about fulfilling task-related obligations). This research provides support for the idea that subordinates' personalities influence the extent to which they engage in retaliation behaviors against abusive supervisors; employees retaliate against

abusive supervisors by actively refusing to do what their supervisors want them to do, but only when they are unconcerned about the relational and task-related consequences associated with noncompliance.

ANTECEDENTS OF ABUSIVE SUPERVISION

Comparatively little research has explored the antecedents of abusive supervision. One study revealed no consistent relationships between hostile supervisor behavior and supervisor disposition (e.g., theory X beliefs, low self-esteem, and low tolerance for ambiguity), situational factors (e.g., institutionalized norms, power, and stressors), or their interactions. A more promising line of inquiry has taken a victim-precipitation perspective, the notion that some individuals may become at risk of being victimized by eliciting or provoking the hostility of potential perpetrators and that perpetrator and situational factors contribute more strongly to the occurrence of abusive supervision when a vulnerable target is available. The study in question found that supervisors who experienced procedural injustice (i.e., decision makers using unfair procedures during the process of rendering allocation decisions) were more abusive when they had a high negative-affectivity subordinate, one who was dispositionally inclined to experience high levels of distressing emotions and who was likely to be perceived as weak, vulnerable, and ripe for exploitation. An implication of this finding is that supervisors inclined to hostility choose targets strategically, focusing their abuse on subordinates who appear to be “good” targets. This work also suggests that perpetrators may express their hostility against targets other than the source of their frustration (i.e., subordinates who are not responsible for the injustices supervisors experience).

COPING WITH ABUSIVE SUPERVISION

Is there anything abused subordinates can do to cope with their supervisors’ hostility? Abused subordinates use two general kinds of coping strategies, which may be labeled *avoidant coping* (physical and psychological withdrawal, maintaining physical distance, not coming to work, and reliance on drugs and alcohol) and *active coping* (directly communicating injustices to the supervisor). Research suggests that abused subordinates are more likely to use avoidant coping

than active coping but that the use of active coping is a more effective strategy; in a 6-month longitudinal study, it was found that the relationship between abusive supervision measured at Time 1 and psychological distress (i.e., burnout, anxiety, and depression) measured at Time 2 was stronger when subordinates used avoidant coping and weaker when subordinates used active coping. That is, active coping buffered the stressful effects of abusive supervision and avoidant coping exacerbated those effects.

CONCLUDING COMMENTS

Given the significant costs that abusive supervision can have for organizations and their members, organizations would be well-advised to take it seriously. This involves a two-pronged effort focusing on both (a) prevention and (b) management of abuse when it does occur. Organizations can prevent the occurrence of abusive supervision by fostering a culture of civility that is incompatible with abusive behavior. This can be accomplished by implementing 360-degree feedback programs and training employees and managers to develop the skills needed to provide and to openly receive constructive feedback. Where abuse occurs, organizations can manage its effects by developing disciplinary procedures for those who violate the norms for acceptable interpersonal behavior, encouraging victims and witnesses to come forward, and sending the message that those claims will be taken seriously. The evidence suggesting that direct coping produces more favorable outcomes than avoidant coping means that it may be fruitful to encourage rank-and-file employees to bring abusive behavior to the attention of higher authorities. In addition, managers should be trained to spot some of the markers for abusive behavior, such as withdrawal behaviors, low morale, and distrust.

—Bennett J. Tepper

See also Leadership and Supervision; Workplace Incivility

FURTHER READING

- Aquino, K., Grover, S. L., Bradfield, M., & Allen, D. G. (1999). The effects of negative affectivity, hierarchical status, and self-determination on workplace victimization. *Academy of Management Journal*, 42, 260–272.
- Ashforth, B. (1997). Petty tyranny in organizations: A preliminary examination of antecedents and consequences.

- Canadian Journal of Administrative Sciences*, 14, 126–140.
- Einarsen, S. (2000). Harassment and bullying at work: A review of the Scandinavian approach. *Aggression and Violent Behavior*, 5, 379–401.
- Tepper, B. J. (2000). Consequences of abusive supervision. *Academy of Management Journal*, 43, 178–190.
- Tepper, B. J., Duffy, M. K., Hoobler, J., & Ensley, M. D. (2004). Moderators of the relationships between coworkers' organizational citizenship behavior and fellow employees' attitudes. *Journal of Applied Psychology*, 89, 455–465.
- Tepper, B. J., Duffy, M. K., & Shaw, J. D. (2001). Personality moderators of the relationships between abusive supervision and subordinates' resistance. *Journal of Applied Psychology*, 86, 974–983.
- Zellars, K. L., Tepper, B. J., & Duffy, M. K. (2002). Abusive supervision and subordinates' organizational citizenship behavior. *Journal of Applied Psychology*, 87, 1068–1076.

ACADEMY OF MANAGEMENT

The Academy of Management is the oldest and largest scholarly professional management association in the world. Founded in 1936 by professors Charles L. Jamison and William N. Mitchell, the academy was formed to create and exchange knowledge about the discipline of management. Broadly defined, this diverse field ranges from the study of organizational processes, structures, and behaviors to the examination of environmental, cultural, industrial, and economic factors that affect organizations and their employees.

Located at Pace University and the Lubin School of Business in New York, the Academy of Management is a member-driven association led by a 16-member board of governors, elected by voting members of the academy. Committees and task forces are appointed by the president of the academy to carry out services and conduct projects for the association.

The Academy of Management has 24 professional divisions and interest groups, and members belong to a minimum of 2 of these groups. The divisions with the most (i.e., more than 2,500) active members include Organizational Behavior; Business Policy and Strategy; Organization and Management Theory; Human Resources; Organizational Development and Change; and International Management. Liaisons

communicate between the board and the academy's committees, task forces, divisions, and interest groups.

MEMBERSHIP

The Academy of Management comprises more than 15,700 members from 90 countries. Its membership includes researchers from colleges, universities, and research organizations, as well as practitioners who work in businesses, government agencies, and not-for-profit organizations. Although there are no requirements to become a member, those interested in joining the academy must apply to one of four membership categories: (a) academic (e.g., researcher, teacher); (b) executive (e.g., management, consultant); (c) student; and (d) emeritus (i.e., member for at least 10 years prior to retirement). A majority of the membership is in the academic category.

MISSION

The mission of the Academy of Management is to enhance the profession of management by advancing the scholarship and enriching the professional development of its members. The academy is also dedicated to shaping management research and education. Several core values guide the achievement of this mission: (a) to conduct and share high-quality research, teaching, and practical applications of management; (b) to promote and encourage ethical conduct in activities pertaining to management research, teaching, and practice; (c) to foster an environment that respects diverse points of view; (d) to encourage members to share their knowledge of management and new developments in the field with members located in different institutions and countries; and (e) to build opportunities for professional collaboration and networking to advance the field.

FUNCTIONS

The Academy of Management sponsors a number of activities in pursuit of its mission. Each year, the academy holds an annual meeting, which is attended by more than 6,000 people. This meeting provides a setting in which to share research and expertise in all disciplines of management via invited papers, competitive paper sessions, panel discussions, symposia, workshops, eminent speakers, and special sessions for doctoral students.

In addition, the Academy of Management publishes a variety of management-related periodicals. Among these publications are four scholarly journals: (a) *Academy of Management Learning and Education*, (b) *Academy of Management Journal*, (c) *Academy of Management Review*, and (d) *Academy of Management Executive*. The Academy of Management also publishes a newsletter and a best papers proceedings CD from its annual meeting. Each division within the academy disseminates newsletters for its members, as well.

In terms of electronic communications, the Academy of Management hosts a wide variety of listservs, in which interested parties can post or view messages about the full spectrum of management topics. Several online discussion boards are also hosted by the academy.

Another program offered by the academy is a career development and job placement service. Job interviews and career growth workshops are conducted at the conference, and a searchable database system is offered for organizations to post positions and view applicant credentials, and for potential applicants to search for available positions. Professional development opportunities are also available through forums on special topics considered timely and important to members of the academy. Further, in recognition of contributions to the field, the Academy of Management sponsors a number of professional awards for notable achievement.

—Jennifer L. Burnfield

See also American Psychological Association, Association for Psychological Science; Society for Industrial and Organizational Psychology

FURTHER READING

Academy of Management Web site. Retrieved February 28, 2006, from <http://www.aomonline.org/>

ACTION THEORY

Action theory represents a general model of work-related cognition and behavior with implications for a wide range of topics in industrial/organizational psychology. Inspired by Lewin's field theory, American cybernetic models, and Russian and Polish

approaches, German work psychologists initiated the development of action theory in the late 1960s. As the core concept of the theory, action is conceived of as goal-directed behavior. Actions are behavioral units oriented toward their own distinct goals, whereas operations (e.g., movement patterns) are subordinate action components. As anticipatory cognitive structures, goals guide the action process, because they function as relatively invariant set points for the interpretation of feedback. Action theory explains both the sequential ordering and the hierarchical structuring of action.

THE ACTION SEQUENCE

Action theory differentiates five phases of the action sequence: (a) goal development and choosing between competing goals; (b) orientation (i.e., collecting relevant information about the task and the conditions in one's work environment) and prognosis of future events; (c) plan development and selection; (d) execution of the plan and monitoring; and (e) the processing of feedback, which in turn influences the development of subsequent goals. These action steps are not always taken in the same order (e.g., initial plans may be refined during action execution). The action sequence allows for an analysis of the interface between the objective work environment and subjective task representations, because employees' specific redefinitions of tasks presented by the organization (e.g., to operate a machine) determine their individual goals and plans (e.g., whether and how to take action when the machine breaks down).

FOUR LEVELS OF ACTION REGULATION

From a structural point of view, actions are organized hierarchically, because higher-order goals are broken down into subgoals, and higher levels of conscious intellectual regulation are superordinate to lower levels of automatic operations. Recent versions of action theory distinguish four levels of action regulation, ordered from lowest to highest:

1. *Sensorimotor level*. Stereotyped and automatic movement sequences are organized without conscious attention.
2. *Level of flexible action patterns*. Ready-made action schemata that do not require conscious representation are tailored to situationally defined parameters.

3. *Intellectual level.* New actions in a complex environment are consciously regulated.
4. *Heuristic level.* Metacognitive strategies such as general problem-solving approaches are pursued either consciously or automatically.

THE OPERATIVE IMAGE SYSTEM

One's accumulated knowledge of the relationships between specific conditions, actions, and results is stored in the so-called operative image system. This system reflects the cognitive base for action regulation and entails long-term representations of schemata or strategies applicable to action regulation at all four levels (e.g., movement-oriented schemata to be regulated at the sensorimotor level, and strategies to be implemented at the intellectual level). Originally, cyclical test–operate–test–exit (TOTE) units, which imply that action is taken until there is congruity between the current state and a criterion, were considered the basic units of action regulation. To reconcile this classic discrepancy reduction approach with the notion of discrepancy creation, action theorists have emphasized the role of goals as desired end states and the impact of active approaches on the environment.

APPLICATIONS OF ACTION THEORY

Action theory has implications for several domains, including stress, training, job analysis, work design, error management, emotion regulation, competence development, and personality enhancement. Action theorists emphasize socialization processes by considering malleable facets of personality, motivation, and cognitive ability as dependent variables that may be affected by work action. For example, work environments encouraging forward thinking induce action styles such as planfulness (i.e., the detailed development and persistent implementation of long-range plans). New ideas on error management and the function of errors in the learning and training process were also derived from action theory. Research examining why so-called superworkers produce superior results without spending more time at work revealed that they engage more frequently in planning and have better operative image systems, reflected in greater knowledge of error frequencies, the signals indicating errors, and the duration and efficiency of different strategies of dealing with errors.

Conceptualizing stress as a disturbance of action regulation, action theory offers a theoretically grounded stressor taxonomy, composed of three categories: (a) regulation obstacles (i.e., interruptions and regulation difficulties such as poor visibility or lack of information); (b) regulation uncertainties (e.g., role ambiguity); and (c) overtaxing regulations (e.g., time pressure). Multiple job analysis tools have been developed based on action theory. These tools typically provide a structured assessment of regulatory requirements and difficulties (e.g., the degree to which the work requires a conscious development and coordination of new plans). The function of emotions for action regulation, particularly in service work, has also been analyzed within an action theory context. Emotions enable people to continue with the action process despite barriers and difficulties. Examples are the motivation derived from pride in anticipation of goal attainment and the role of negative affect in facilitating an objective assessment of environmental barriers.

THE VALUE OF ACTION THEORY

As an integrative metatheory, action theory illuminates the implications of specific cognitive and social psychological theories for industrial/organizational issues. For example, studies based on the theories of action-state orientation and self-discrimination revealed that distractible state-oriented individuals are less likely to efficiently translate intentions into action and more likely to falsely redefine external demands as their own goals. Action theory also helps explain the impact of societal transformations on work activities. Longitudinal research based on action theory demonstrated that increases in the levels of complexity and control experienced by East German employees after the country's reunification enhanced their personal initiative (i.e., organizationally functional forms of self-started, proactive, and persistent behavior).

In conclusion, action theory distinguishes itself from most micro industrial/organizational models because of its scope, its versatility, its theoretical foundation in cognitive science, its applicability to various facets of everyday work behavior, and its simultaneous consideration of objective environments, internal mental operations, and observable behavioral outcomes. By bridging the gaps between the environment and cognition (e.g., via task redefinitions in the action sequence) and between cognition and action (e.g., via plans as starting points for

action), action theory integrates cognitivist and behavioral approaches. Action theory has been described as a way of thinking that leads to a sharper understanding of how our cognitive apparatus is used and shaped in the workplace and in relation to the world we inhabit.

—Michael Frese and Johannes Rank

See also Goal-Setting Theory; History of Industrial-Organizational Psychology in Europe and the United Kingdom; Job Performance Models; Performance Feedback

FURTHER READING

- Frese, M., & Sabini, J. (1985). *Goal-directed behavior: The concept of action in psychology*. Hillsdale, NJ: Lawrence Erlbaum.
- Frese, M., & Zapf, D. (1994). Action as the core of work psychology: A German approach. In M. D. Dunnette, J. M. Hough, & H. C. Triandis (Eds.), *Handbook of industrial and organizational psychology* (Vol. 4, pp. 271–340). Palo Alto, CA: Consulting Psychologists Press.
- Gollwitzer, P. M. (1999). Implementation intentions—Strong effects of simple plans. *American Psychologist*, 54, 493–503.
- Hacker, W. (2003). Action regulation theory: A practical tool for the design of modern work. *European Journal of Work and Organizational Psychology*, 12, 105–130.
- Zapf, D. (2002). Emotion work and psychological strain: A review of the literature and some conceptual considerations. *Human Resource Management Review*, 12, 237–268.

ADVERSE IMPACT/DISPARATE TREATMENT/DISCRIMINATION AT WORK

The phrase *to discriminate* has two interpretations: (a) to display prejudice toward members of a group through unjustified negative actions, and (b) to meaningfully differentiate between people on the basis of their characteristics. Discrimination of the second form involves the ability to ascertain the presence and degree of characteristics that distinguish one person from another. For example, a classical music critic should *discriminate* among pianists on the basis of technique and interpretation. This interpretation holds that it is meaningful to differentiate an exceptional

performer from an average performer on the basis of relevant factors. In contrast, discrimination of the first form invokes notions of preference and social injustice. Meaningful differentiation is decidedly absent as people are distinguished based on demographic, nonrelevant factors. Because individuals differ on the basis of many characteristics, organizations must regularly discriminate between individuals when hiring, allocating resources, and rewarding to effectively manage a workforce. When organizations differentiate individuals based on job-relevant or organization-relevant factors, this discrimination is meaningful and warranted. When organizations instead differentiate individuals on the basis of stereotypes and allow that differentiation to influence decision making, the organization has engaged in workplace discrimination.

PERCEPTUAL FORCES BEHIND DISCRIMINATION

The approximately 80,000 complaints filed annually with the Equal Employment Opportunity Commission (EEOC) indicate that employment discrimination is common. Sex and racial biases influence performance appraisals and promotion decisions. Black and Hispanic applicants tend to receive less favorable evaluations during interviews. Interpersonal discrimination—avoiding, distancing, and excluding members of a group—regularly limits minority group members' access to developmental mentors and networks and interferes with workplace productivity. Further, reports continue to document the presence of a “glass ceiling” that blocks women and racial minorities from gaining leadership positions in organizations.

The perceptual processes theorized to produce discriminatory behavior explain part of why discrimination at work persists. For individuals, discrimination originates with the need to sort people into personally meaningful categories as a means of efficiently processing the myriad perceptual stimuli encountered each day. This social categorization is often based on whether a person is perceived by the individual to be similar or different, and it is facilitated by stereotypic beliefs that a person categorized within a specific group possesses certain traits purely because he or she is a member of that group. For example, a female candidate for a management-level position may be passed over for promotion if the stereotype held by evaluators leads them to assume that she will become emotional when under stress. As illustrated, the categorization

process influences how individuals evaluate and feel about other people. Persons categorized as members of one's own group invoke more favorable reactions, whereas persons categorized as members of another group invoke less favorable responses.

However, the tendency to categorize others does not necessarily translate into discriminatory actions. Various individual and contextual variables, such as the social composition of the workplace, the salience of group membership, and the presence of organizational and local norms, will either facilitate or impede the emergence of discriminatory behavior.

EMPLOYMENT DISCRIMINATION LAW

The legal environment also plays an important role in managing the occurrence of discriminatory behaviors. Federal, state, and municipal statutes, as well as various constitutional amendments and executive orders, afford individuals rights and protection in the event that they are discriminated against in an employment setting or are involved in any way in an employment discrimination suit. The three primary pieces of federal legislation responsible for regulating discrimination at work are the Civil Rights Act, the Americans With Disabilities Act, and the Age Discrimination in Employment Act.

The Civil Rights Act

The Civil Rights Act (Title VII, 1964, and as amended in 1978 and 1991) prohibits organizations with 15 or more employees from discriminating against individuals on the basis of race (e.g., Caucasian, African, and Asian), ethnicity (e.g., Hispanic), color of skin, national origin (e.g., Mexican), sex (and pregnancy or pregnancy-related medical conditions), and religion in all aspects of employment (e.g., hiring, compensation, training, performance management, discharge). The act defined a *protected group* as a class of individuals who are similar on one of these bases. However, protected group membership is context-specific. For example, a male applicant for an accountant position may not be considered a minority group member in that context, but he would likely be considered a protected group member if he applied for a flight attendant position. Thus, the appropriateness of identifying certain individuals as minorities depends on the demographic makeup of the applicant pool, current jobholders, and the relevant labor market.

Title VII explicitly allowed for discriminating between individuals on the basis of a job-related, meaningful reason or in response to a bona fide seniority system. The act also required organizations to provide reasonable accommodation for employees to engage in religious practices, unless doing so would pose an undue hardship. The act created the EEOC, the federal agency charged with enforcing the provisions of employment discrimination legislation. As amended, the act banned the adjustment of assessment scores, whether gathered for purposes of promotion, training, or selection, on the basis of protected class status; lessened the impact of a mixed-motive defense for organizations wherein legitimate reasons in justification of a discriminatory action are rendered in conjunction with unlawful reasons; and limited the ability of individuals to allege reverse discrimination in the context of judicially approved affirmative action plans.

The Americans With Disabilities Act

The Americans With Disabilities Act (Title I, 1990) prohibits organizations with 15 or more employees from discriminating against disabled individuals, individuals who have a record of a disability, and individuals perceived to be disabled in all aspects of employment. Disabled individuals are defined as those persons who suffer from a physical or mental impairment that is not correctable and substantially limits at least one major life activity, such as thinking or standing. For example, a legally blind individual who requires the assistance of a seeing-eye dog would be considered disabled, but a legally blind individual whose vision can be corrected by wearing glasses would not. Essentially, the verification of a disability must go beyond a medical diagnosis to consider how that condition affects an individual's daily life.

Organizations are required to provide reasonable accommodation to disabled individuals who are otherwise qualified to perform the essential (i.e., most integral or critical) functions of the job. This may mean, for example, adjusting break times so that a diabetic may stop work to conduct necessary insulin tests. An accommodation that would involve excessive expense relative to an organization's resources, dramatically alter the job or business in question, violate current organization systems or policies (e.g., seniority systems), or represent a direct threat to the health and safety of other workers may be viewed as an undue hardship for the organization and hence deemed

unreasonable. Thus, the reasonableness of a given accommodation is individual-, organization-, job-, and context-specific. Although the disabled individual is initially responsible for requesting accommodation, the organization and the individual are encouraged to work together to identify possible accommodations.

The Age Discrimination in Employment Act

The Age Discrimination in Employment Act (1967) prohibits organizations with 20 or more employees from discriminating against individuals age 40 and older in all aspects of employment. Similar to Title VII, the act explicitly allowed for discriminating between individuals in the presence of a rational, job-related reason. In addition, the act identified a series of policy exemptions wherein an age requirement would be viewed as lawful. These include (a) organization policies that identify a mandatory retirement age of 65 for bona fide executives, (b) state or local statutes that establish a mandatory retirement age for police officers and firefighters, and (c) various age restrictions in the commercial airline industry. The act also prohibits age-based discrimination even when the individuals involved are both within the age-based protected class; for example, an individual who is 60 can allege discrimination in favor of an individual who is 45.

TYPES OF EMPLOYMENT DISCRIMINATION

When these laws are violated, an individual may seek legal redress by filing a claim of discrimination with the EEOC. Assuming the claim has merit, the EEOC will pursue conciliation with the offending organization to settle the dispute. If attempts at conciliation fail, the suit will proceed to the court system. The overwhelming majority of complaints are resolved before reaching federal court. Complaints that do reach a courtroom proceed through a series of phases in which the burden of proof is shifted back and forth between the plaintiff (the individual allegedly discriminated against) and the organization. The process through which that burden is met depends on the type of discrimination alleged.

Disparate Treatment

Disparate treatment occurs when an individual suffers intentional discrimination on the basis of his or

her membership in a protected group. For example, after September 11, 2001, the EEOC experienced an increase in the number of complaints filed by Arab Americans and Muslims who experienced harassment or discharge allegedly on the basis of their national origin or religion. Proving that the organization had intent or motive to discriminate is a central aspect of a disparate treatment lawsuit. Because intent can rarely be known, disparate treatment must often be inferred on the basis of circumstantial evidence. To establish a prima facie case of discrimination, the plaintiff must prove that he or she was differentially treated because of membership in a protected group. This may be accomplished by demonstrating that members of a specific protected group consistently received disproportionately unfavorable actions.

Under a pattern-and-practice claim, this may be accomplished by demonstrating that members of a specific protected group consistently received disproportionately unfavorable actions. Under the McDonnell Douglas/Burdine framework, this may be accomplished by showing that the plaintiff was adversely treated relative to an individual of a different group who was otherwise similarly situated in terms of qualifications and job-related circumstances.

In response, the organization must provide a legitimate, nondiscriminatory reason for its actions. The organization may argue that the plaintiff did not have the necessary job-related qualifications or display the expected level of performance. In a case of disability discrimination, the organization may argue that the requested accommodation was unreasonable. Or the organization may defend the action by stating that the decision was based on a bona fide occupational qualification (BFOQ). Through BFOQs, organizations may overtly exclude individuals on the basis of sex, age, religion, or national origin when such exclusion is required for business survival and/or public and personal safety. A BFOQ assumes that most individuals within a given protected group will be unable to execute a central job requirement and that failure to do so will risk the health of the organization and the broader public. For example, air traffic controllers may not be older than age 49. In the event that the organization successfully puts forth an acceptable justification, the plaintiff may establish that the proffered reason is merely a pretext and that discrimination was the true reason behind the action.

Adverse (Disparate) Impact

Adverse (disparate) impact is discrimination that occurs when members of a protected group are systematically excluded based on an employment policy or practice that is neutral on its face. Disparate impact lawsuits do not require proof of intent. Instead, to establish a prima facie case, the plaintiff must provide statistical evidence that a particular minority group is being adversely affected by a specific employment practice. This evidence may come in three different forms:

1. Documenting that pass rates for a decision-making hurdle do not fulfill the *four-fifths rule*. This EEOC rule of thumb states that if the pass rate of a minority group for a particular hurdle is less than 80% of the pass rate for the group with the highest pass rate, the comparative rates are different enough to warrant a conclusion of adverse impact. For example, in *Griggs v. Duke Power Co.* (1971), the plaintiff provided evidence that the organization requirement to complete a cognitive ability test as part of the selection process had a pass rate for White applicants of 58% (the highest pass rate) relative to a pass rate for Black applicants of 6%. The pass rate of the minority group was 10% of the majority group rate, and thus far below the 80% criterion.

2. Providing evidence of a *restricted policy* whereby individuals are excluded on the basis of a required characteristic that is associated with membership in a protected group. For example, instituting a minimum weight requirement of 130 pounds for a given position will disproportionately exclude females, in that females as a population weigh proportionately less than males.

3. Conducting a *workforce utilization analysis* comparing the percentage of minority group members within an organization and within a job to the percentage of minority group members in the relevant labor force for this organization and this job. If protected group members are being consistently screened out, they should be underrepresented in the organization relative to their availability in the labor market.

In response to statistical evidence documenting a disparity, the organization must prove that the employment practice is consistent with business necessity and/or is necessary for the safe operation of

the business. In most cases, this amounts to demonstrating that inferences drawn based on the employment practice are valid in that the practice allows the organization to meaningfully differentiate among individuals on the basis of job-relevant knowledge, skills, or abilities. Should the organization be successful in offering evidence of business necessity, the plaintiff may argue for the substitution of an employment practice that is equally relevant to the job but less discriminatory.

—Jill E. Ellingson

See also Americans With Disabilities Act; Bona Fide Occupational Qualifications; Civil Rights Act of 1964, Civil Rights Act of 1991

FURTHER READING

- Covington, R. N., & Decker, K. H. (2002). *Employment law in a nutshell* (2nd ed.). St. Paul, MN: West-Thomson.
- Dipboye, R. L., & Colella, A. (2005). *Discrimination at work: The psychological and organizational bases*. Mahwah, NJ: Lawrence Erlbaum.
- Landy, F. J. (2005). *Employment discrimination litigation: Behavioral, quantitative, and legal perspectives*. San Francisco: Jossey-Bass.
- Player, M. A. (2004). *Federal law of employment discrimination in a nutshell* (5th ed.). St. Paul, MN: West-Thomson.

AFFECTIVE EVENTS THEORY

Affective events theory (AET) is a theory of *affect* (the broader term for emotional experiences, including emotion and mood) in the workplace. In addition to focusing on affect, it encompasses cognitions, behavior, attitudes, and other crucial psychological constructs to explain job behavior and performance. The theory primarily builds on the already established cognitive appraisal models and has gathered support from many areas of study in the field of emotions to create a more encompassing theory of work behavior.

Affective events theory proposes that there are two paths to job behaviors, both of which are at least partially influenced by affective reactions to events at work. However, cognitive processes play an essential role in the creation of these reactions. The theory builds on past theoretical successes while also adding

a few new elements (in particular, the notion of time is essential to the model, as well as a more detailed explanation of emotion in the workplace) in explaining job behavior.

ASSUMPTIONS OF AET

Affective events theory makes several assumptions about the workplace and the constructs that describe people's reactions to events that happen there. The first is that job satisfaction is different from affect. Nevertheless, AET also assumes that affect contributes to job satisfaction and can be used to help predict job performance. Related to that, AET assumes that affect influences performance, typically in a detrimental way because emotion is assumed to draw resources from other areas, such as cognitive processing, motivation, and attention, among others.

Another major assumption in the AET framework is that events happen over time, which changes affect continuously. Those events influence a person's immediate affective state but also vary over time as new events arise. Some events are likely to create positive reactions, others negative, and the degree of intensity will also vary from event to event. Because affect is continuously changing within an individual, its influence on behavior is also continuously changing.

THE STRUCTURE OF AET

Affective events theory proposes the following model for predicting workplace behavior. Work environment features (such as office features) precede work events (such as a meeting), and those work events cause affective reactions. Dispositions influence the causal transition from work events to affective reactions, as well as the affective reactions themselves. Those affective reactions then influence affect-driven behaviors, as well as work attitudes. Work attitudes are also influenced by the work environment. Work attitudes in turn influence judgment-driven behaviors.

From that model, one can see that AET proposes two different paths to behavior, both of which are preceded by affective reactions. Affect-driven behaviors stem directly from affective reactions to events in the workplace. Judgment-driven behaviors, on the other hand, are arrived at by a longer route, going from affective reactions to work attitudes (which are also influenced by work environment features) and then to

behavior. However, the starting point for AET is the event. Within AET, an *event* is defined as a change in the environmental circumstances that one is currently experiencing. That change then elicits affect, which then can influence behavior directly (affect-driven behavior) or go through job attitudes to influence behavior indirectly (judgment-driven behavior).

Affect-driven behavior is an almost instantaneous reaction to an event. In many cases, affect-driven responses happen almost immediately after an event occurs. An example might be when, after being yelled at by the boss, an employee quits his or her job without any thought in the heat of the moment. Judgment-driven behaviors, on the other hand, go through a cognitive evaluation via job attitudes. This is a longer process and is usually more deliberate. Referring back to the example, if the employee did not quit immediately but went back to his or her desk and thought briefly about the other components of the job, such as his or her coworkers and the job tasks, and then factored those considerations into his or her decision and reinterpreted the situation, the result would be a judgment-driven behavior. This process might or might not lead the person to quit. The resulting behaviors of affect-driven and judgment-driven processes may not be different, but the decision process is. As the terms themselves imply, affect-driven behavior is primarily influenced by immediate emotional reactions to an event and is typically regarded as a single-step process, whereas judgment-driven behavior is influenced by both emotion and cognition and is regarded as a two-step process that involves a reinterpretation of the original event and the emotion associated with it.

APPRAISAL OF EVENTS LEADING TO BEHAVIORS

Cognitive appraisal theories argue that people strive to make meaning of work events. The meaning of the events then sets the stage for emotional reactions to the event. There are many theories on how people appraise meaning, but the general idea is that every situation has a meaning underlying the event and those meanings are arrived at by a person's interpretations of the situation. Different appraisals of situations lead to different emotions and then behaviors among individuals. Individuals emphasize different appraisal processes when assigning meaning to an event, and that is why individuals can have different emotional reactions to the same situation.

The process of appraising is often regarded as a two-step model. The first step, usually termed *primary appraisal*, includes several mechanisms, but the basic idea is how much an event is congruent or incongruent with one's goals, attitudes, values, and so forth. If an event is seen as congruent, it is assigned a positive value, and if incongruent, the event is viewed negatively. The primary appraisal mechanisms are concerned with whether a stimulus has to do with a person's well-being, which leads to a basic assignment of "good" and "bad" labels. In many instances, the primary appraisals assign enough meaning to the phenomenon to elicit an affective response. Examples of these affective responses can be positive emotions, such as love and relief, but also include negative emotions, such as fright and anxiety. A fuller example with workplace behavior consequences might be one's computer freezing up, which might lead one to hit it out of frustration via primary appraisal, as only a "bad" label has been placed on the event and the reaction is immediate without cognitive factors contributing to the behavior.

Secondary appraisals consist of more cognitively driven processes, such as future expectations or memory, in addition to the primary appraisal. Many emotions occur only when secondary appraisals take place in conjunction with the primary appraisal. An example of a negative emotion that requires both stages is anger. A positive emotion that requires the secondary stage of appraisal is happiness. In both cases (anger and happiness), the emotion is targeted at a specific situation and not a general affective response, as is the case with primary appraisals. In other words, secondary appraisals lead to the assignment of more complex meaning to the event; no longer is the situation just "good" or "bad." Once that greater meaning is assigned to an event, a discrete emotion then emerges that influences one's behavior in conjunction with current job attitudes. So in the example of a computer freezing up, instead of hitting it immediately in a pure affective reaction, the person would pause for a brief moment and the event would be evaluated in two stages, first if the event is good or bad via primary appraisal, and then adding other information to deal with the situation via secondary appraisal. Affective events theory proposes that if job attitudes are positive, one might not hit the computer and would instead take the time to call a technician for help. If attitudes are negative, one might still just hit the computer.

The secondary appraisal process that leads to judgment-driven behavior is more deliberative and requires individuals to take more time (although it could be only a few seconds) to assign the value as compared with primary appraisals and affect-driven behavior. Primary appraisals that lead to affect-driven behaviors are not completely cognition-free, although they are more automatic reactions. However, if the strength of the initial appraisal and the ensuing emotional reaction is robust enough, the primary appraisal and the affect-driven response can last for some time.

For every event, the possible responses of an individual to a given stimuli may initially seem endless, but once a person appraises the situation, the behavior choices become narrowed down based on the person's affective reactions. To date, there is little research on what types of behavior result from the different paths. However, by definition, affect-driven behaviors should be more impulsive and less controlled than judgment-driven behaviors, which consider more factors before a behavior is pursued. Therefore, affect-driven behaviors should disrupt job performance because of their potentially more abrasive social nature, as well as their ability to draw cognitive resources. Judgment-driven behaviors also should reduce job performance, because they reduce time spent on job tasks as well as draw mental resources away from those tasks.

SUMMARY

Affective events theory is a theory of how events in the workplace (in particular, those events that change a person's affect) influence behaviors at work over time. Affect then influences behavior in two possible ways, the first being a direct cause of affect-driven behavior, which is an almost automatic emotional response to an event. The second way behavior is influenced by affect is through its influences on cognitions and attitudes (in addition to the initial affective response), which in turn cause judgment-driven behavior; this is regarded as a more deliberate response to an event or series of events.

—Brian Francis Redmond

See also Affective Traits; Emotions; Job Satisfaction; Judgment and Decision-Making Process; Mood

FURTHER READING

- Fisher, C. D. (2002). Antecedents and consequences of real-time affective reactions at work. *Motivation and Emotion, 26*, 3–30.
- Grandey, A. A., Tam, A. P., & Brauburger, A. L. (2002). Affective states and traits in the workplace: Diary and survey data from young workers. *Motivation and Emotion, 26*, 31–55.
- Lazarus, R. S. (1991). *Emotion and adaptation*. New York: Oxford University Press.
- Lazarus, R. S., & Cohen-Charash, Y. (2001). Discrete emotions in organizational life. In R. Payne & C. Cooper (Eds.), *Emotions at work* (pp. 45–81). New York: Wiley.
- Paterson, J. M., & Cary, J. (2002). Organizational justice, change anxiety, and acceptance of downsizing: Preliminary tests of an AET-based model. *Motivation and Emotion, 26*, 83–103.
- Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experiences at work. *Research in Organizational Behavior, 18*, 1–74.
- Weiss, H. M., Suckow, K., & Cropanzano, R. (1999). Effects of justice conditions on discrete emotions. *Journal of Applied Psychology, 84*, 786–794.

AFFECTIVE TRAITS

THE CONCEPT OF AFFECTIVE TRAITS

Trait affect is defined as a tendency to respond to specific classes of stimuli in a predetermined, affect-based manner. Therefore, an affective trait is considered a relatively stable characteristic of personality. There are two general bipolar dimensions of affective responding: trait positive affect (TPA) and trait negative affect (TNA). High TPA is characterized by the tendency to experience positively activated emotions in general, such as excitement, high energy, joy, enthusiasm, and exhilaration. Persons with low TPA have a general tendency to be lethargic, apathetic, and listless, but they do not necessarily experience negative affect. High TNA is defined as the tendency to experience feelings of anger, guilt, fear, annoyance, and nervousness. Low TNA is the other pole of the TNA dimension, characterized by being placid, calm, and contented. The two dimensions, TPA and TNA, are conceptualized as orthogonal or at least separable dimensions, and they show zero to moderate negative correlations with each other. This implies that it is

possible to be simultaneously high or low in both TPA and TNA, high in TPA and low in TNA, and vice versa. Combinations between the extremes are possible, too. The term *affective traits* refers to a person's average level or typical amount of a given emotion, whereas *affective states* are more temporal, situation-bound experiences of moods and emotions.

Both TPA and TNA can be interpreted as the diagonal coordinates in a circumplex model of affect that is built on the orthogonal dimensions of activation and pleasantness. High TPA in this model is a combination of high activation and high pleasantness, and high TNA is a combination of high activation and high unpleasantness.

Whereas TPA has been shown to be robustly related with extraversion, TNA has been similarly linked with neuroticism, two personality factors from the five-factor model of personality (Big Five), although the fit is not perfect. As an explanation, Timothy A. Judge and Randy J. Larsen have developed a model for integrating affect with personality, referring to these relationships. They present evidence that certain personality traits dispose people to be more or less reactive to hedonic stimuli, and they demonstrate that other personality traits indirectly dispose people to modulate their emotional reactions. Extraversion and neuroticism are considered to represent differential sensitivity to typical TPA and TNA stimuli. High-neuroticism individuals are mainly motivated to avoid punishment (negative stimuli), whereas high-extraversion individuals are mainly motivated to gain rewards (positive stimuli).

Affective traits are genuinely individual-level concepts. In a group work context, individual affective traits may combine into a group-level affective tone that in turn is related to experiences and behaviors in the work group.

MEASUREMENT OF AFFECTIVE TRAITS

Several instruments are available for measuring affective traits. The instrument that is most often used is the Positive and Negative Affect Schedule (PANAS), developed by David Watson and his coworkers. It comprises two 10-item scales, one for assessing positive and one for assessing negative affect. The items refer to the high-activation aspect of negative and positive affectivity, respectively. Because the PANAS scales lack low-activation markers of negative and positive

affect, they sample only a limited part of the affect circumplex. The PANAS shows good reliability and high discriminant validity with low intercorrelations between the positive and negative affectivity scales.

In addition to direct measures of affective traits such as the PANAS, researchers use personality measures, particularly neuroticism and extraversion scales, for assessing TNA and TPA, respectively.

AFFECTIVE TRAITS AND JOB SATISFACTION

Affective dispositions influence the extent to which people are satisfied with their jobs. A recent meta-analysis conducted by Carl J. Thoresen and his associates extracted an estimated mean population correlation of $\rho = .33$ between TPA and job satisfaction and of $\rho = -.37$ between TNA and job satisfaction. Those correlations indicate a rather modest but nevertheless substantial relationship between trait affectivity and job satisfaction. There is also evidence from longitudinal studies for a predictive value of TPA and TNA for several aspects of job satisfaction up to 2 years later, as well as correlations of dispositional affect in younger years with job satisfaction in older years.

The underlying processes through which trait affectivity influences job satisfaction are not well understood. Most studies concerned with trait affectivity and job satisfaction are correlation studies and do not allow one to test for causality. Research has concentrated on TNA rather than TPA. Because high-TNA individuals are more sensitive to negative stimuli, they are likely to react more negatively when experiencing negative job events, which consequently lowers job satisfaction. Furthermore, it is possible that high-TNA individuals have a higher threshold for positive stimuli and therefore react with a lower magnitude to positive events. They may experience the effects of positive mood-inducing events to a lower extent or for shorter periods of time than do low-TNA individuals. There is some evidence for the assumption that TPA represents reward-signal sensitivity and TNA represents punishment-signal sensitivity. For example, TPA is related to pay satisfaction (i.e., a salient reward), but TNA is not. Additionally, TNA individuals may dwell on their failures and those of others, thus causing negative interpersonal interactions with their peers and superiors and lower job satisfaction.

AFFECTIVE TRAITS AND JOB PERFORMANCE

Potential relationships between affective traits and job performance have been discussed in the context of the *happy-productive worker hypothesis* and the *power of being positive*. By drawing on expectancy theory, some researches have argued that individuals high on TPA should show higher task performance because of their positive expectations about the relationship between effort and performance and between performance and positive outcomes. In addition, it has been suggested that TPA should lead to higher goals and more persistence in the face of obstacles. Moreover, researchers have proposed that TPA is associated with extra-role and citizenship behaviors, whereas TNA impedes supportive social interactions.

Although there are many studies on the relationship between trait affect and job satisfaction, far fewer empirical studies have examined the relationship between affective traits and job performance. Studies that used rather broad well-being measures as indicators for affective traits found positive relationships between an individual's tendency to experience and show positive affect at work and supervisory rating of job performance, also when using longitudinal designs. Managers experiencing higher levels of well-being and positive affect showed higher decision-making accuracy, higher interpersonal performance, and higher managerial performance. In contrast, most studies that used the PANAS to assess trait affect failed to find significant bivariate relationships between TNA or TPA and task performance. Trait affect has been shown to be empirically related to extra-role performance at the individual level (e.g., coworker support and work facilitation) and to prosocial behavior and cooperativeness at the group level.

It has been suggested that individual core self-evaluations play an important role for organizational behavior. Core self-evaluations comprise self-esteem, generalized self-efficacy, emotional stability (i.e., low neuroticism), and locus of control. Although these core self-evaluations are not affective traits in a narrow sense, findings on the relationship between emotional stability and job performance are relevant here, because the emotional stability construct largely overlaps with TNA. Meta-analytical evidence suggests that emotional stability as an aspect of core self-evaluations shows a weak positive correlation with job performance.

In addition, meta-analyses on the relationship between personality factors and job performance shed some light on the relationship between affective traits and job performance. Neuroticism shows a negative relationship with various facets of job performance, with most true-score correlations not exceeding $\rho = -.20$. Extraversion is positively related to job performance, with most true-score correlations staying in the range between $\rho = .10$ and $\rho = .20$.

AFFECTIVE TRAITS AND THE STRESSOR-STRAIN RELATIONSHIP

Affective traits, particularly TNA, are related to perceptions of job stressors and strains, with individuals high on TNA reporting higher levels of job stressors and strains. These relationships imply that the observed correlation between self-reported job stressors and strains may be partially caused by TNA. Therefore, it has been suggested that researchers should statistically control for TNA when analyzing relationships between self-reported job stressors and strain. However, this view has been challenged in a lively debate in which it has been argued that TNA plays a substantive role in the stressor-strain relationship.

CONCLUSION

There is broad empirical evidence that affective traits are related to job satisfaction. However, the processes underlying this relationship need further research attention. Although well-being measures were found to be related to job performance, the empirical relationships between affective traits and related personality concepts, on the one hand, and task performance, on the other hand, are weak. Affective traits, however, seem to be more relevant for contextual performance. Therefore, one might assume that group or organizational performance benefits more from TPA than does individual job performance.

—Sabine Sonnentag and Jennifer L. Sparr

See also Emotions; Job Satisfaction; Mood; Stress, Coping and Management

FURTHER READING

Brief, A. P., & Weiss, H. M. (2002). Organizational behavior: Affect in the workplace. *Annual Reviews of Psychology*, *53*, 279–307.

- Cropanzano, R., James, K., & Konovsky, M. A. (1993). Dispositional affectivity as a predictor of work attitudes and job performance. *Journal of Organizational Behavior*, *14*, 595–606.
- Cropanzano, R., Weiss, H. M., Hale, J. M. S., & Reb, J. (2003). The structure of affect: Reconsidering the relationship between negative and positive affectivity. *Journal of Management*, *29*, 831–857.
- Judge, T. A., & Larson, R. J. (2001). Dispositional affect and job satisfaction: A review and theoretical extension. *Organizational Behavior and Human Decision Making*, *86*, 67–98.
- Thoresen, C. J., Kaplan, S. A., Barsky, A. P., & de Chermont, K. (2003). The affective underpinnings of job perceptions and attitudes: A meta-analytic review and integration. *Psychological Bulletin*, *129*, 914–945.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*, 1063–1070.

AFFIRMATIVE ACTION

Affirmative action has been one of the most controversial public policies of the past 40 years. A conceptual definition of *affirmative action* is any measure, beyond a simple termination of discriminatory practice, adopted to correct for past or present discrimination or to prevent discrimination from recurring in the future. In practice, organizational affirmative action programs (AAPs) can and do encompass a multitude of actions. These actions are shaped by federal, state, and local laws and regulations. Although some educational institutions apply affirmative action to student admissions and many countries have corresponding laws and regulations, this entry is limited to workplace affirmative action in the United States.

LEGAL ISSUES

Affirmative action law in the United States is jointly determined by the Constitution, legislative acts, executive orders, and court decisions. It is complex, incomplete, and open to revision. The Office of Federal Contract Compliance Programs is responsible for developing and enforcing most AAPs, although the Equal Opportunity Employment Commission (EEOC) enforces AAPs in the federal sector.

A distinction exists between so-called set-aside AAPs and organization-specific AAPs. *Set-aside* AAPs exist when a public organization (e.g., a municipality or federal agency) is required to set a goal for directing a certain percentage of its budget to qualified firms—typically those owned by members of an underrepresented group.

In contrast, *organization-specific* AAPs are created for one of three reasons. First, some organizations are required by a court order or an EEOC consent decree to establish an AAP to compensate for illegal discrimination. These AAPs are relatively rare. Second, many organizations establish AAPs to satisfy regulatory requirements. Specifically, the Rehabilitation Act of 1973 and the Vietnam Era Veterans' Readjustment Assistance Act of 1974 require certain federal contractors to take affirmative action to employ individuals with disabilities and certain veterans, respectively. Most important, Executive Order 11246, signed by President Lyndon Johnson in 1965 and subsequently amended, requires federal contractors to take affirmative action to eliminate discrimination on the basis of race, color, religion, sex, or national origin. Along the same lines, state and local laws and regulations may require organizations to take affirmative action to improve the employment opportunities of various groups. Third, some organizations establish AAPs on a fully voluntary basis.

Precisely which organizations are required to establish AAPs and which actions are required, permitted, or forbidden varies with the legal basis for the AAP. Furthermore, actions of state and federal governments are limited by the U.S. Constitution, whereas actions of firms in the private sector are constrained by state and federal legislation (e.g., the Civil Rights Acts of 1964 and 1991). The following brief and incomplete description focuses on affirmative action as required by Executive Order 11246, because that is the primary source of AAPs in the United States and is the basis of much of the controversy.

Organizations with annual federal contracts of at least \$10,000 are required to take affirmative action to eliminate discrimination on the basis of race, color, religion, sex, or national origin. They must establish nondiscrimination policies and communicate those policies to employees and applicants. Organizations with at least 50 employees and contracts above \$50,000 are further required to perform and report the results of utilization analyses in which they compare the gender and racial distributions of their workforce to the

relevant labor markets. The relevant labor market for any position includes only those individuals who are qualified for that position and who reside in the recruitment area. If the utilization analysis reveals that all groups are reasonably represented, no further actions are required. If the utilization analysis reveals that any group defined by gender, race, or ethnicity is underrepresented, the firm must establish flexible goals to eliminate the underutilization and must make a good faith effort (i.e., take affirmative actions) to meet those goals. Utilization analyses are not required for other protected dimensions (i.e., disability, veteran status, religion), so it is impossible to determine whether underrepresentation exists along these dimensions.

An important question is which actions are permitted when underutilization is revealed. Federal regulations strongly emphasize nonpreferential actions such as the elimination of barriers and the use of targeted recruitment or training. Because these approaches may fail to eliminate substantial underrepresentation, some organizations may want to take stronger actions. In so doing, the firm must not violate the constraints established by the Constitution and antidiscrimination law. It is clearly illegal to use quotas or to give preferences to unqualified members of the underrepresented group (e.g., through race norming of the selection test). Furthermore, Supreme Court decisions have determined that any AAP that gives a positive weight to racial minority status is subject to "strict scrutiny." Such an AAP must be remedial, narrowly tailored, and temporary; must not trammel the rights of others; and must further a compelling governmental interest. Note that the final requirement can be satisfied only within the public sector. Although it has been suggested that private-sector organizations might use the economic value of diversity to justify positive weighting of racial minority status, it is not clear that such an argument would be approved by the Supreme Court. Although positive weighting of gender requires only intermediate scrutiny rather than strict scrutiny, it would still be a risky approach.

EMPIRICAL RESEARCH

As mentioned previously, affirmative action is a controversial public policy. The debate regarding whether it should be eliminated, perpetuated, or expanded is complex. For example, philosophical arguments have been offered regarding the appropriateness of using race-conscious approaches to attain a race-blind

society. These arguments tend to focus on race-based affirmative action and occasionally gender-based plans; they rarely mention policies that target veterans or individuals with disabilities. These debates also focus on preferential forms of affirmative action rather than the more common, and legal, nonpreferential forms. Empirical research, in contrast, has focused on the consequences of affirmative action and on predictors of attitudes toward affirmative action.

CONSEQUENCES OF AFFIRMATIVE ACTION

For Organizations

A logical analysis shows that affirmative action could either help or hurt organizational performance, depending on details of the AAP and on the procedures used by the organization in the absence of affirmative action. Positive effects should occur if the AAP increases the organization's access to the labor market (e.g., through intensive recruitment) or decreases discrimination against women or racial or ethnic minorities. Negative effects should occur if the organization uses a preferential AAP that supplants a nondiscriminatory procedure. In addition, organizations must bear the costs of administering AAPs. Consistent with the logical uncertainty, empirical research has failed to demonstrate any substantial effect of affirmative action on organizational performance.

For Target Groups

A different line of research has assessed the economic impact of affirmative action on the targeted groups. Affirmative action appears to have improved employment outcomes of targeted groups, but the effects have varied in complex ways depending on factors such as the targeted group, geographic region, time period, and type of position. For example, affirmative action had a substantial positive impact on African Americans in the South between 1965 and 1975, presumably because that time and place offered a substantial opportunity for improvement. On the other hand, affirmative action had virtually little or no effect during the 1980s, perhaps because the Reagan administration decreased support for the regulatory agencies and substantially revised those agencies' policies and procedures. Little or no research exists on the effects of affirmative action on employment of individuals with disabilities or veterans. Because

organizations are not required to report employment statistics of these groups, such effects would be difficult to document.

There is also some evidence that affirmative action may lead to stigmatization of individuals who belong to the AAP target group. The logic is consistent with the discounting principle of attribution theory. When targeted individuals are selected in the context of an AAP, others are uncertain about whether their selection was because of their performance or the AAP. In the absence of affirmative action, this uncertainty disappears and the individual is assumed competent. Research reveals such stigmatization when observers believe or are told that the AAP involves preferences. It can be eliminated or greatly reduced by providing compelling evidence that the AAP is nonpreferential or that the selected individual is fully qualified or has performed well.

A related stream of research deals with self-stigmatization by target group members. According to the logic outlined above, members of AAP target groups may doubt their own competence and consequently lose confidence and interest in the job. Although this effect has been observed, almost all supportive evidence has come from laboratory research in which White female college students are explicitly told that they have been preferentially selected on the basis of their gender. There is little evidence for this effect among racial or ethnic minorities, and the effect is absent or much smaller when participants are given clear evidence of their competence or are told their selection was based in part on merit.

For White Males

A final question concerns the impact of affirmative action on White males. Although there are many reports of *backlash*—opposition by White males based in part on the belief that they have been hurt by affirmative action—there is surprisingly little research on this question. Logically, the effect should be negative if affirmative action reverses traditional biases that favor White males or if preferential forms of affirmative action replace nondiscriminatory procedures. The limited research that exists reveals such a negative effect. Of course, this assumes a “fixed pie” situation; if implementation of an AAP enhances organizational performance because of the increased diversity, that increased performance may help all organization members.

Attitudes

Perhaps the largest body of empirical research on affirmative action has dealt with public attitudes toward the policy. This work has assessed the effects of structural predictors, perceiver variables, and psychological mediators of the effects.

The structural predictor that has received the most attention is AAP strength—the weight given by the AAP to demographic characteristics. Specifically, the public strongly supports AAPs that require only the elimination of discrimination. Support decreases somewhat for AAPs that are designed to enhance target group opportunities—for example, by requiring targeted recruitment. There is a further drop in support if the AAP requires selection of underrepresented group members when their qualifications are equivalent to those of other applicants. Note that such an AAP would rarely if ever pass legal muster. Finally, there is strong opposition to AAPs that require preferential selection of underrepresented group members even when their qualifications are inferior to those of other applicants. Although such an AAP would be illegal, many scholars who study attitudes toward affirmative action attitudes have described it in those terms, and many people believe preferences are common. Indeed, although most research on AAP strength has involved manipulation of the AAP, research on public beliefs reveals corresponding effects, so that individuals who believe affirmative action merely requires the elimination of discrimination have more positive attitudes than those who believe it involves preferences.

The only other structural predictor that has received enough attention to merit conclusions is the identity of the target group. It appears that attitudes, at least of White respondents, are more negative when the AAP is described as targeting African Americans or minorities than when it is said to target women or individuals with disabilities.

The two perceiver variables that have received the most attention are respondent race and gender. In general, African Americans report the strongest support for affirmative action and Whites the strongest opposition, with Hispanics and Asians reporting intermediate levels of support. However, this race effect is moderated by AAP strength, increasing in size as the AAP gives greater weight to demographic status. The effect of gender on attitudes is much smaller, but in general, women report more support than do men.

Attitudes are also associated with several opinion variables. Most significantly, opposition increases with the respondent's racial prejudice and sexism. In addition, those who subscribe to a conservative political ideology or who identify with the Republican Party report greater opposition than do those who are politically liberal or who identify with the Democratic Party. Opposition also increases with the level of the respondent's *social dominance orientation*—an individual difference variable that represents a general opposition to equality and support for group-based dominance. Finally, support for affirmative action is associated with the belief that the target group experiences discrimination and thus that affirmative action is needed.

Research on psychological mediators finds that support for affirmative action is positively associated with anticipated positive effects of the AAP on the respondent's personal self-interest and on the respondent's demographic group. But the strongest association of all is with perceived fairness of the AAP—people support AAPs they consider fair and oppose those they consider unfair. As this would suggest, providing a justification increases support for affirmative action, but only if the justification refers to the value of diversity or the need to make up for past discrimination; simply citing underrepresentation typically decreases support instead of increasing it.

—David Albert Kravitz

See also Adverse Impact/Disparate Treatment/Discrimination at Work; Attitudes and Beliefs; Banding; Civil Rights Act of 1964, Civil Rights Act of 1991; Diversity in the Workplace; Race Norming; Recruitment; Sexual Discrimination; Uniform Guidelines on Employee Selection Procedures

FURTHER READING

- Crosby, F. J. (2004). *Affirmative action is dead; long live affirmative action*. New Haven, CT: Yale University Press.
- Crosby, F. J., & VanDeVeer, C. (2000). *Sex, race, and merit: Debating affirmative action in education and employment*. Ann Arbor: The University of Michigan Press.
- Doverspike, D., Taylor, M. A., & Arthur, W., Jr. (2000). *Affirmative action: A psychological perspective*. Huntington, NY: Nova Science.
- Edley, C., Jr. (1996). *Not all Black and White: Affirmative action, race, and American values*. New York: Hill & Wang.

- Gutman, A. (2000). *EEO law and personnel practices* (2nd ed.). Thousand Oaks, CA: Sage.
- Holzer, H. J., & Neumark, D. (2000). Assessing affirmative action. *Journal of Economic Literature*, 38, 483–568.
- Kravitz, D. A., Harrison, D. A., Turner, M. E., Levine, E. L., Chaves, W., Brannick, M. T., et al. (1997). *Affirmative action: A review of psychological and behavioral research*. Bowling Green, OH: Society for Industrial and Organizational Psychology.
- Leiter, S., & Leiter, W. M. (2002). *Affirmative action in antidiscrimination law and policy: An overview and synthesis*. Albany: State University of New York Press.
- Rubio, P. F. (2001). *A history of affirmative action, 1619–2000*. Jackson: University Press of Mississippi.
- Spann, G. A. (2000). *The law of affirmative action: Twenty-five years of Supreme Court decisions on race and remedies*. New York: New York University Press.

AGE DISCRIMINATION IN EMPLOYMENT ACT

The Age Discrimination in Employment Act (ADEA) of 1967 (amended in 1986) is a U.S. federal law that prohibits discrimination in employment against individuals who are at least 40 years old. It was enacted by the Congress to promote the employment of older people based on their ability and to prevent intentional and nonintentional forms of age discrimination. The act applies to private, public, and foreign companies with more than 20 workers located in the United States, as well as to unions and employment agencies.

PROHIBITED PRACTICES

The ADEA makes it unlawful to discriminate against a person because of his or her age “with respect to any term, condition, or privilege of employment.” That prohibition applies to such things as hiring, firing, job assignments, promotions, training opportunities, discipline, and employee compensation. The ADEA covers individuals age 40 and above; a worker who is 39 years old at the time of the alleged discrimination is not entitled to ADEA protection. The ADEA also prohibits employer discrimination *among* older workers. For example, an employer cannot hire a 50-year-old over a 60-year-old simply because of age.

Although the ADEA restricts the use of age by employers, it allows age to be taken into account in some situations. For example, in recognition of the

fact that benefits costs may be higher for older workers, the ADEA allows employers to provide different benefits to older and younger workers if the amount spent on benefits received by older and younger workers is the same. The ADEA also recognizes several general defenses that may provide a legal justification for policies or practices that adversely affect older workers, as discussed in the following section.

ESTABLISHING AND DEFENDING ADEA CLAIMS

Violations of the ADEA may be established using either the disparate treatment or disparate impact theories of discrimination. The legal defenses that are relevant and potentially available to an employer depend on which theory of discrimination the plaintiff relies on.

Disparate Treatment

The disparate treatment theory of age discrimination, or *intentional* age discrimination, requires plaintiffs (job applicants or employees) to prove that the employer used age as a factor in an employment decision or action. Examples include the refusal to hire older workers based on stereotypes about their limited capabilities and excluding older workers from certain types of training.

In cases where it is established that the employer has a policy or practice that treats individuals differently based on age, the employer must prove that the age standard it used is a *bona fide occupational qualification* (BFOQ) for the job in question to avoid a finding of illegal discrimination. The BFOQ defense is narrowly construed and difficult to establish. The employer must prove that age is directly related to the ability to perform an important aspect of the job that goes to the essence of the employer’s business. It is not enough to merely show that younger workers tend to perform better on the job; it must be shown that substantially all persons over the age limit cannot successfully perform the job, or that it is highly impractical to assess the relevant ability on an individual basis. Age-based BFOQs are most commonly supported in jobs directly involving public transportation or safety, for which there is credible evidence that abilities essential to the job diminish significantly with age.

In the more typical case, where there is not an explicit age-based policy or practice and the employer denies that age played any role in the challenged

employment action, the plaintiff must make an initial showing of intentional age discrimination using either *direct* evidence (e.g., help-wanted advertising indicating age preferences, disparaging age-related comments) or *circumstantial* evidence. To establish a prima facie case of disparate treatment using circumstantial evidence in a refusal-to-hire case, the plaintiff must show that (a) she or he is a member of the protected age class; (b) she or he was qualified for the position in question; (c) she or he was denied the position; and (d) someone significantly younger, with similar or lesser qualifications, received the position she or he was denied.

If the plaintiff establishes the foregoing, the employer must rebut the circumstantial evidence of intentional discrimination by producing evidence that it had a legitimate, nondiscriminatory explanation for its action (e.g., poor job performance, good faith belief that someone else was more qualified). If the employer is able to provide such a reason, then the burden shifts back to the plaintiff to show that the reason offered by the defendant is a pretext for discrimination.

Disparate Impact

Disparate impact age discrimination claims involve employer policies or practices that appear neutral on their face but that have a substantially greater negative impact on older individuals when put into effect. For example, in several cases, the employer's use of what appeared to be age-neutral physical fitness requirements in hiring decisions were found to have a substantially greater impact in screening out older employees.

Even if a plaintiff meets his or her burden of identifying a specific employer policy or practice that adversely affects older workers, the employer may still prevail if it can show that its policy or practice involves a *reasonable factor other than age* (RFOA). The RFOA defense, unique to the ADEA, requires the employer to demonstrate that there is a good or rational business reason for the employer policy or practice. The RFOA defense requires a standard of justification that is significantly lower than the BFOQ defense (i.e., an RFOA is much easier to establish) and somewhat higher than the legitimate nondiscriminatory reason showing that will rebut a circumstantial prima facie case of disparate treatment. Evidence that the challenged policy or practice is related to job

performance would be sufficient, but it may not be necessary. For example, in a 2005 ruling (*Smith v. City of Jackson, Mississippi*, the Supreme Court held that the employer's perceived need to offer junior police officers salaries that were competitive in the job market was an RFOA that justified an employer policy that adversely affected older officers.

REMEDIES FOR ADEA VIOLATIONS

A range of remedies are potentially available to successful plaintiffs in ADEA cases, including reinstatement to their old job, employment, back pay, front pay, promotion, and court costs. In addition, if it is shown that the employer knew that its actions violated the ADEA or showed reckless disregard for whether its actions violated the act, then the court has discretion to award liquidated damages equal to double the amount the plaintiff is otherwise owed. Noncompensatory damages (e.g., pain and suffering) are not available.

IMPACT OF THE ADEA

Without question, the ADEA has increased U.S. employers' awareness of and sensitivity to the use of job applicant and employee age in employment decisions. Some provisions of the ADEA have had a direct and manifest impact on employer practices. For example, the 1986 amendment to the ADEA has eliminated the use of once common age-based mandatory retirement policies for all but a relatively narrow group of employees (high-level executives and employees in selected occupations in which age is a BFOQ). The continued dramatic growth in the number of lawsuits alleging ADEA claims suggests that older workers have also become more aware and less tolerant of age-based employment discrimination. Research investigating the impact of the ADEA suggests that although evidence of differential treatment based on age can still be found in the American workplace, overall, the ADEA has had a positive impact on the employment prospects of older workers. More specifically, empirical evidence indicates that the ADEA helped boost the employment levels of older workers, particularly those aged 60 and over.

—Mark V. Roehling and Lisa M. Finkelstein

See also Adverse Impact/Disparate Treatment/Discrimination at Work

FURTHER READING

- Bennett-Alexander, D. D., & Hartman, L. P. (2004). *Employment law for business*. New York: McGraw-Hill.
- Clark, M. (2005). Court: Workers can sue for unintentional age bias. *HRMagazine*, 50(5), 29–32.
- Lindeman, B., & Grossman, P. (1997). *Employment discrimination laws* (3rd ed.). Washington, DC: The Bureau of National Affairs.
- Neumark, D. (2003). Age discrimination legislation in the United States. *Contemporary Economic Policy*, 21, 297–317.
- Robinson, R. K., Franklin, G. M., & Wayland, R. (2002). *The regulatory environment of human resource management*. New York: Harcourt.
- Smith v. City of Jackson, Mississippi*, No. 03-1160, 544 U.S. (2005).

AMERICAN PSYCHOLOGICAL ASSOCIATION, ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

The two primary professional psychological associations in the United States are the American Psychological Association (APA) and the Association for Psychological Science (APS; formerly called the American Psychological Society).

AMERICAN PSYCHOLOGICAL ASSOCIATION (APA)

Description of APA

The American Psychological Association was founded in 1892 as a scientific and professional membership organization for the field of psychology in the United States. Headquartered in Washington, D.C., APA comprises 53 divisions, covering the spectrum of psychological specialties (e.g., clinical, experimental, developmental, educational, personality, and social). The association is a corporation governed by a six-member board of directors and a council of representatives. Many of the organization's tasks are carried out by boards and committees.

APA Membership

With more than 150,000 members, APA is the largest psychological association in the world. Membership categories include (a) member (i.e.,

doctorate in psychology from an accredited institution); (b) student affiliate (programs for graduate, undergraduate, and high school students); (c) teacher affiliate (community college or high school teachers); (d) international affiliate (psychologists who live outside the United States and Canada); and (e) fellow (elected status; members who have demonstrated unusual and outstanding contributions or performance in psychology on a national level).

Mission of APA

The mission of APA is to advance psychology as a science and profession and as a means of promoting health, education, and human welfare. Five mechanisms are used to accomplish this mission: (a) broadly and liberally encouraging all of the psychological disciplines (specialty areas); (b) promoting psychological research and improving the methods and manner in which these studies are conducted; (c) improving the qualifications and value of psychologists by maintaining high standards for professional conduct, ethics, education, and achievement; (d) maintaining the utmost standards for professional ethics and conduct of members of APA; and (e) increasing and spreading knowledge of psychology through a variety of methods (e.g., meetings, publications, networking, and discussions).

Functions of APA

The association sponsors services to advance the education and practice of psychology, including continuing education workshops, an annual convention, and an awards program. Publications of APA include a monthly news magazine (*Monitor on Psychology*); specialized newsletters; division newsletters; hundreds of books; more than 40 journals; videos; practice-related pamphlets; and the largest online research database for psychological information in the world (PsycINFO, PsycARTICLES). A major function of APA is to advise decision makers in Congress on a diverse range of legislative and regulatory issues (e.g., aging, crime, terrorism, substance abuse).

ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

Formation of APS in Relation to APA

During the 1970s, many members of APA grew discontented with the association's primary focus on

issues pertaining to clinical practice (e.g., health care). This focus led many members to believe that their needs and interests as scientific and academic psychologists were not being met. Proposals submitted to make APA the primary association for scientific psychologists were not approved by the membership. Consequently, in August 1988, the American Psychological Society (APS) was formed to advance psychology as a scientifically oriented discipline. In January of 2006, APS officially changed its name to the Association for Psychological Science to better reflect its core mission and values.

Description of APS

The Association for Psychological Science is a national nonprofit membership organization governed by an 11-member board of directors, representing different fields of psychology. In contrast to APA, APS is not divided into specialty areas; rather, it considers the scientific field of psychology as a whole.

APS Membership

There are more than 14,000 members of APS, including academics, researchers, clinicians, teachers, and administrators. Membership types include (a) member (i.e., doctoral degree in psychology or a related field, or sustained contributions to scientific psychology); (b) retired; and (c) student affiliate (graduate, undergraduate). The association also offers other categories of membership, which have reduced membership rates (e.g., first-year PhD, postdoctorates).

Mission of APS

The mission of APS is to promote, protect, and advance the interests of scientifically oriented psychology in research, application, teaching, and the improvement of human welfare.

Functions of APS

The association publishes a newsletter and three journals: *Psychological Science*, *Current Directions in Psychological Science*, and *Psychological Science in the Public Interest*. Each year, APS sponsors a professional conference. In addition, APS honors particularly notable contributors to the field by awarding them fellow status and through specific achievement

awards. Further, APS has been actively involved in obtaining legislative and federal support for scientific psychological research (e.g., increasing visibility for health and behavioral research within agencies such as the National Institutes of Health).

—Jennifer L. Burnfield

See also Academy of Management; Society for Industrial and Organizational Psychology

FURTHER READING

- American Psychological Association Web site. Retrieved February 28, 2006, from <http://www.apa.org/>
- Association for Psychological Science Web site. Retrieved February 28, 2006, from <http://www.psychologicalscience.org/>
- Hakel, M. D., & Herring, L. (2000). Association for Psychological Science. In A. E. Kazdin (Ed.), *Encyclopedia of psychology* (Vol. 1, pp. 154–157). Washington, DC, and New York: American Psychological Association/Oxford University Press.
- Kraut, A. G. (2001). Association for Psychological Science (APS). In W. E. Craighead & C. B. Nemeroff (Eds.), *The Corsini encyclopedia of psychology and behavioral science* (3rd ed., pp. 94–96). New York: Wiley.

AMERICANS WITH DISABILITIES ACT

In 1990, Congress passed the Americans With Disabilities Act (ADA) to provide equal protection under the law to disabled citizens, who are not identified in the Civil Rights Acts of 1964 or 1991 as a protected group. The ADA covered various aspects of daily life for the disabled, which are addressed under the following titles:

Title I: Employment

Title II: Public Services

Title III: Public Accommodations

Title IV: Telecommunications

Title V: Miscellaneous Provisions

This entry considers only Title I, on employment.

Title I of the ADA was intended to strengthen the existing Rehabilitation Act (RA) of 1973 by making language more specific and by including private-sector

employers under the previous umbrella of the RA. It provided standards for enforcement of the law and charged government with the responsibility for enforcement. The ADA is administered by three different agencies: the Department of Justice, for public-sector employees; the Equal Employment Opportunity Commission (EEOC), for private-sector employees; and the Department of Transportation, for nonfederal sectors affecting commerce. Although originally covering only employers with 25 or more employees, the act was amended in 1994 to apply to all businesses with 15 or more employees.

Statistics from the EEOC demonstrate that the rights of the disabled are being increasingly defended through litigation. In 1992, ADA claims represented less than 2% of all claims filed with EEOC. From 1993 through 2003, these claims have averaged approximately 20% of all claims filed with EEOC. To put this figure in context, the respective figure for claims alleging discrimination on the basis of race or color is 36%; on the basis of sex, 31%; and on the basis of age, 21%. In the year 2003 alone, ADA claims filed through EEOC resulted in total benefits to disabled claimants of \$45.3 million. An ADA claim typically consists of an individual's assertion that he or she is disabled, had the necessary qualifications for the job in question, and was denied an accommodation that would have made it possible to successfully perform the job, or at least the essential functions of that job. The issues of accommodations and essential function are discussed below.

Although race, sex, and age are relatively clear attributes allowing for a simple determination of who is covered, the disability statute is not so easily applied. Since the passage of ADA, the U.S. Supreme Court has heard 11 cases involving it, many of them dealing exactly with issues related to who is covered by the act. The determination of who is a member of the class of disabled depends on several statutory definitions. A person may be classified as disabled if (a) he or she has a current mental or physical impairment that limits a major life activity, (b) can demonstrate a history of such an impairment, or (c) can show that he or she is being treated as if he or she has, or is perceived to have, such an impairment. But for an individual's claim to be covered by the ADA, it is not sufficient to simply demonstrate that he or she has an impairment. This impairment must be shown to substantially limit a major life activity. Major life activities include obvious categories such as self-care,

walking, talking, seeing, hearing, and breathing. But often, the category is not so obvious, and the individual may claim that the limited life activity is actually that of working. When this is the case, the claimant must show not merely that he or she is unable to perform a single job but that he or she cannot perform successfully in a broad range of jobs as a result of the disability. An example from a court case provides an example of the requirement. An individual with a fear of heights is not seen as substantially limited simply because he or she cannot work on the upper floors of a building, because a wide variety of other jobs are available from other employers that do not require employees to work in high locations.

In addition to showing that they are disabled using any of the definitions above, claimants must also demonstrate that they are qualified. It is not sufficient for claimants simply to show that they *possess* the knowledge, skills, or abilities needed to do the job. Rather, to meet this requirement, a claimant must show that he or she has the knowledge, skills, and abilities to *perform* essential job functions and can successfully perform those essential functions with or without a reasonable accommodation. Both of these conditions must be met before the court will consider any claims of discrimination on the part of the employer. If the person is not considered disabled (with the added qualification that the disability substantially limits a major life activity) or does not possess the necessary qualifications to perform essential functions of the job, then the case is dismissed.

In a general sense, essential functions define why the job exists. For example, the essential functions of a bus or train driver are to guide a vehicle on a prescribed route within a fixed period of time and to pick up and discharge passengers. Essential functions of a firefighter are to suppress fires while protecting lives and property. Essential functions are usually identified through the completion of a job analysis or the examination of a job description that resulted from a job analysis. Since 1990, many job analyses have identified certain functions as essential to comply with ADA requirements. Various courts have ruled that to meet the burden of showing that one can perform the essential functions of a job, a claimant must show that he or she can perform *all* of the essential functions with or without an accommodation, not merely some of them. This logic also affects the very definition of what a job is. Claimants have often argued that they could perform a job if some of the essential functions

were moved to other jobs. Courts have held that the employer is not required to redefine a job for purposes of accommodating a disabled applicant or employee. On the other hand, the employer cannot exclude a disabled applicant or employee from a job because the disabled individual cannot perform a *nonessential* function. As an example, a recent amputee who had been a former patrol officer could ask to be placed on desk duty in a police precinct. The department might argue that even desk officers may be required to respond to outside events in an emergency; however, if it could be shown that no such emergency had ever occurred, then the hypothetical essential function of the desk-duty officer to respond to outside emergencies would be seen as nonessential.

Drug and alcohol abuse occupy special status in ADA. Only rehabilitated drug abusers are protected; individuals currently using illegal substances (e.g., heroin, cocaine, marijuana) are not. The act permits drug testing of employees, including former addicts, provided these tests are reasonable. In this context, *reasonable* means an articulated policy that is nondiscriminatory. For example, a drug testing policy specifying that testing will occur after a workplace accident or as part of a return-to-work determination after an injury would be seen as nondiscriminatory. In contrast to those using illegal drugs, those who might be defined as current alcoholics may be covered by the ADA and may request accommodations. However, alcohol abusers are held to the same standard as any other employee with regard to not consuming alcohol at the work site and not being under the influence of alcohol when reporting to work. In these instances, alcoholism is not protected as a disability. Nevertheless, an employer may not take adverse employment action against an alcoholic employee because of the consumption of alcohol during nonwork hours unless the consumption has resulted in behavior (e.g., DUI or assault on coworkers during nonwork interactions) that would have led to dismissal or suspension for any other employee who engaged in similar activities. Appropriate accommodations for alcoholic employees might include (a) making sure the employee knows about available counseling, (b) asking the employee to make a commitment to rehabilitation, understanding that failure to honor this commitment might result in termination, (c) establishing a ladder of progressive discipline (e.g., verbal warning → written warning → suspension → termination) for those who continue to drink while in an outpatient

treatment program, and (d) providing the opportunity for inpatient treatment if outpatient treatment is unsuccessful.

Those individuals diagnosed with AIDS and other infectious diseases are also protected by ADA, to the extent that the condition does not pose a direct threat to the health and safety of other individuals. As examples, an HIV-positive surgical nurse who refuses to transfer to a nonsurgical area is not protected by the ADA from involuntary reassignment or termination. In contrast, a hospital clerical worker who is HIV-positive cannot be excluded from that position as a result of some general and nonspecific fear that the disease might be transmitted to patients or coworkers. These examples help to demonstrate the more general principle of context. Diabetics and epileptics might function fine in certain job contexts (e.g., routine office work) yet be considered threats to the health and safety of others in other contexts (e.g., jobs involving the use of heavy machinery or working in sensitive positions in air traffic control or nuclear power).

The reasonable accommodation requirement of ADA is unique. It means that the employer may be required to make modifications of the application process, the work environment, and/or the way in which the job functions are performed. It is assumed that there will be a dialogue between the employer and the disabled applicant or employee that will identify what might be considered a reasonable accommodation for the disabled individual. As an example, individuals who are visually impaired may request an oral assessment or someone to read test questions and possible answers to them. Such individuals, if hired, may request a modified work environment to offer protection from moving equipment. Finally, they may request various technical devices (e.g., voice recognition equipment, high-power lighting, or magnification) to enable successful completion of essential job functions. Such accommodations must be reasonable and entail looking at various characteristics of the employing organization, including the cost of the accommodation, the financial resources available for such an accommodation, and the effect of such an accommodation on the overall capability of the organization to conduct business.

The ADA also has practical implications for the application and employment process. Individuals may not be asked to disclose information about a disability (other than a request by that individual for an accommodation in the application process) until *after* an offer

of employment has been made. This is to prevent individuals from being unfairly discriminated against as a result of a covered disability during the employment screening process. The most obvious point at which to run afoul of this protection is the preemployment physical. Although it is permissible to give a preemployment physical to any individual (including disabled applicants), it cannot be administered *before* a conditional offer of employment has been given to successful applicants. A conditional offer is one that is contingent on passing a physical examination. Further, such physicals must be administered to all applicants, not simply to those who appear to be disabled or who have asked for an accommodation. Even at early stages of the application process—before a conditional offer of employment is made—an employer is permitted to ask individuals if they think that they can perform essential functions that are described to them. Asking applicants to undergo testing for illegal drug and alcohol use as part of the application process does not violate the provisions of the ADA.

W. F. Cascio, in 2005, suggested several ways in which employers may embrace the spirit of ADA. These include the following:

- Making the workplace more accessible to individuals with various physical impairments by installing ramps for individuals in wheelchairs or with visual impairments and installing TTY (teletypewriter) and voice amplifiers for individuals with hearing impairments. Newly designed keyboards and computers have been developed for quadriplegics and individuals with cerebral palsy.
- Creating a position within the equal employment opportunity domain of an organization for an individual who would focus on disability issues. Such a position would include responsibility for the orientation and socialization of newly hired disabled workers. This orientation would include the supervisors and coworkers of the disabled employee.
- Educating senior managers in disability issues and gaining commitment to recruit, select, and accommodate individuals with disabilities when necessary.
- Analyzing jobs with the specific aim of identifying tasks and functions for which various disabilities are not an impediment to successful performance.
- Describing successful accommodation experiences to the employees within the organization as well as to those outside of the organization.

The ADA is a complex statute that is still evolving. It was written in a way that encouraged cooperation

and dialogue between an employer and a disabled applicant or employee. The courts look favorably on evidence of good faith efforts by both parties to work out a reasonable accommodation where possible. It is best for neither the applicant/employee nor the employer to forget the importance of this dialogue in an eventual judicial decision, should such a decision become necessary.

—Frank J. Landy

See also Civil Rights Act of 1964, Civil Rights Act of 1991; Drug and Alcohol Testing

FURTHER READING

- Cascio, W. F., & Aguinis, H. (2005). *Applied psychology in human resource management*. Upper Saddle River, NJ: Pearson/Prentice Hall.
- Gutman, A. (2000). *EEO law and personnel practices* (2nd ed.). Thousand Oaks, CA: Sage.
- Papinchock, J. M. (2005). Title I of the Americans With Disabilities Act: The short but active history of ADA enforcement and litigation. In F. Landy (Ed.), *Employment discrimination litigation: Behavioral, quantitative, and legal perspectives* (pp. 294–335). San Francisco: Jossey-Bass.

APPLICANT/TEST-TAKER REACTIONS

The term *applicant reactions* is used to refer to an applicant's affect, attitudes, and cognitions toward a selection process. Applicant reaction models suggest that reactions are very complex and involve perceptions of multiple aspects of specific tests and the testing process in general. Stephen Gilliland was one of the first researchers to put forth a theoretical model of applicant reactions, and this model has guided much of this research over the past decade. Gilliland's model is based on theories of organizational justice. Organizational justice is concerned with the fairness of the distribution of organizational outcomes (outcome fairness) and the fairness of procedures used to distribute these outcomes (procedural justice). Gilliland adapted the basic principles of organizational justice to provide a comprehensive model of how applicants perceive and react to selection procedures. This model has received considerable support.

Gilliland's model suggests that selection systems and tests are viewed favorably by applicants

(i.e., are considered fair) to the extent they comply with or violate procedural and distributive justice rules. These procedural and distributive justice rules are standards that applicants hold for how they expect to be treated and how selection procedures should be administered and used. These justice rules determine perceptions of process and outcome fairness, such that when the rules are satisfied, the selection process and outcome are perceived as fair, but when they are violated, the selection process and outcome are perceived as unfair. As will be discussed, applicant perceptions of the fairness of a selection process can influence a number of important individual and organizational outcomes. It should be noted that according to Gilliland's model, justice rules would not directly relate to applicant intentions or behavior, but would do so indirectly through process fairness perceptions. For example, perceived job relatedness is an example of a procedural justice rule. *Perceived job relatedness* refers to the extent to which the applicant perceives that the content of a test reflects the content of the job (e.g., the knowledge, skills, and abilities required by the job). Perceived job relatedness has been recognized as the most important procedural justice rule because it consistently influences fairness perceptions and, through fairness perceptions, test performance.

Over the years, several researchers have modified and expanded Gilliland's original applicant reactions model to include a number of additional antecedents and moderator variables. For example, Ann-Marie Ryan and Robert Ployhart revised the Gilliland model and included an applicant's affective and cognitive states during the selection processes, as well as general perceptions about testing and selection, as important in understanding antecedents and consequences of applicant reactions.

JUSTICE RULES

In applicant reaction models, procedural and distributive justice rules are important antecedents of fairness perceptions. Although a number of procedural and distributive justice rules exist, Gilliland specified 10 procedural and 3 distributive justice rules, and these have received research attention:

Procedural Justice Rules

1. *Job-relatedness*. The extent to which a test appears to measure content relevant for the job

2. *Opportunity to perform*. The extent to which applicants perceive that the test or test process allows them the opportunity to express themselves prior to a selection decision
3. *Reconsideration opportunity*. The opportunity to challenge or modify the decision-making process
4. *Consistency of administration*. The extent to which selection procedures are used consistently across applicants
5. *Feedback*. The extent to which applicants receive timely and informative feedback
6. *Selection information*. The extent to which applicants are informed how the test and selection procedures will be used and why they are used
7. *Honesty*. The extent to which recruiters and test administrators are truthful and honest in their communication with applicants
8. *Interpersonal effectiveness of administrator*. The extent to which applicants are treated with respect and warmth from the test administrator
9. *Two-way communication*. The extent to which applicants have the opportunity to offer input and to have their views on the selection process considered
10. *Propriety of questions*. The extent to which questions on tests are appropriate and not offensive

Distributive Justice Rules

1. *Equity*. The extent to which applicants perceive that the outcome of the selection process (whether they are hired or not) is based on competence or merit
2. *Equality*. The extent to which applicants, regardless of knowledge, skills, and abilities, have an equal chance of being hired for the job
3. *Needs*. The extent to which job offers are distributed on the basis of individual needs (e.g., preferential treatment for a subgroup)

CONSEQUENCES OF APPLICANT REACTIONS

Applicant reactions toward selection procedures have been found to affect a number of important outcomes, both directly and indirectly. It has been shown that when applicants react positively toward a test, they are more likely to accept a job offer from the company, recommend the company to others, reapply for a job with the company, and perform well once they are employed by the company. It has also been suggested

that negative applicant reactions may result in a greater number of employment lawsuits and a decreased probability an applicant will buy the company's products in the future.

One of the most important consequences of applicant reactions is the effect reactions have on applicant test performance. However, this research has almost exclusively examined the effects of applicant reactions on cognitive ability test performance and has neglected the effects of reactions on other test measures. This research has shown that when applicants react favorably to a cognitive ability test, they are more likely to perform well on the test, although the effects are modest.

REACTIONS TOWARD DIFFERENT SELECTION MEASURES

Initial applicant reactions research focused on comparing reactions to different types of measures. For example, research suggests that reactions toward assessment centers and work simulations tend to be more favorable than paper-and-pencil tests (e.g., cognitive ability measures). The reasoning is that assessment centers and work simulations appear to be more job-related and therefore result in more favorable reactions on the part of the test taker. Further, research suggests that personality measures tend to be perceived less favorably than other types of selection measures.

Although tests seem to differ in the reactions they evoke, research suggests that reactions toward tests can be altered in several ways. For example, research has shown that making a test more job-related will result in more favorable applicant reactions. That is, by ensuring that the content of the test (regardless of test type) reflects the content of the job, one can increase the likelihood that applicants will respond favorably to the test. Further, research suggests that providing an explanation for why the test is used can make reactions toward the test more favorable, as can making selection decisions in a timely manner.

TEST-TAKING MOTIVATION

Test-taking motivation is an important component in all applicant reactions models. One of the most important and researched outcomes of applicant reactions is test performance, and research has clearly shown that test-taking motivation partially mediates

the relationship between applicant reactions and test performance. It has been found that when applicants have favorable reactions toward a test or testing process, they perform better on the tests.

More recently, researchers have sought to determine precisely how motivation mediates the relationship between applicant reactions and test performance by considering the multidimensional nature of motivation. Based on an established theory of motivation, VIE (valence-instrumentality-expectancy) theory, a multidimensional measure of test-taking motivation has been developed. The three components of VIE theory are defined as follows. *Valence* is the desirability or attractiveness of an outcome. *Instrumentality* is the belief that a behavior will lead to a specified outcome. *Expectancy* is the subjective probability that effort will lead to a specified outcome. In a testing context, *valence* refers to the value one places on getting the job for which one is taking the test, *instrumentality* is the belief that good test performance will lead to one getting the job, and *expectancy* is the expectation that one will do well on the test if one puts effort into doing well. Early results suggest that these three dimensions of test-taking motivation are distinct, as they demonstrate different relationships with test performance and applicant reactions.

PRE- AND POSTTEST REACTIONS

Some research has examined both pre- and posttest reactions and how time of measurement influences relationships. Pretest reaction measures are administered before the applicant takes the test or takes part in the selection process in question. Posttest reaction measures are administered after the applicant has taken the test or been through the selection process. Research generally finds that responses to pre- and posttest reaction measures are similar but not identical. Therefore, researchers have tried to understand precisely why pre- and posttest measures are sometimes different.

In particular, the self-serving bias may explain how applicants respond to posttest reactions and motivation. Specifically, if applicants have already taken a test, their perceptions of how they performed may influence their reported test reactions and test-taking motivation. Those who believe they did poorly on the test may be inclined to blame the test and report that they have negative test reactions or indicate that they did not even try to do well on the test (i.e., they report

low test-taking motivation). Attributing one's negative performance to lack of effort or to a problematic test may help protect one's self-esteem. Given these findings, it is important for researchers to be aware that pre- and posttest reaction measures may result in different outcomes.

RACE DIFFERENCES IN APPLICANT REACTIONS

Racial differences in applicant reactions exist, with Blacks and Hispanics being more likely to have negative reactions than White individuals. It is believed that these race differences in applicant reactions may contribute to race differences in test performance. In particular, it is well documented that White individuals, on average, score substantially higher on cognitive ability tests than Black and Hispanic individuals. It is believed that differences in applicant reactions may contribute to the differences between how Whites and minorities perform on cognitive ability tests. Therefore, considerable research has focused on how applicant reactions may affect the race–test performance relationship. Research has shown that race predicts test reactions, test reactions predict test-taking motivation, and test-taking motivation influences test performance. Thus, race differences on tests may be larger when minority reactions are negative because minorities will have lower test-taking motivation and hence lower test performance. Although research shows that reactions indirectly account for significant variance in race–test performance relationships, applicant reactions do not account for the majority of race differences in test performance.

PRACTICAL IMPLICATIONS OF APPLICANT REACTIONS RESEARCH

As noted earlier, applicant reactions have a number of important consequences. Therefore, test administrators and human resource professionals would be wise to make applicant reactions to selection procedures as favorable as possible. This is especially true when an organization is trying to meet diversity goals. Research suggests that minorities tend to have less favorable reactions toward selection procedures than majority group members. Therefore, minorities will be more likely to self-select out of the selection process or even be less inclined to take a job if one were offered. Research also suggests that the more qualified job

applicants are likely to be most influenced by how they perceive the selection process. Thus, ensuring that selection procedures are viewed favorably by applicants may have the added benefits of increasing minority representation in the selection process and retaining the most qualified job applicants.

To increase the chances that tests are perceived favorably by applicants, organizations can ensure the tests they use are job-related, provide explanations for why the test is being used (e.g., the test administrator can provide information about the validity of the measure), explain how the selection process will proceed (e.g., clearly explain the stages of the selection process), provide feedback to applicants in a timely manner, and treat applicants consistently and with respect throughout the selection process. Doing so may result in more favorable reactions.

—Lynn A. McFarland

See also Individual Differences; Organizational Justice

FURTHER READING

- Anderson, N., Born, M., & Cunningham-Snell, N. (2002). Recruitment and selection: Applicant perspectives and outcomes. In N. Anderson & D. S. Ones, *Handbook of industrial, work, and organizational psychology: Vol. 1. Personnel Psychology* (pp. 200–218). Thousand Oaks, CA: Sage.
- Gilliland, S. W. (1993). The perceived fairness of selection systems: An organizational justice perspective. *Academy of Management Review*, *18*, 694–734.
- Gilliland, S. W., & Chan, D. (2002). Justice in organizations: Theory, methods, and applications. In N. Anderson & D. S. Ones, *Handbook of industrial, work, and organizational psychology: Vol. 2. Organizational Psychology* (pp. 143–165). Thousand Oaks, CA: Sage.
- Ployhart, R. E., & Harold, C. M. (2004). The applicant attribution-reaction theory (AART): An integrative theory of applicant attributional processing. *International Journal of Selection and Assessment*, *12*, 84–98.
- Ployhart, R. E., Ziegert, J. C., & McFarland, L. A. (2003). Understanding racial differences in cognitive ability tests in selection contexts: An integration of stereotype threat and applicant reactions research. *Human Performance*, *16*, 231–259.
- Ryan, A. M., & Ployhart, R. E. (2000). Applicants' perceptions of selection procedures and decisions: A critical review and agenda for the future. *Journal of Management*, *26*, 565–606.
- Truxillo, D. M., Bauer, T. N., Campion, M. A., & Paronto, M. E. (2002). Selection fairness information and

applicant reactions: A longitudinal field study. *Journal of Applied Psychology*, 87, 1020–1031.

Truxillo, D. M., Bauer, T. N., & Sanchez, R. J. (2001). Multiple dimensions of procedural justice: Longitudinal effects on selection system fairness and test-taking self-efficacy. *International Journal of Selection and Assessment*, 9, 336–349.

ARMY ALPHA/ARMY BETA

The United States entered World War I late in the conflict and faced the problem of turning large numbers of often poorly educated draftees into an effective army in a short period of time. The American Psychological Association volunteered its services to the war effort, and a committee, headed by Robert Yerkes and including psychologists such as Arthur Otis and Lewis Terman, was assigned the task of developing a practical method of measuring the intellectual level of individuals in large groups. Their efforts led to the development of two tests, Army Alpha and Army Beta. Army Alpha was a written test that could be administered to large groups of recruits and that provided a rough measure of general intelligence. Army Beta, a nonverbal test designed for illiterates and for recruits who spoke little or no English, could also be administered to groups and used simple pictorial and nonverbal instructions.

Army Alpha was made up of 212 true–false and multiple-choice items, divided into eight subscales: (a) oral directions, which assessed the ability to follow simple directions; (b) arithmetical problems; (c) practical judgment problems; (d) synonym–antonym items; (e) disarranged sentences, which required subjects to rearrange fragments into complete sequences; (f) number series completion, which required examinees to infer and complete patterns in series of numbers; (g) analogies; and (h) information, a general knowledge subtest. The most basic purposes of Army Alpha were to determine whether recruits could read English and to help in assigning new soldiers to tasks and training that were consistent with their abilities. Several of the scales and test formats developed by Yerkes and his colleagues for Army Alpha are forerunners of tests still in use today.

Many draftees were unable to respond to written tests, because of their limited literacy or their limited command of English; Army Beta was developed to assess the abilities of these examinees. The instructions

for the Beta test were given in pantomime, using pictures and other symbolic material to help orient examinees to the tasks that made up this test. Army Beta included seven subscales: (a) maze, which required looking at a graphic maze and identifying the path to be taken; (b) cube analysis, which required counting cubes in the picture; (c) X-O series, which required reading symbol series to identify patterns; (d) digit symbol, which required matching digits and symbols; (e) number checking, which required scanning and matching graphic symbols in numeric forms; (f) picture completion, which required examinees to identify features required to complete a partial picture; and (g) geometrical construction, which required examinees to manipulate forms to complete a geometrical pattern.

ADMINISTRATION AND USE OF ARMY ALPHA AND ARMY BETA

The Army Alpha and Army Beta were administered to more than 1.5 million examinees. Scoring guidelines were developed with the aim of making Army Alpha and Army Beta roughly comparable. Scores on both tests were sorted into eight order categories (A, B, C+, C, C–, D, D–, E). Those with the lowest letter grade were generally considered unfit for service. Examinees receiving grades of D or D– were recommended for assignment to simple duties, working under close supervision. Examinees with scores in the middle of the test score distribution were recommended for normal soldier duties, whereas men receiving higher scores were recommended for training as noncommissioned officers and for officer training.

Army Alpha and Army Beta were perceived as useful at the time they were introduced. These tests provided at least a rough classification of men, which was of considerable utility in making the large number of selection decisions necessary at that time. The apparent success of the army's group tests did not go unnoticed in business circles and educational settings. Soon after the war, the demand arose for similar tests in civilian settings; by the mid- to late 1920s, intelligence testing was widespread, particularly in schools.

CONTROVERSY OVER ARMY ALPHA AND ARMY BETA

The use of psychological tests to make high-stakes decisions about large numbers of individuals was controversial at the time these tests were developed, and

Army Alpha and Army Beta continue to be sources of controversy. First, many of the psychologists who developed these tests were extreme proponents of hereditarian points of view and often were enthusiastic supporters of the eugenics movement. Yerkes and his colleagues used Army Alpha and Army Beta data to argue against immigration and racial mixing, claiming that the addition of intellectually inferior races and groups to the American melting pot was responsible for what they regarded as low levels of intelligence in the American population. Psychologists involved in the development of Army Alpha and Army Beta played a prominent role in supporting legislation after World War I that greatly curtailed immigration.

Second, serious doubts were raised about the validity and the utility of both tests, particularly Army Beta. Despite efforts to train test administrators, Army Beta could be a particularly intimidating and confusing experience, and it is unclear whether this test provided useful information. More generally, evidence that Army Alpha and Army Beta actually contributed to the success of the army in assimilating and training the vast group who were tested is thin. In part, the problem lies with the fact that the United States entered the war so late that the success or failure of this test was simply hard to gauge. Army Alpha and Army Beta were a tremendous administrative success—they allowed the army to quickly process huge numbers of recruits. However, this set of recruits barely had time to receive training and were mustered out of the army shortly after the conclusion of the war. The hypothesis that the use of these tests led to better decisions than would have been made using more traditional (largely subjective) methods of classification simply could not be tested during World War I. The documented validity and utility of successors to Army Alpha and Army Beta suggest that these tests were likely to make a real contribution, but definitive data about the impact of these tests does not exist.

Finally, controversy over Army Alpha and Army Beta reflected broader controversy over the value (if any) of psychological testing in general and intelligence testing in particular. Early proponents of psychological testing sometimes made extravagant claims about the value and the importance of these tests, and there was a substantial backlash against the more sweeping claims about the importance, validity, and implications of tests like Army Alpha and Army Beta.

—Kevin R. Murphy

See also Cognitive Ability Tests; Individual Differences; Selection Strategies

FURTHER READING

- Jensen, A. R. (1998). *The g factor*. Westport, CT: Praeger.
- Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin*, *124*, 262–274.
- Waters, B. K. (1997). Army alpha to CAT-ASVAB: Four-score years of military personnel selection and classification testing. In R. F. Dillon (Ed.), *Handbook on testing* (pp. 187–203). Westport, CT: Greenwood Press.

ASSESSMENT CENTER

The *assessment center* is a skills-evaluation process that has been used historically in selection and placement decision making, in employee skill development, and more broadly in career development and organizational succession planning. The process was initially developed in the 1930s by the German military for the primary purpose of officer selection. The methodology was adopted, based on familiarity with the German model, shortly thereafter by the British military for similar purposes, and subsequently by the Australian and Canadian militaries.

The assessment center process was first used in the United States by the Office of Strategic Services (OSS) during the middle to late years of America's involvement in World War II (1943 to 1945), to help in the selection of operatives for spy missions. The personality theorist Henry Murray had earlier developed and applied a multiple assessment methodology in a research project aimed at better understanding personality. Subsequently, Murray participated fully in the creation and implementation of the OSS assessment center, which also borrowed heavily from the earlier German and British efforts. For a variety of reasons, including Murray's strong influence, the three-day OSS assessment process was centered on measuring relatively holistic personality variables, rather than job-specific competencies.

The first publicized business application of the assessment center methodology took place at AT&T in the mid-1950s, in what was called the Management Progress Study, conceived and led by Douglas Bray.

The classical AT&T assessment center became the prototype of the many business applications that were to follow. The AT&T process was built directly on the OSS model, but with heavier emphasis on exercises comprising situational, job-sample tests to assess job-related competencies than on the assessment of holistic personality variables.

The AT&T process was aimed at aiding in the selection and development of managers for the company. Several hundred candidates were assessed in groups of 12 in a three-and-a-half-day process, spread over a four-year period. Initially, a set of characteristics of successful managers, or what we would now call *management competencies*, was identified based on literature review and the judgment of AT&T internal subject matter experts. Note that no explicit job analysis was done to identify these characteristics of successful managers. Then a series of activities was created that would allow the assessors to rate participants in each identified skill area. Activities included a series of in-basket activities (still a standard feature of management assessment centers), leaderless group discussions (also a centerpiece of the methodology), and a variety of individual and group problem-solving situations. The issues dealt with were selected to be realistic ones for the job of manager in the organization. In addition to such high-fidelity job-related activities, several projective and structured personality inventories were given, participants were interviewed extensively, and each was required to write an autobiographical essay. The assessors were largely a mix of consultants and psychologists, with some involvement of AT&T incumbent managers, as well.

Since the foundational AT&T study, the assessment center methodology has been refined, researched, and applied internationally and domestically, in a wide variety of work settings, prominently including government work (especially police and fire departments), service industries, and industrial settings. These subsequent applications of the assessment center methodology still draw on many of the core features of the seminal AT&T program.

So widespread has the methodology become that specific and detailed structural, ethical, and professional guidelines have been established by an organization called the International Task Force on Assessment Center Guidelines. In the most current version of those guidelines (the first were codified in 1975), 10 essential elements of the assessment center methodology, which must be present for a process to

be considered an assessment center, are identified, as follows:

1. *Job analysis.* Required to establish the critical, relevant, observable performance elements and competency categories to be assessed. Competency-modeling procedures may be substituted for classical job analysis. The point is to establish through rigorous methods the observable behaviors and competencies to be assessed.
2. *Behavioral classification.* Behaviors demonstrated by participants must be classified and categorized into dimensions, skills, competencies, abilities, and so forth.
3. *Assessment techniques.* Must be designed to reveal performance relative to the key dimensions and competencies that are critical in the performance of the job.
4. *Multiple assessments.* A mix of techniques must be selected to allow behaviors revealing of the critical competencies to be observed and assessed.
5. *Simulations.* The techniques employed must include job-related simulations, although the assessment center overall need not be limited to job-related simulations. Although relatively low-fidelity simulations may be adequate for some purposes, especially early-career selection programs for nonmanagement jobs, high-fidelity simulations are preferred, especially for developmental (not only or mainly selection) programs for experienced, high-level incumbents. Acceptable simulations require that the assessee actually demonstrate behaviors, not merely select from a list of multiple-choice options or state intended actions.
6. *Assessors.* Multiple assessors observe and assess each participant, with a typical ratio of 1:2. Assessors should not be immediate supervisors of a participant. Diversity (functional, ethnic, organizational level, gender) in the pool of assessors is considered highly desirable.
7. *Assessor training.* Assessors must demonstrate competence in their role, based on targeted assessor training prior to using those skills. Typically, assessors should receive two days of training for each day of the assessment process itself.
8. *Recording behavior.* Assessors may not rely solely on memory but must document through notes, behavioral/competency checklists, video recording, or some similar method that allows later review.

9. *Reports.* It is expected that assessors draft preliminary reports, based on their records of the behavior of assesseees.
10. *Data integration.* Assessors are required to pool their observations through some accepted methodology, such that final reports represent the integration of all relevant data.

The assessment center process sometimes runs for only a day, or even less, but more commonly is a multiday affair, with the period of two to five consecutive days being common. Assesseees are always put through the process in groups (the typical size being 6 to 12 participants in a center, assessed by three to six assessors, although there are exceptions to these dimensions). Assessors, usually higher-level managers in the company, sometimes aided by psychologists or other consultants, typically do not know the participants they are assessing. However, there is some recent evidence to suggest that center ratings may have higher criterion-related validity when in fact the assessors are familiar with the participants they are assessing.

Some applications of the methodology aim mainly or exclusively at selection. When that is the case, it is common for participants to receive feedback that includes only or mainly the final hiring recommendation and to be given the rationale for that recommendation only on request. When the primary goal is development, however, and whenever the assesseees are current members of the organization, participants are typically given much more detailed feedback, usually including the final feedback report. Indeed, where assessment centers are part of a broader career-planning and/or succession-planning process, it is common for the feedback shared with the participant to be highly detailed and for extensive developmental planning and coaching to be included as a key element in the overall assessment process.

Although the focus of the assessment center is mainly on profiling the competencies of the individual, there are numerous collateral benefits. A well-designed center gives candidates a kind of realistic job preview. Also, when an organization has assessed a number of internal candidates, the organization can get a valuable perspective on where general skill strengths and deficits are by averaging across the individual profiles. Thus, for example, if most internal candidates score poorly on the competency of delegation, and the company in question has legitimately determined that such skills are indeed important in the

role being assessed, such data can be used to support training and development programs and other relevant skill-building processes in the organization. Such a finding could also affect the company's recruiting and hiring strategies. Similarly, longer-range succession planning is supported by having assessment data on a pool of incumbent employees who have the core skills necessary for higher-level jobs. In general terms, assessment centers can provide a level of information that is valuable to the organization, beyond the skills and developmental needs of individual candidates.

Since the introduction of the assessment center concept into business in the 1950s, the methodology has been employed by thousands of organizations. Recent estimates indicate that assessment centers in one form or another are used regularly by as many as 2,000 companies in the United States, and perhaps as many as 70% of large organizations in the United Kingdom. They are widespread in industry in other parts of Europe, as well. Additionally, they are particularly likely to be used by public-sector organizations such as local police and fire departments.

There is a huge base of research on the assessment center methodology. Despite some flexibility and variability in how the methodology is applied (e.g., number and kinds of activities, duration of the center, level of training of assessors, and even the extent to which the guidelines are adhered to), the data generally support the conclusion that assessment center scores show very good criterion-related validity in predicting job performance in the role being assessed. On average, meta-analyses across many studies show criterion-related validity estimates for a broad range of indicators of performance in the $+0.35$ to $+0.45$ range, and often higher for certain submeasures or for composite measures. Also, assessment center results have shown reasonable validity generalization across different jobs within broad job families. It is also often noted that compared with other selection and development approaches, the assessment center methodology has very high face or content validity, as judged by candidates, assessors, and other subject matter experts alike. Thus, the level of participant acceptance of the process is typically high. Further, it is widely claimed that compared with other selection processes, assessment centers are fair. In general, they are found not to discriminate against women, minorities, or other groups protected by the Equal Employment Opportunity Commission. In short, they are so popular because they work and are legally defensible. (Note, though,

that there is some recent evidence that older candidates may be rated generally lower than younger candidates, suggesting the possibility of age bias.)

Primary criticisms of the assessment center methodology center on complexity and cost. Developing and running an effective high-fidelity assessment center is time-consuming and expensive, to the extent that unless it is going to be run many times, it may be cost prohibitive for an organization to develop one. Even if it is to be run multiple times, each session is time-consuming and expensive in itself, requiring training time for assessors and a significant time commitment for assessors, participants, role players, administrators, and so on during the session. Thus, the methodology is used more by large organizations that have large numbers of managers and potential managers, and where the costs of a poor selection or career development decision are great. In such cases, again, the assessment center methodology is widely supported as a valuable selection and development tool.

The lack of construct validity has also been identified as a criticism of the assessment center methodology. It has been found in terms of convergent and especially discriminant validity; there is sometimes little consistency between a participant's scores on a given competency from one exercise to another, and within a given exercise, scores on different dimensions are often highly correlated. Recent research aims at determining why assessment centers are so effective in terms of their ability to predict job success, despite the lack of demonstrated construct validity.

One current trend of note is the growing use of technology as an aid to the assessment process. Thus, there is increasing use of video recording of participants' performance during the session, allowing later review by assessors and enhancing the feedback opportunities for participants, including self-feedback. Also, there is increasing use of the computer as an aid in integrating scores across different assessors. Additionally, as communications technology has become more widespread in the workplace, there is less reliance on paper-and-pencil activities and increased use of tools such as voice mail and e-mail as the more ecologically valid in-basket of today's workplace.

There is an increase in the integration of various forms of 360-degree feedback processes (usually abbreviated compared with conventional stand-alone 360s) into the assessment center feedback package, such that those familiar with the work of the assessee contribute to a richer overall feedback experience for participants.

Another growing trend is toward more integrated total or continuous simulations, rather than a bits-and-pieces, stop-start approach that takes each exercise as a discrete event. Participants in continuous simulations are assigned a role, with relevant background information about that role, including a set of role players with whom they may interact in the course of the center. Participants and role players then stay in role for the duration of the session.

To combat the high cost and time investment of the classical assessment center, there is also a developing trend toward what is being called *ongoing assessment*, for career developmental purposes. In this application, internal candidates may meet briefly with assessors at mutually convenient times to do more or less standard assessment center exercises. Rather than conducting the assessment intensively over a period of a few days, it may be spread over several weeks in and around other work responsibilities, thus being accomplished in a less labor-intensive and costly format.

The methodology is now being increasingly extended beyond the traditional target group of managers and potential managers to include candidates for positions such as members of self-directed work teams. Indeed, the need to qualify people for such expanded roles (including leadership roles in the flexible, high-performance workplace) has become a primary impetus for the application of the methodology.

From its earliest applications in the organizational setting, the assessment center has grown to be a major tool for selection, promotion, and development of critical organizational talent around the world. Researchers continue vigorous programs to determine why assessment centers work to the extent they do and how they can be made more effective.

—John Kello

See also Assessment Center Methods; Leadership Development

FURTHER READING

- Bray, D. W., Campbell, R. J., & Grant, D. L. (1974). *Formative years in business: A long-term AT&T study of managerial lives*. New York: Wiley.
- Gaugler, B. B., Rosenthal, D. B., Thornton, G. C., III, & Bentson, C. (1987). Meta-analysis of assessment center validity. *Journal of Applied Psychology*, 72(3), 493–511.
- Howard, A. (1997). A reassessment of assessment centers: Challenges for the 21st century. *Journal of Social Behavior and Personality*, 12(5), 13–52.

- International Task Force on Assessment Center Guidelines. (2000). Guidelines and ethical considerations for assessment center operations: International task force on assessment center guidelines. *Public Personnel Management, 29*(3), 315–331.
- Schmitt, N., Gooding, R. Z., Noe, R. A., & Kirsch, M. (1984). Meta-analysis of validity studies published between 1964 and 1982 and the investigation of study characteristics. *Journal of Applied Psychology, 69*, 207–213.
- Spychalski, A. C., Quinones, M. A., Gaugler, B. B., & Pohley, K. (1997). A survey of assessment center practices in organizations in the United States. *Personnel Psychology, 50*(1), 71–90.
- Thornton, G. C., III. (1992). *Assessment centers in human resource management*. Reading, MA: Addison-Wesley.

ASSESSMENT CENTER METHODS

The assessment center is a methodology used to select, promote, and develop people, usually managers, in an organization. From the earliest efforts in the 1930s and 1940s in the military, aimed at selecting officers and key operatives for highly sensitive missions, to the first systematic application in the organizational setting in the 1950s, the assessment center has become a familiar tool for skills evaluation.

A defining feature of the assessment center methodology is that it comprises a battery of tests. Further, the tests must represent a multiplicity of types. No single instrument or single type of instrument is sufficient to qualify a skills assessment process as an assessment center, by that name, according to the International Task Force on Assessment Center Guidelines.

The earliest iterations of the assessment center methodology focused to a significant extent on individual-differences assessment. The American military application, for the selection of spy operatives in World War II, was influenced strongly by the work of Harvard psychologist and noted personality theorist Henry Murray and included a good deal of personality profiling. It is still common today for personality assessment to be incorporated into an overall battery of assessment center instruments. With the development of the five-factor model of personality, the NEO tests have become an increasingly familiar part of the overall assessment center process. There are recent data suggesting that scores on the conscientiousness and extraversion scales, in particular, may generally

correlate with overall assessment center scores. At any rate, especially where the focus is more on development and less on near-term selection, personality feedback is commonly part of the assessment process.

Tests of general cognitive ability are also sometimes included as a collateral part of the assessment center process. Much like personality tests, cognitive abilities tests represent a source of additional feedback to the assessee, as well as potential predictors of future work success. Cognitive ability scores do correlate significantly with overall assessment center scores, which in turn are broadly predictive of job success.

Interviews are another familiar support tool of the assessment center methodology. The interviews may be very general, unstructured ones, aimed at identifying the assessee's background, interests, career goals, and so forth. Or they may be more structured, even situational, in which case they may form integral parts of the assessment process. A typical situational interview would describe a scenario of the sort an incumbent might experience at work—say, problems with an upset customer, a conflict between sales and operations, or an employee not following safety procedures. After specifying the situation in detail, interviewers would ask the assessee how he or she would handle the situation. The assessee's answers would then be rated in terms of the underlying competencies being assessed (e.g., relationship management, communication, problem solving).

Beyond personality or intelligence assessment and interviews, the heart of the assessment center methodology is a series of individual and group activities in which candidates, working individually or in various groupings, handle work-related problems and issues. Many of these individual and group exercises were pioneered in the earliest applications of the methodology and continue to be centerpieces of the assessment center process. Included in this mix of classical methods are the venerable in-basket, leaderless group discussions, and role plays.

The in-basket is sometimes considered *the* defining tool of the assessment center methodology. The basic idea of the in-basket is that participants are assigned a role, namely the role for which they are being assessed, and are given the kinds of memos, reports, notes, and other communications that an incumbent in the role being assessed might receive in her or his in-basket on a given day. The participants must then act on the in-basket information in the way they would in the

real world, prioritizing issues, writing reply memos, gathering information, calling meetings, and so on. It is common for the in-basket exercise to be timed. When possible, participants might subsequently be interviewed after the exercise, to better understand the rationale for their responses to in-basket items.

The in-basket provides opportunities to observe how the participant prioritizes and plans, solves problems and makes decisions, and communicates and coordinates with key resources, for example, all of which are common competencies of the managerial role. In-basket activities can be considered a kind of multidimensional work sample test, to the extent that the role being assessed requires just such handling of incoming communications.

One benefit of the in-basket method is that it typically includes some documented output by the participant. The written recommendation, or market analysis, or meeting agenda, or reply memo is a piece of data that assessors can review and reflect on offline at their leisure, assisting them in the skills evaluation process.

Today, managers spend quite a bit less time than in the past handling memos in paper form and a much greater amount of time in e-mail, voice mail, and cell phone communication. It is increasingly common for the methodology of high-fidelity assessment centers to reflect current technology. Thus, participants' workspace in a modern assessment center may include a desktop computer, through which they can receive and send e-mails, and a phone/voice mail system, through which they can communicate with others. The availability of such technology greatly increases the fidelity of the work setting in the assessment center but also greatly increases the workload on the assessors who have to keep track of such rapid communication via multimedia for several participants.

The leaderless group discussion is also a familiar classical feature of the assessment center methodology. Typically, participants are given an issue to discuss and make recommendations about. As the title suggests, no member of the group is formally designated as leader. They may be told, for example, that they are all regional sales managers for XYZ Corp., which is facing a declining market, new competition, and quality problems in production. They are then asked to meet and fully discuss the issues and make a recommendation to the vice president/general manager on how to address the problems. They will have been given sufficient information (e.g., through

in-basket communications) for them to think strategically about the problems. In some cases, individual participants are given different information, or different perspectives on the issue at hand, such that disagreement and conflict are more likely in the discussion.

In the course of the leaderless group discussion, participants gravitate to roles in which they are comfortable. Usually, someone will structure the meeting approach, someone will keep notes, some bring organized proposals, some brainstorm well, some show skill at developing others' ideas, and some participate little. The format provides an excellent opportunity for assessors to see a whole range of competencies related to communication, influence, collaboration, resolving disagreements, problem solving, relationship management, and the like. To the extent that the contemporary environment of work puts a premium on joint, collaborative work and the ability to cooperate and compromise as well as provide direction, this tool gives assessors a snapshot of candidates' interactive skills and general approach to teamwork. The leaderless group discussion has been called the *projective test of leadership*. If the scenario is realistic and engaging, participants can get caught up in the issue and reveal much about their real approach to collaborative work. One caution is that strong individual personalities can shift the dynamics of a leaderless group such that it is hard to get a valid view of each individual's approach. For example, one extremely competitive participant can cause others to become more aggressive, or for that matter more compliant, than they normally would be. Assessors must be alert to such artifacts.

In the role-play method, participants are given a role and a scenario to act on with a role player/assessor, whose role is also specified. At the appointed time, the assessee and the role player interact as assessors observe and make notes. For example, a participant may be in the role of a supervisor in a team-based production environment whose crew has been complaining about how the previous shift leaves a mess that they have to clean up before they can start running production. They have asked her to talk with the peer supervisor of the off-going shift (played by the role player). The role player is provided with specific guidelines as to how to act and the kinds of themes to weave into the role play (e.g., be a bit defensive—express thoughts such as “I don't tell *you* how to run *your* shift!”). He is further directed to act realistically

to that role and to base further responses on the approach the assessee takes to the problem. Finally, he is asked to keep in mind that the point of the role play, as with all of the exercises of the center, is to provide a realistic forum in which to see the participant's skill level on key competencies, so he should give the participant ample opportunity to show active listening skills, project empathy, be results oriented, and so on.

Beyond the classic "big three," additional exercises that are often found in assessment centers include structured meetings, presentations, and written analyses. In a structured meeting, the participant's role is specified. Thus the participant might be a sales manager leading a meeting with his three sales reps around a given market issue. An example of a presentation might be a 10-minute overview of plant status by a plant manager, given to his boss (role player), or a sales presentation given by a sales manager to a national client (role player). Written analyses might include completing a budget or doing a cost justification for the purchase of a major piece of equipment. Again, as always, such exercises are anchored in the competencies that are being assessed.

Finally, it is normal for some self-assessment (and at times 360-degree feedback) to be included in the overall assessment center process. Early iterations of the methodology had participants write autobiographical statements. More recent applications may directly call for self-assessment, such as "On a five-point scale, rate your ability in the area of delegation . . . what are your specific strengths in this area . . . what are your specific developmental needs in this area?" Or activities may be built into other exercises that precipitate such self-assessment indirectly. Thus, an in-basket memo from the boss might ask the participant to list what he or she sees as the critical competencies of the job in question and to self-assess and identify personal training and development needs in these skill areas.

A major methodological question centers on the level of fidelity of the simulations in the assessment center. Especially if the goal of the process is to select nonmanagerial employees from a pool of outside applicants, it is common for the center to be brief (1 day or less) and relatively low-fidelity. Thus activities might be more generic (e.g., a leaderless group discussion about how to motivate employees) than detailed and specific to the role (a leaderless group discussion about changes to a specific incentive bonus plan, based on information given in the in-basket). With internal candidates, and especially for managerial

positions, it is common for the process to be longer (on the order of 2 to 5 days), more detailed, and higher-fidelity. Also, under the latter circumstances it is common for the various exercises of the assessment process to be integrated rather than discrete. That is, candidates will be given highly detailed information about their role at the outset of the process. Thus, if they are in the role of a plant manager in a manufacturing environment, they will be given specifications such as a personal work history (how long they have been in that role, where they worked before), the parameters of their plant, organizational charts, detailed information on their division and company, recent history of their plant, background on their employees, and key challenges facing their plant. Then from the time the center begins until it is concluded, they stay in that role. All the issues that come up are consistent with the information they have been given. They role play with key individuals who have been identified in the initial information they have received (e.g., their boss, their sales counterpart, key direct-report employees, the union president). Such an integrated total simulation approach, if well designed, is typically seen by participants as having especially high face validity.

Modern technology is not only used to increase the fidelity of the work simulation for participants. It is also used as a powerful aid to the assessor in the roles of observer, role player, behavior analyzer, and report writer. For example, it is increasingly common for assessors to videotape group discussions, role-play interactions, presentations, and so on. Then the tapes can be reviewed later for more detailed and thorough analysis. Additionally, the videos can be incorporated directly into the feedback process, potentially enriching the experience for the participant. Technology can also be used for the delivery of some elements of the assessment process, including personality profiles or cognitive-abilities assessments, online.

In general, given the complexity and cost of assessment centers, there is constant pressure to simplify and shorten assessment centers without sacrificing fidelity and predictiveness. Thus, there is some movement toward the use of online situational interviews in which participants choose a multiple-choice response as their output. Such an item can be taken by an individual quickly and automatically scored and integrated with other scores. In a similar vein, there is a move toward a less formalized overall approach to assessment centers, in which the assessment is done

with internal candidates, typically individually, in brief interactions over a longer period of time, still using assessment center tools such as in-basket activities and role plays. One distinct advantage of such ongoing assessment is that it can be done when the company has fewer than the usual 6 to 12 candidates but needs to assess competencies in a couple of key individuals now. Such truncated methods can be built to have good criterion-related validity, even though they are not fully consistent with the guidelines of the International Task Force on Assessment Centers. In the contemporary organizational climate of change, it is expected that such variations on the core methods of the assessment center will be increasingly common.

—John Kello

See also Assessment Center

FURTHER READING

- Bray, D. W., Campbell, R. J., & Grant, D. L. (1974). *Formative years in business: A long-term AT&T study of managerial lives*. New York: Wiley.
- Byham, W. C. (1970). Assessment centers for spotting future managers. *Harvard Business Review*, 48(4), 150–167.
- International Task Force on Assessment Center Guidelines. (2000). Guidelines and ethical considerations for assessment center operations: International task force on assessment center guidelines. *Public Personnel Management*, 29(3), 315–331.
- Moses, J. J., & Byham, W. C. (Eds.). (1977). *Applying the assessment center method*. New York: Pergamon.
- Schippmann, J. S., Prien, E. P., & Katz, J. A. (1990). Reliability and validity of in-basket performance measures. *Personnel Psychology*, 43(4), 837–859.
- Thornton, G. C., III. (1992). *Assessment centers in human resource management*. Reading, MA: Addison-Wesley.
- Thornton, G. C., III, & Byham, W. C. (1982). *Assessment centers and managerial performance*. New York: Academic Press.

ATTITUDES AND BELIEFS

Attitudes are the positive or negative evaluations made about people, issues, or objects. For example, in an organizational setting, employees might hold attitudes toward their employer or coworkers, toward workplace issues or regulations, and toward the job itself.

Attitudes form a central foundation of the way that individuals think about and come to understand the world around them; consequently, they influence and are influenced by people's beliefs and cognitions. Much research has focused on the structure and measurement of attitudes, as well as their relation to affect, beliefs, and behavior. A central question that has been raised with regard to attitudes is whether they are accurate predictors of behavior. Understanding processes of attitude formation and change has also been a dominant avenue of research.

ATTITUDE STRUCTURE

Attitudes are based on cognitive, affective, and behavioral information. Beliefs provide the cognitive basis of an attitude. A *belief* is the cognitive information that one has about an attitude object. For example, a workplace attitude might be based on beliefs, or cognitions, about one's job. The *affective basis* of an attitude refers to the emotional response that one has toward the attitude object—for example, the affect that one feels toward one's job. The *behavioral basis* of an attitude refers to actions that are taken with regard to the attitude object, such as job-related behaviors that reflect one's attitude toward work. An attitude might be based on any combination of these three components. For certain attitudes, components can be evaluatively inconsistent with one another. For example, a person with an emotionally grueling job might experience negative affect toward his or her work but at the same time hold positive cognitions by believing that the job is important and useful. This leads to attitudinal ambivalence, which is described as a state of holding *both* positive and negative evaluations of the same attitude object.

The issue of attitudinal ambivalence has received recent attention, reflected in the debate over whether attitude structure is bipolar or bivariate. Evaluative processes have been traditionally conceptualized as bipolar. According to a bipolar model of attitudes, people's attitudes can range from very negative (and not at all positive) to very positive (and not at all negative). This conceptualization implies that negativity and positivity are reciprocal, opposing forces; consequently, the more positive one's attitude is, the less negative it will be, and vice versa. One limitation of this conceptualization is that it precludes the possibility of attitude ambivalence. To address this issue, an alternative conceptualization of attitude structure has

emerged in which attitudes are viewed as bivariate rather than bipolar. The bivariate perspective suggests that positivity and negativity are separable attitudinal substrates, rather than opposite ends of the same continuum; further, each can be separately activated and exert an independent influence on behavior.

ATTITUDE FORMATION

Attitudes form through a variety of processes. Many attitudes are developed through direct experience with an attitude object or learned through processes of operant and classical conditioning. A growing body of evidence suggests that attitudes may also have a genetic basis.

Direct experience. Attitudes may form through direct experience with a person, issue, or object. Direct interaction with the attitude object contributes to the formation of a positive or negative evaluation. Attitudes formed through direct experience are strong predictors of future behavior.

Classical conditioning. When a positive or negative stimulus is paired repeatedly with an initially neutral attitude object, attitude formation through classical conditioning may occur. When this occurs, the evaluation paired with the neutral stimulus eventually becomes associated with the attitude object itself. Attitude formation through this process often occurs at an unconscious level.

Operant conditioning. Attitudes are formed through operant conditioning when an attitude object becomes associated with a positive or negative consequence. Specifically, when behavior toward an attitude object is reinforced, a positive attitude toward the attitude object will form. When behavior toward an attitude object is punished or associated with negative consequences, an unfavorable attitude will form.

Genetic determinants of attitudes. Identical twins (even when raised in separate environments) show a higher correlation in their attitudes than fraternal twins, providing evidence for a genetic basis of attitudes. This is likely because of the influence of genetics on temperament and personality, which in turn influence attitudes. Attitudes that have a genetic basis appear to be more difficult to alter and exert a stronger influence on behavior.

IMPLICIT AND EXPLICIT ATTITUDES

A distinction has been made between *implicit* and *explicit* attitudes. An explicit attitude is one that a

person is consciously aware of and can report, for example, on a self-report measure. A large volume of research has focused on understanding and assessing explicit attitudes. However, recent attention has turned to the existence of implicit attitudes, attitudes that are involuntary, uncontrollable, and, in some cases, not accessible at a conscious level. Although implicit attitudes are not consciously accessed, they are found to still exert influence on behavior. Take, for example, a person who holds sexist attitudes in the workplace but is not consciously aware of holding these attitudes. These are implicit attitudes, which could exert influence on this person's workplace behavior with regard to female employees. The relationship between implicit and explicit attitudes, along with their influence on behavior, is a topic of ongoing investigation among attitude researchers. With regard to attitude measurement, implicit and explicit attitudes may require different methods of assessment. Because people are not able to directly access and report implicit attitudes, traditional means of attitude measurement may be less effective, indicating a need for more indirect methods of assessment.

ATTITUDE MEASUREMENT

Attitudes are frequently assessed through self-report measures. Three common scale methodologies used to assess attitudes are the Thurstone scale, Likert scale, and semantic differential. A Thurstone scale is developed by having individuals rank order opinion statements about a particular attitude object according to their favorableness. A subset of items representing a wide range of opinions is then selected and used to assess attitudes. A Likert scale consists of a series of items for which people indicate the strength of their agreement with each statement (e.g., "I enjoy my job") on a rating scale that encompasses low to high levels of agreement. The semantic differential assesses attitudes by providing opposing adjective pairs (e.g., good–bad; foolish–wise) on which the individual rates a specific attitude object.

Although there are advantages to measuring attitudes through direct self-report measures, such as availability, speed, and ease of use, there are also limitations associated with their use. For example, many existing self-report measures make the implicit assumption that attitudes are bipolar (rather than bivariate) and, therefore, may not detect levels of attitudinal ambivalence. Further, when individuals are

asked to report attitudes on controversial topics, they may be less likely to report their true evaluations and instead report responses that they perceive to be socially desirable. Similarly, if attitudes are not consciously accessible, as in the case of implicit attitudes, individuals may not be able to accurately report them on these measures. To overcome these concerns, researchers can use indirect methods of attitude measurement, such as unobtrusive behavioral measures, physiological measures, or techniques, such as the Implicit Association Test, that are designed for assessing implicit attitudes.

DO ATTITUDES PREDICT BEHAVIORS?

The question of whether attitudes guide and predict behavior is an issue that has been central to the study of attitudes. Several critical challenges to the commonsense assumption that attitudes determine behavior emerged in the 1930s and 1940s, as numerous studies indicated little or no relationship between attitudes and behaviors. Consequently, by the 1960s there was a call by many researchers to abandon the study of the attitude. Since then, researchers have reexamined the attitude–behavior link and articulated particular conditions under which attitudes will be likely to guide behavior. Attitudes that are accessible, specific, strong, or formed through direct experience are found to exert stronger influences on behavior. Additionally, the theory of reasoned action, developed by Icek Ajzen and Martin Fishbein, and the theory of planned behavior, developed by Ajzen, provide models of how attitudes can guide deliberative behavior through their influence on intentions.

PERSUASION

Persuasion refers to an active attempt made to change another person's attitude toward some issue, object, or person. Seminal studies conducted during the 1940s by Carl Hovland and his research group at Yale University led to the development of the message learning approach, which became a primary template for persuasion research. The message learning approach suggests that persuasion occurs through a sequence of stages including attention, comprehension, yielding, and retention of a message. It asserts that persuasion is influenced by characteristics related to the source of the message, the nature of the audience (or message recipients), and qualities of the message itself.

In the 1980s, dual-process models, such as Shelly Chaiken's heuristic-systematic model and the elaboration likelihood model, developed by Richard Petty and John Cacioppo, emerged as dominant models of persuasion. These models suggest that persuasion can result from two types of message processing: thoughtful processing of the arguments contained in a message, or less effortful processing of cues or heuristics pertaining to the message. Whether one engages in more or less effortful processing depends on one's ability or motivation to elaborate on the message. Although attitude change can occur through either process, persuasion that results from more elaborative processing of a message has been found to be more persistent, resistant to counterpersuasion, and predictive of future behavior.

—Jennifer L. Welbourne

See also Measurement Scales; Theory of Reasoned Action/Theory of Planned Behavior

FURTHER READING

- Cacioppo, J., Gardner, W., & Berntson, G. (1997). Beyond bipolar conceptualizations and measures: The case of attitudes and evaluative space. *Personality and Social Psychology Review, 1*, 3–25.
- Kraus, S. (1995). Attitudes and the prediction of behavior: A meta-analysis of the empirical literature. *Personality and Social Psychology Bulletin, 21*, 58–75.
- Olson, J., Vernon, P., Harris, J., & Lang, K. (2001). The heritability of attitudes: A study of twins. *Journal of Personality and Social Psychology, 80*(6), 845–860.
- Petty, R. E., & Wegener, D. (1999). The elaboration likelihood model: Current status and controversies. In S. Chaiken & Y. Trope (Eds.), *Dual-process theories in social psychology* (pp. 41–72). New York: Guilford Press.
- Wood, W. (2000). Attitude change: Persuasion and social influence. *Annual Review of Psychology, 51*, 539–570.

ATTRACTION–SELECTION–ATTRITION MODEL

The discipline of organizational behavior focuses on the study of organizations and the people who populate them. Generally and historically, the field has been largely divided into those who study the attributes of organizations and their markets (macro

organizational behavior) and those who study the attributes of people in organizations (micro organizational behavior). Typically, macro approaches have focused on explaining organizational performance and draw their intellectual heritage from sociology and economics, whereas micro approaches have focused on explaining and predicting individual behavior and performance and draw their heritage from psychology. Although the recent history of organizational behavior has seen attempts to integrate these two paradigms, the micro and macro distinction has led to a scholarly division with two largely non-overlapping, independent literatures. As a consequence, there is little cross-fertilization of ideas across micro and macro perspectives and little attempt to understand the processes that translate the characteristics and behavior of people to the performance of their organizations. In his 1985 presidential address to the Society of Industrial and Organizational Psychology, Benjamin Schneider noted this distinction in the literature and offered an attempt to bridge the micro and macro distinctions. In its most basic form, his model, the attraction–selection–attrition (or ASA) model, postulates that it is the characteristics of people in an organization that partially (if not largely) determine the organizational attributes typically studied by macro researchers.

OVERVIEW

The ASA model delineates a framework for understanding organizational behavior that integrates both individual (micro) and organizational (macro) perspectives by explaining macro organizational attributes with micro person characteristics. The framework proposes that the outcome of three interrelated dynamic processes, attraction–selection–attrition, determines the kinds of people in an organization, which consequently defines an organization, its structures, its processes, and, ultimately, its culture.

At the core of the ASA model are the goals of the organization originally articulated (implicitly or explicitly) by the founder. Organizational goals, and the processes, structures, and culture that emerge to facilitate attainment of these goals, are suggested to be reflections of the particular characteristics (i.e., personality) of the founder and those of his or her early colleagues. Schneider suggests that founders are faced with a variety of decisions to make regarding whom to hire, how to compensate employees, how to structure

reporting relationships, and even what industries or markets to enter. The decisions made are influenced by the underlying values, motives, and dispositions of the founder. So, for example, the ASA model would postulate that the cultural differences between Apple Computer and Microsoft had their origins in the personality differences of their founders, Steve Jobs and Bill Gates. As Apple Computer and Microsoft grew, the policies and procedures established were a reflection of their founders' early influence, and over time these policies and procedures created a culture that is somewhat unique for each company. So, the genesis of an organization's culture can be traced to the initial decisions made by founders and the unique imprint they put on their organizations. This, too, is the beginning of the ASA cycle.

The ASA cycle begins with the *attraction* process, which concerns the fact that people's preferences for particular organizations are based on some estimate of the fit or congruence of their own personal characteristics (personality, values, and motives) with the attributes of the organization they are evaluating. That is, people find organizations differentially attractive as a function of their implicit judgments of the congruence between those organizations' goals (and structures, processes, and culture as manifestations of those goals) and their own personalities. For example, an IT engineer may choose to work for Apple Computer, as opposed to Microsoft, because she or he sees the company as innovative and flexible, which conforms to the engineer's own values of creativity and independence. Ample research evidence suggests that job applicants make assessments of fit when choosing among employment alternatives.

The next step in the ASA cycle refers to the formal and informal *selection* procedures used by organizations in the recruitment and hiring of people with the attributes the organization desires. Many organizations explicitly use fit as a criterion in the hiring process. Based on ample research demonstrating that fit to an organization's culture has implications for employee job satisfaction, turnover, and absenteeism, this criterion seems justified. The greater the degree of misfit, the more likely an employee will be to experience dissatisfaction with the job, be absent, and quit. Research also suggests that fit assessments affect hiring procedures not intended to assess fit. For example, research suggests that assessment center ratings and interviewer judgments are influenced by conscious or unconscious evaluations of applicant fit.

Finally, the *attrition* process refers to the idea that people will leave an organization they do not fit. The turnover literature is quite clear about the fact that people who do not fit an organization will tend to leave it. Of course, economics and job market prospects moderate the extent to which people leave an organization they do not fit. In summary, ASA proposes that three processes—attraction, selection, and attrition—result in organizations containing people with distinct personalities, and it is these distinct personalities that are responsible for the unique structures, processes, and cultures that characterize organizations. Organizational and personal characteristics are self-reinforcing. The characteristics of people in an organization determine the policies and practices, which, in turn, determine the people who are attracted to and remain with the organization.

IMPLICATIONS FOR ORGANIZATIONS

As an outcome of the ASA model, Schneider and colleagues postulated that organizations will become increasingly homogeneous over time. In other words, they will come to be populated by people of a similar personality profile. To assess this hypothesis, Schneider and colleagues examined the personality profiles of approximately 13,000 managers from 142 organizations in the United States. The organizations in their sample represented a broad cross section of industries. Consistent with the homogeneity hypothesis, their results suggested that managers were more similar to managers in their own organization than they were to managers in the other organizations. This remained true when you looked within an industry. That is, even within an industry, managers were more similar to others in their organization than they were to managers in other organizations within their same industry.

Although we previously indicated that there are positive consequences of good fit for people and organizations (regarding satisfaction, commitment, and turnover), the ASA model suggests that the outcome good fit could be detrimental to the long-term viability of an organization, particularly if an organization experiences volatility in its market. The primary negative consequences of good fit or homogeneity are the potential inability for an organization to sense changes in its environment and adapt to those changes and the demise of competitiveness through easily predictable decision making. There is limited research on the consequences of homogeneity for organizational

effectiveness, and the predictions made by the ASA model are complex. For example, the ASA model would predict that during the initial founding and early history of an organization, homogeneity breeds the commitment that is needed to retain people and grow the enterprise. Only after an organization matures and the market becomes more complex and turbulent does homogeneity produce negative consequences. Research does indicate that as the average tenure of the senior managers increases, the fit between the organization's strategy and demands of the business environment decreases. Although not a direct test of the negative consequences of homogeneity, this finding is consistent with the logic of the hypothesis. Additionally, research in social psychology on the effects of homogeneity on group problem solving supports the notion that groups engaged in creative problem-solving tasks do better if they are heterogeneous. The conflict that is created by different perspectives is important in these ill-defined problem-solving situations—situations analogous to the strategic decisions made by top managers. As this research implies, the ASA model predicts that the negative consequences of homogeneity may only manifest themselves at the upper levels of the organizational hierarchy (where managers are faced with strategic decisions). Elsewhere the positive benefits of homogeneity may outweigh the costs.

IMPLICATIONS FOR ORGANIZATIONAL BEHAVIOR THEORY

The ASA model provides an example of multilevel organization theory. Specifically, the psychological attributes of people (in the collective) are hypothesized to be the antecedents of important organizational characteristics. In this way, the ASA model offers a bridge between the micro and macro perspectives. Additionally, the ASA model provides insight into a long-standing argument within psychology—the person–situation debate. This debate seeks to determine which set of attributes (those related to the person, or the situation/environment) are the primary predictors of behavior. The ASA model suggests that the attributes of people shape their environments. The two sets of attributes are not mutually exclusive; rather, they are mutually determined. You cannot separate people from the situation.

—D. Brent Smith

See also Employee Selection; Organizational Development; Person–Environment Fit; Prescreening Assessment Methods for Personnel Selection; Recruitment; Selection Strategies

FURTHER READING

- Giberson, T. R., Resick, C. J., & Dickson, M. W. (2005). Embedding leader characteristics: An examination of homogeneity of personality and value in organizations. *Journal of Applied Psychology, 90*, 1002–1010.
- Schneider, B. (1983). Interactional psychology and organizational behavior. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 5, pp. 1–31). Greenwich, CT: JAI Press.
- Schneider, B. (1987). The people make the place. *Personnel Psychology, 40*, 437–454.
- Schneider, B., Goldstein, H., & Smith, D. B. (1995). The ASA framework: An update. *Personnel Psychology, 48*, 747–773.
- Schneider, B., Smith, D. B., Taylor, S., & Fleener, J. (1998). Personality and organization: A test of the homogeneity of personality hypothesis. *Journal of Applied Psychology, 83*, 462–470.

AUTOMATION/ADVANCED MANUFACTURING TECHNOLOGY/COMPUTER-BASED INTEGRATED TECHNOLOGY

Automation usually refers to the replacement of human work by machines. The word was first used by the Ford Motor Company in the 1940s to describe automatic handling and machine-feeding devices in their manufacturing processes. *Advanced manufacturing technology* (AMT) is a special instance of automation and usually refers to computer-based manufacturing technologies and support systems. Examples include computerized numerically controlled machine tools, computer-aided design, and computer-supported production control systems. There will be few, if any, manufacturing companies in the developed world that have not undertaken some investment in AMT.

Computer-based integrated technology (CIT) refers to higher levels of integration and comprises systems that cut across organizational functions. For example, enterprise resource planning (ERP) systems include a centralized database and sets of integrated software modules designed to manage all aspects of

an organization's work processes, including production control, customer billing, and human resources. Estimating the uptake of CIT is difficult. However, a survey in Australia, Japan, and the United Kingdom, published in 2002, found that approximately 33% to 40% of larger manufacturing companies (employing more than 250 people) were significant users of CIT. The same survey in Switzerland reported substantial use in around 60% of companies. The findings are similar for ERP systems. By the late 1990s, it was estimated that around 40% of large U.S. companies and 60% of small ones had deployed ERP systems. By 2004, the worldwide market for ERP systems was estimated to be around \$79 billion per annum.

Over the last decade, there has also been growing investment in systems to integrate activities between organizations, a good example being e-business systems that allow electronic ordering and billing through a supply chain and on the part of customers. By the year 2000 it was estimated that around 20% to 25% of companies in the United States, Canada, Europe, and Australia were trading online, although the proportional value of goods traded online was much lower (less than 10%). It is almost certainly the case that these amounts have grown and will continue to grow.

MOTIVES AND IMPACTS

Such investments are usually undertaken for a mix of motives. Machines may do the work more cheaply, more quickly, to a higher quality, with more repeatability, with reduced errors, and with reduced lead times. For these reasons, many companies have become enthusiastic adopters of such new technologies. They are also mindful that if they don't innovate, their competitors might, thereby gaining a significant advantage in the marketplace. This can feed so-called fads and fashions, often vigorously supported by an active community of suppliers of equipment and expertise, including consultants.

Unsurprisingly, such changes are also often accompanied by fears on the part of employees. Will the adoption of new technology lead to reduced headcount and thereby redundancy? Will the remaining jobs become deskilled, with previously skilled employees being reduced to unskilled labor?

It is certainly the case that the trend to automation can reduce headcount. To give a specific example, the city of Sheffield in the United Kingdom, famous for

its high-quality steel, produces the same amount as it ever did in its postwar prime, but now with 10% of the earlier workforce.

But at the same time, the development of computers and their increasing application to different domains has spawned whole new industries, thereby creating many new jobs. New organizations have grown up around the development, provision, marketing, and support of computer hardware and software, project management, knowledge management, computer simulations, software games and entertainment, and communications, to name just some—all enabled by the onset of sophisticated computerization.

Concerns over deskilling are equally complicated to assess in practice. Whereas some organizations have used computer-based operations to deskill their operators—for example, by turning them into machine minders—many others have upskilled their operations by asking their machine operators to write and edit computer programs and to solve complex machine problems. Also, as previously implied, at a more macro level, the onset of computerization has led to the creation of many new highly skilled professions.

The process is further complicated by the onset of globalization. Computer-based information and communications technologies now make it possible to move work around the world. A topical example is provided by the widespread use of customer call centers based in India. This may be to the benefit of the Indian economy, but it may not be perceived that way by employees in the developed world who see their jobs as being exported to regions where labor costs are significantly lower.

Three generalizations seem appropriate. First, such periods of change may be genuinely uncomfortable and threatening for the individuals concerned. It may be no real consolation in losing one's job to be told it is an inevitable long-term structural shift in the nature of the global economy. Second, such changes are likely to be easier to manage and endure during periods of economic growth rather than decline. A buoyant labor market certainly helps. And third, this is one of the reasons why most leading commentators in developed economies see their economic future in the development of highly skilled, high value-added, and highly innovative work, areas where education and skills are at a premium and where competition in a global economy is not solely dependent on the cost of labor.

EFFECTIVENESS AND THE ROLE OF INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY

The foregoing description gives the impression of inevitability and, although difficult perhaps for some individuals in the short term, of benign and effective progress. However, the position on the ground is a good deal more complex. Let us look now at some of the data on the effectiveness of such new technologies.

The data from economic analyses, surveys, case studies, and expert panels is consistently disappointing. Turning first to ERP systems, many are scrapped (estimates vary between 20% and 50%), and overall failure rates are high (again, estimates vary, at around 60% to 90%). Indeed, it is now commonplace for economists to bemoan the lack of impact of investments in IT (information technology) on overall productivity over time.

The best estimate is probably that up to 20% of investments are true successes, genuinely meeting their goals; around 40% are partial successes, meeting some of their goals but by no means all; and around 40% are complete failures.

So, why are such investments often so disappointing, and what can be done about it? Many industrial/organizational psychologists have worked in this domain, most notably perhaps under the general banner of sociotechnical thinking. Their central proposition is that work systems comprise both technical and social systems and that companies cannot change one without affecting the other—it is the nature of systems that they are intrinsically interconnected. It follows that technical change requires active consideration to changes in working practices and processes, job designs and work organization, employee skills and competencies, training and education, human-computer interfaces, and the management of change. These are major issues, and the evidence is that many organizations focus too much on the technology, pay too little regard to the social, and fail to adopt an integrated systems perspective.

Several attempts have been made at formulating good practice guidelines, of which the following are representative:

- Senior managers should ensure that new technology investments meet the needs of the business. Senior managers should ask, “Why are we doing this? What benefit do we gain? Does it further our strategy?”
- Any technical change will require changes in business processes, working practices, job design, and

the like. Senior managers need to ensure that changes in all these areas are an intrinsic part of the project—a systems view is needed.

- Senior users in the business need to have some ownership of, and influence over, the nature of the changes they require. Changes in systems that are *pulled into* a business are usually much more successful than changes that are *pushed into* a business. Beware projects that seem just to be about IT and that are being pushed hard by the IT department.
- Any project team needs to include all the requisite skills and expertise, including the human and organizational issues.
- The users (or recipients) of any change program need to be actively involved. This should be all the way from the design of the new way of working through to evaluation of the effectiveness of the changes.
- There is a need to educate all those involved in what the changes mean, why they are being undertaken, what benefits accrue, and what actions are necessary to achieve success. At the same time, training is needed on the operational and more detailed aspects of the changes.
- Where such changes are undertaken, organizations need to learn as they go, to be pragmatic, and, where possible, to undertake changes in manageable chunks.
- Evaluation against objectives using benchmark measures is a prerequisite for learning. Internal and external benchmarking can provide excellent opportunities for improvement.
- All the above require the commitment of resources, in particular time, effort, money, and expertise. They also require a different mind-set on the nature of change, one that adopts a systems orientation and views technology as a necessary but not sufficient predictor of success.

These guidelines may seem relatively unsurprising to students of industrial/organizational psychology.

But there continues to be evidence that such standards are ignored in practice. Perhaps the interesting question is, “Why is it that informational technology failures persist?” There is massive potential here for industrial/organizational psychologists to make a substantial contribution, but it is likely that this will best be achieved by working with other disciplines (including technical and operational specialists) and with organizations facing some very practical problems. It is certainly true that we need to bridge the divides between disciplines and between academia and practice.

—Chris Clegg

See also Computer Assessment; Human–Computer Interaction; Simulation, Computer Approach

FURTHER READING

- Clegg, C. W. (2001). Sociotechnical principles for system design. *Applied Ergonomics*, 31, 463–477.
- Clegg, C. W., Wall, T. D., Pepper, K., Stride, C., Woods, D., Morrison, D., et al. (2002). An international survey of the use and effectiveness of modern manufacturing practices. *Human Factors and Ergonomics in Manufacturing*, 12, 171–191.
- Holman, D., Wall, T. D., Clegg, C. W., Sparrow, P., & Howard, A. (2003). *The new workplace*. Chichester, UK: Wiley.
- Landauer, T. (1995). *The trouble with computers*. Cambridge: MIT Press.

AUTONOMY

See EMPOWERMENT

B

BALANCED SCORECARD

Balanced scorecard is a management system that enables organizations to translate vision and strategy into action. This system provides feedback on internal business processes and external outcomes to continually improve organizational performance and results. Robert Kaplan and David Norton created the balanced scorecard approach in the early 1990s.

Most traditional management systems focus on the financial performance of an organization. According to those who support the balanced scorecard, the financial approach is unbalanced and has major limitations:

- Financial data typically reflect an organization's past performance. Therefore, they may not accurately represent the current state of the organization or what is likely to happen to the organization in the future.
- It is not uncommon for the current market value of an organization to exceed the market value of its assets. There are financial ratios that reflect the value of a company's assets relative to its market value. The difference between the market value of an organization and the current market value of the organization's assets is often referred to as intangible assets. Traditional financial measures do not cover these intangible assets.

The balanced scorecard suggests that organizations should be viewed and measured from four different perspectives. These perspectives are as follows:

- **The business process perspective**—the internal business processes that are often classified as

mission oriented and support oriented. Examples of this perspective include the length of time spent prospecting and the amount of rework required.

- **The customer perspective**—the level of customer focus and customer satisfaction. Examples of this perspective include the amount of time spent on customer calls and customer survey data.
- **The financial perspective**—the financial aspects of the organization. Examples of this perspective include financial ratios and various cash flow measures.
- **The learning and growth perspective**—includes employee training and organizational attitudes related to both employee and organizational improvement. Examples of this perspective include the amount of revenue that comes from new ideas and measures of the types and length of time spent training staff.

Using the balanced scorecard, companies create their own unique measures of these four aspects of the business. The specific measures that a company develops should reflect the specific drivers and strategy of the business.

Kaplan and Norton recommend a nine-step process for creating and implementing the balanced scorecard in an organization.

1. Perform an overall organizational assessment.
2. Identify strategic themes.
3. Define perspectives and strategic objectives.
4. Develop a strategy map.
5. Drive performance metrics.
6. Refine and prioritize strategic initiatives.
7. Automate and communicate.

8. Implement the balanced scorecard throughout the organization.
9. Collect data, evaluate, and revise.

There are many benefits and challenges to the balanced scorecard. The primary benefit is that it helps organizations translate strategy into action. By defining and communicating performance metrics related to the overall strategy of the company, the balanced scorecard makes the strategy come alive. It also enables employees at all levels of the organization to focus on important business drivers.

The main challenge of this system is that it can be difficult and time-consuming to implement. Kaplan and Norton originally estimated that it would take an organization a little more than 2 years to fully implement the system throughout the organization. Some organizations implement in less time and some require more time. The bottom line is that the balanced scorecard requires a sustained, long-term commitment at all levels in the organization for it to be effective.

—Joan P. Brannick

See also Measurement Scales; Performance Appraisal; Total Quality Management

FURTHER READING

- Kaplan, R. S., & Norton, D. P. (1993, September). Putting the balanced scorecard to work. *Harvard Business Review*, 71, 134–147.
- Kaplan, R. S., & Norton, D. P. (1996, January). Using the balanced scorecard as a strategic management system. *Harvard Business Review*, 74, 75–85.
- Kaplan, R. S., & Norton, D. P. (2000, September). Having trouble with your strategy? Then map it. *Harvard Business Review*, 78, 167–176.
- Kaplan, R. S., & Norton, D. P. (2004, February). Measuring the strategic readiness of intangible assets. *Harvard Business Review*, 82, 52–63.
- Niven, P. R. (2002). *Balanced scorecard step-by-step: Maximizing performance and maintaining results*. New York: Wiley.
- Ulrich, D., Zenger, J., & Smallwood, N. (1999). *Results-based leadership*. Boston: Harvard Business School Press.

BANDING

Banding refers to the procedure of grouping test scores into ranges and treating scores within a particular

range as equivalent when making personnel decisions. After an organization collects test scores from candidates who applied for a job, a hiring decision must be made using these scores. There are a number of approaches for making these decisions. One common strategy is called *top-down selection*: Candidate scores are ranked from highest to lowest and organizations start at the top of the list by selecting the candidate with the highest score, then move to the person with the next highest score, and so on down the list. Another common strategy is the practice of setting cutoff scores. A cutoff score involves setting a passing score where candidates at or above this score are labeled as passing the test, whereas those below are labeled as failing. With a cutoff score those passing are treated as if they performed equally on the test. Banding is an alternative to top-down and cutoff score approaches.

Banding involves creating a defined range within which candidate scores are treated as being the same. This is similar to grouping scores into grades as done in many academic settings (e.g., a score between 90% and 100% is considered an A, a score between 80% and 89% is considered a B, etc.). The concept of banding is based on the idea that small differences between test scores may not translate into meaningful differences in expected job performance. For example, a candidate who scores 94% on a test may not perform noticeably better on the job than a candidate who scores 92%. This is because tests are not perfectly predictive of job performance and have varying degrees of measurement error. Banding is the idea of taking into account this imprecision by creating ranges within which test scores are treated as being the same. Thus for candidates who have scores that fall within the same band, the difference between their scores is viewed as meaningless in terms of predicting meaningful differences in job performance, and therefore the candidates are treated as if they scored equivalently on the test.

PURPOSE OF BANDING

One key question is, Why would an organization create bands within which candidate scores are considered equivalent? Critics have argued that banding results in a loss of information and has a negative impact on the utility or usefulness of a test. They state that a top-down approach has the highest utility. In response others have noted that although banding may

in some circumstances result in a loss of economic utility, this loss may be negligible and must be weighed against other compelling reasons for banding such as the need to increase workforce diversity.

Banding was first proposed as a method for reducing the adverse impact against protected groups (e.g., minorities, women) that is often associated with a top-down approach to selection test decision making. This is because Whites, on average, tend to outperform certain minorities on commonly used written multiple-choice selection tests measuring factors such as cognitive ability and job knowledge. Given this situation, Whites will be chosen at a substantially higher rate in comparison to members of these minority groups if a strict top-down rank order approach is used. Banding was suggested as a viable strategy for addressing this problem. Banding can reduce adverse impact because a band includes lower-scoring as well as higher-scoring individuals; thus when selection decisions are made regarding whom to choose from a band, other factors such as diversity can be taken into account. That is, if candidates that fall within a band are considered equal, an organization may consider the minority group membership of candidates when deciding whom to hire from a given band rather than just selecting the individual with the highest score. Banding allows an organization the flexibility to consider other factors such as diversity when making hiring decisions, whereas a top-down approach does not.

CREATING BANDS

Many different methods exist for developing bands. For example, expert or managerial judgments could be used to determine what range of scores on a test should be considered equivalent. Another viable approach is to use historical data on how candidates in the past performed on the test and subsequently on the job to determine what bands should be formed. An additional, yet controversial, method for creating bands is the concept of using indicators test reliability as a basis for creating bands. This approach uses statistical significance testing to determine what size the band should be so that test scores that fall within a band are not considered statistically different.

The most common version of this approach leverages a statistic known as the standard error of the difference (SED) to create bands. This SED procedure specifies a range of test scores that will be treated as statistically indistinguishable at some accepted level

of confidence. That is, the bandwidth is a function of the standard error of measurement of the test and the desired level of confidence that scores within a band are not statistically different. This approach leverages the psychometric properties of the test in terms of its reliability to determine proper bandwidth. Critics of this approach state that the logic behind it is fatally flawed and that carrying it out to its conclusion would lead to random selection (i.e., selecting individuals completely at random rather than based on their test scores). However, proponents of this approach note that because selection tests are not perfectly reliable, the degree of unreliability should be taken into account when interpreting test scores. They further state that using indicators of unreliability is a more objective and appropriate way to create bands than doing so based on purely arbitrary decisions or solely relying on *expert* judgments.

TYPES OF BANDS

Bands can be either fixed or sliding. Fixed bands use the top score as the starting point, and the first band consists of all scores that fit within the range of the top score minus the bandwidth. For example, if the top score on a test was 96.0 and the bandwidth based on the SED approach was 5.2, the first band would range from 96.0 to 90.8. All scores that fell within this range would be considered part of band one and they would be treated as if they were equivalent. The second band would be the next highest score after band one minus the bandwidth. Therefore, for the example given earlier, the second band would range from 90.7 to 85.5. Additional bands would be created in a similar manner. With a fixed band approach, all individuals within a given band must be selected prior to moving to the next band. That is, band one needs to be completely exhausted before moving to band two.

Sliding bands also use the top score as an initial starting point, and the band is equal to this starting point minus the bandwidth. However, the difference with sliding bands is that when the top score is selected, a new band is formed using the next highest existing score in the band as the starting point. That is, when a top score in a band is chosen, the band slides down and is established using the next highest score as its anchor point. Using the previous example where the top score was 96.0 and the bandwidth was 5.2, individuals would be chosen from within this band until the top score is chosen, at which time the band

would slide down to be anchored on the next highest score. Thus if the individual with a score of 96.0 was chosen and the next highest score was 94.0, the new band would be set at 94.0 minus the bandwidth of 5.2 (i.e., a range of 94.0 to 88.8). Furthermore, when the current high score of 94.0 is chosen, the band would slide again and anchor on the next highest remaining score. The sliding band allows an organization to consider more people more quickly by moving down the rank order list more rapidly. Unlike with fixed bands, sliding bands do not require that a band be exhausted before moving down the list. Instead, when a top score is chosen, the band slides down and allows the organization to consider new individuals for selection.

EFFECTIVENESS AND LEGALITY OF BANDING

Research has shown that depending on varying circumstances, such as bandwidth size, banding can be used to reduce adverse impact. An organization can use banding procedures to group scores and then give preference to certain groups when selecting from a band as a means of increasing the diversity of its workforce. Opponents of banding note the loss in utility from not using a top-down approach, but proponents have responded by stating that the possible loss in economic utility is not substantial. One other key issue is whether banding is a legal practice. Most agree that although banding is legal, choosing individuals from a band based on protected group status (e.g., race, gender) could be problematic. The Civil Rights Act prohibits considering factors such as race and gender when making hiring decisions. Although this issue has not been fully resolved, recent court rulings have upheld the use of different types of banding. However, a review of these cases indicates that when protected group status is the only factor used to make choices from a band, it is less likely to be acceptable to the courts than when it is only one of many factors that are used.

—Harold W. Goldstein

See also Adverse Impact/Disparate Treatment/Discrimination at Work; Selection Strategies

FURTHER READING

Aguinis, H. (2004). *Test-score banding in human resource selection: Technical, legal, and societal issues*. Westport, CT: Praeger Publishers.

Campion, M. A., Outtz, J. L., Zedeck, S., Schmidt, F. L., Kehoe, J. F., Murphy, K. R., et al. (2001). The controversy over score banding in personnel selection: Answers to 10 key questions. *Personnel Psychology, 54*, 149–185.

Cascio, W. F., Outtz, J. L., Zedeck, S., & Goldstein I. L. (1991). Statistical implications of six methods of test score use in personnel selection. *Human Performance, 4*, 233–264.

Henle, C. A. (2004). Case review of the legal status of banding. *Human Performance, 17*, 415–432.

BEHAVIORAL APPROACH TO LEADERSHIP

The behavioral approach to leadership involves attempts to measure the categories of behavior that are characteristic of effective leaders. Two research projects, one at Ohio State University and another at the University of Michigan, are most commonly associated with the behavioral approach to leadership. The results of both research programs suggested that the behavior of effective leaders could be classified into two general categories. The behavioral approach dominated leadership research throughout most of the 1950s and 1960s.

THE OHIO STATE STUDIES

Immediately following World War II, a group of scholars, including Carroll L. Shartle, John K. Hemphill, and Ralph M. Stogdill, conducted a series of investigations that became known as the Ohio State Leadership Studies. Rather than focusing on the traits or styles of effective leaders, as had been the focus of much early psychological research on leadership, these researchers studied the behaviors that leaders engaged in during the course of their interactions with followers. In a review of early leadership research, Stogdill (1963) declared that attempts to discover the traits shared by effective leaders had largely failed. This presumed failure, coupled with the rise of the behaviorist school of psychology, which emphasized behaviors rather than personality or mental processes, helped prompt the abandonment of trait-oriented leadership research and the rise of the behavioral approach.

Using detailed observations of leaders' behaviors, as well as reports from the leaders themselves and

from their subordinates, the Ohio State researchers accumulated a list of hundreds of leader behaviors. From these a list of 150 statements was derived that represented unique leader behaviors, such as “He assigns group members to particular tasks” and “He finds time to listen to group members.” These 150 items composed the first form of the Leader Behavior Description Questionnaire (LBDQ). The LBDQ was administered to workers who rated how often their leaders engaged in each of the behaviors, using a five-point scale from *never* to *always*.

The responses to these items were subjected to factor analysis. The results suggested that the various leader behaviors clustered into one of two factors or categories: initiation of structure and consideration. Initiation of structure includes leader behaviors that define, organize, or structure the work situation. For example, clearly defining roles, assigning specific tasks, communicating work-related expectations, emphasis on meeting deadlines, maintaining standards of work performance, and making task-related decisions are all examples of initiation of structure behaviors. The orientation of these initiation of structure behaviors is focused primarily on the work task.

Consideration behaviors are those where leaders show concern for the feelings, attitudes, needs, and input of followers. They include the leader developing rapport with followers, treating them as equals, showing appreciation for their good work, demonstrating trust in followers, bolstering their self-esteem, and consulting with them about important decisions. The considerate leader is concerned with follower job satisfaction and with developing good interpersonal relationships with and among members of the work group.

The Ohio State researchers concluded that these two leadership behavior dimensions, initiation of structure and consideration, were not opposite ends of a continuum. They were independent of each other. In other words, both were independently related to effective leadership. They found that some effective leaders displayed high levels of initiation of structure behaviors, others engaged in high levels of consideration behaviors, and some displayed high levels of both. Only low incidences of both initiation of structure and consideration behaviors were associated with ineffective leadership.

The two dimensions of initiation of structure and consideration struck a responsive chord with leadership scholars, and a great deal of research followed. One line of research examined the robustness of the

initiation of structure and consideration dimensions. Those results were generally supportive, suggesting that most leader behavior can indeed be grouped into one of the two general categories.

Research also refined the LBDQ. It was first reduced to 40 items, and a special version, the Supervisory Behavior Description Questionnaire, was constructed to measure the behavior of lower-level managers. A final revision yielded the LBDQ-Form XII, consisting of 10 items measuring initiation of structure and 10 items measuring consideration. The LBDQ-XII is the most widely used in research and is still readily available to scholars.

Additional research investigated the relationship between the two categories of leader behavior and work outcomes. For example, initiation of structure was found to correlate positively with effective group performance, but the relationship between initiation of structure and group member job satisfaction is less clear. There is some evidence for a positive relationship, but some conflicting evidence suggests a possible negative correlation between initiation of structure and job satisfaction, with a corresponding increase in employee turnover. Conversely, leader consideration was found to correlate positively with follower job satisfaction, but there have been inconsistent findings regarding work group performance. Correlations between leader consideration and performance have ranged from slightly positive to slightly negative.

These inconsistent results led researchers to conclude that the effectiveness of these broad categories of initiation of structure and consideration leader behaviors was likely dependent on contingencies in the leadership situation. Factors such as the type of work task, the structure of the work group and organization, the size of the group, and the level of the leader (e.g., executive versus middle manager versus front-line supervisor) can all influence how initiation of structure and consideration relate to key outcomes such as group performance and satisfaction.

THE UNIVERSITY OF MICHIGAN STUDIES

About the same time as the Ohio State studies, researchers at the University of Michigan, including Rensis Likert, Robert L. Kahn, Daniel Katz, Dorwin Cartwright, and others were also focusing on leader behaviors, studying leaders in several large, industrial organizations. They reached a conclusion similar to

the one reached by the Ohio State researchers. Leader behavior could indeed be clustered into two broad categories. The Michigan State researchers distinguished between task-oriented (also referred to as *production-oriented*) and relationship-oriented (also referred to as *employee-oriented*) leader behaviors.

Task-oriented leader behaviors tend to focus on performing the work group's job and are similar to initiation of structure behaviors. Task-oriented behaviors include setting clear work standards, directing followers' activities, instructing them on work procedures, and meeting production goals. Relationship-oriented behaviors focus more on employee well-being and allowing them to participate in decision-making processes, similar to consideration behaviors. The main difference between the Ohio State and the University of Michigan approaches was that the Michigan results suggested that relationship-oriented leader behaviors were more effective overall than task-oriented behaviors, but both types of leader behaviors were displayed by the most highly effective leaders. This makes intuitive sense considering research findings that suggest stronger connections between task-oriented leader behaviors and group performance and relationship-oriented behaviors and follower satisfaction, rather than vice versa. Therefore leaders who are both task and relationship oriented should turn out workers who are *both* productive and satisfied.

This notion influenced the development of the Leadership Grid, a leadership intervention program designed to foster both task- and relationship-focused leader behaviors. In the Leadership Grid, leaders are taught to be concerned with both production and people. Leaders who demonstrate both categories of leader behavior are seen as *team leaders*, whereas those who lack both are considered *impoverished*.

CONTRIBUTIONS AND LIMITATIONS OF THE BEHAVIORAL APPROACH

The main contribution of the behavioral approach to leadership is the explication of two very different forms of leader behavior: those that focus on the work task and those that focus on the follower. The fact that two independent lines of research arrived at the same two general categories suggests that these factors are clear and distinct.

The primary limitation of the behavioral approach was suggested by the research findings. How could such very different forms of leader behavior—focusing

on the task, versus focusing on the people—both lead to effective leadership in some cases but not in others? The answer is that elements of the situation interact with styles of leader behavior to determine when the two categories of leader behavior might be effective and when they are not. This led to the development of contingency, or situational models, of leadership that examined the interaction between leader behavior and styles and variables in the situation that facilitate effective leadership. Although the situational theories of leadership go beyond the simple focus on leader behavior, most incorporate the results of the behavioral approach as an important element of their models.

—Ronald E. Riggio

See also Situational Approach to Leadership; Trait Approach to Leadership

FURTHER READING

- Bass, B. M. (1990). *Bass & Stogdill's handbook of leadership: Theory, research, and managerial applications* (3rd ed.). New York: Free Press.
- Blake, R. R., & McCauley, A. A. (1991). *Leadership dilemmas, grid solutions*. Houston, TX: Gulf.
- Kahn, R., & Katz, D. (1960). Leadership practices in relation to productivity and morale. In D. Cartwright & A. Zander (Eds.), *Group dynamics: Research and theory* (2nd ed.). Elmsford, NY: Row, Peterson, & Co.
- Kerr, S., & Schriesheim, C. A. (1974). Consideration, initiating structure, and organizational criteria: An update of Korman's 1966 review. *Personnel Psychology*, 27, 555–568.
- Likert, R. (1961). *New patterns of management*. New York: McGraw-Hill.
- Stogdill, R. M. (1963). *Manual for the Leader Behavior Description Questionnaire—Form XII*. Columbus: Ohio State University, Bureau of Business Research.
- Stogdill, R. M., & Coons, A. E. (Eds.). (1957). *Leader behavior: Its description and measurement*. Columbus: Ohio State University, Bureau of Business Research.

BENCHMARKING

Organizations use a variety of measurements to evaluate business performance, such as revenue, stock price, voluntary attrition, or employee attitude survey results. Comparing these measures to relevant

benchmarks provides decision makers with a standard that can be used to interpret the organization's standing and draw meaningful conclusions. The standard, target, or benchmark can be derived from internal organizational data or from data external to the organization. Benchmarking databases are similar to normative data used in clinical psychological testing to establish parameters for normal and abnormal results. Although benchmarking commonly uses numeric data for comparisons, nonnumeric benchmarking is also used to aid decision making, in areas such as strategic organizational direction, or in processes such as supply chain or marketing. The benefits, caveats, and sources of benchmarking are addressed in the following text.

BENEFITS

The benefits of benchmarks are to provide an empirically substantiated target figure that is more realistic and has more credibility and weight than one determined subjectively, such as *gut feeling*. Targets created in an internal vacuum may result in setting goals that are neither challenging enough nor attainable. Research has shown that these types of goals are de-motivating. Although benchmarks based on internal organizational data can be constructed, external benchmarks, especially when competitors are involved, have gravitas that usually gets the attention of executives who make strategic decisions regarding an organization's future direction and can serve to inspire positive changes. In addition, benchmarking allows *best practices* to be identified: approaches yielding results surpassing all others.

CAVEATS

There are a number of caveats regarding external benchmarking. Some benchmark databases are composed of samples of convenience that may contain comparison groups that are neither relevant nor equivalent, thus making differences between an organization's scores and the benchmark of little or no value. Other benchmark databases may be of questionable quality. These types of poorly constructed benchmarks again can result in setting de-motivating goals that are either unrealistic or not challenging enough. Similar to the need for norm groups that are representative of the population of interest in interpreting scores on clinical psychology tests (e.g., matched on salient demographics; excluding those with impairments), comparable

organizations, such as same industry and similar size, are best for benchmarking purposes in a business setting. However, it is important to keep in mind that even organizations in quite different industries may be similar on other dimensions such as competition to recruit the same top employee talent. In this case obtaining external benchmarks on such things as workplace climate provides a context for evaluating an organization's position as an employer of choice.

Economic and cultural differences are also important to consider and control for to develop appropriate business benchmarks. For example, comparing business results in countries in emerging economies to results in countries with more established economies is not a useful comparison. An additional example comes from employee opinion research where it is widely known that employees in some countries typically have more positive responses compared with employees in other countries. If these responses are pooled across all countries, an organization with representation in countries with typically less favorable responses will be compared with a database skewed in a more positive direction.

In addition, comparability of question translations across companies that contribute data to a benchmark database needs to be considered when evaluating benchmarks for global employee opinion surveys. For example, two different question translations may result in different interpretations of the question, thus producing poor-quality benchmarks. Some consortia attempt to solve this problem by establishing common translations that organizations must use to submit data to the benchmarking database.

INTERNAL BENCHMARKING

Internal comparisons can avoid some criticisms applied to external benchmarking. Types of internal benchmarking include tracking trends over time, polling executives to set goals, or identifying perceived gaps between executives' expectations and the current state in an organization. However, in the absence of external values, it can be difficult to determine reasonable targets for an outcome or strategic direction. That is, internal improvements over time may not be enough if results remain below par compared with competitors. Further, internal benchmarks across different units within a single organization can promote unhealthy internal competition versus all internal efforts being directed at external competitors.

Internal improvements also may reach a ceiling, a numeric level that is typically not exceeded. For example, in workplace climate research the best achievable score for employee satisfaction with compensation is routinely much lower than the best achievable score for satisfaction with organizational teamwork. Without external benchmarks, these *ceiling* differences would be unknown, and unrealistic targets for improvement could be set.

BENCHMARKING SOURCES

Sources of external benchmarks include nonprofit consortia. Consortia typically collect a fee, have rigorous standards for company membership and data contributions, and a hire a third party vendor to collect data and provide reports to members. Consortia have additional benefits in terms of cross-company information sharing, networking, and standardization of instruments for collecting the data submitted to the benchmarking database. Well-known consortia exist in the life insurance and banking or financial industries. Others focus on specific metrics such as employee opinion survey research.

Consultants may also provide benchmarking data to clients using their client base as the source. Benchmarking data may also be available via public information sources, such as financials for publicly traded companies.

The list of organizations included in the database—their size, the number of data points from each organization, the countries from which the data originate, and the time frame in which the data were collected—are all important questions to ask the provider when evaluating benchmark data.

SUMMARY

External and internal benchmarking are extremely valuable organizational tools that potentially provide appropriate targets and direction for actions that can contribute to greater success in an organization. Recognizing the limitations and applications of benchmarking and benchmarking sources will avoid obtaining inaccurate data that may lead to misinformed decision making and ill-directed corporate strategizing.

—Sara P. Weiner

See also Measurement Scales; Performance Appraisal

FURTHER READING

- Campbell, A. (1999, March–April). Tailored, not benchmarked: A fresh look at corporate planning. *Harvard Business Review*, 41–50.
- Johnson, R. H. (1996). Life in the consortium: The Mayflower Group. In A. I. Kraut (Ed.), *Organizational surveys* (pp. 285–309). San Francisco: Jossey-Bass.
- Morris, G. W., & LoVerde, M. A. (1993). Consortium surveys. In P. Rosenfeld, J. Edwards, & M. D. Thomas (Eds.), *Improving organizational surveys: New directions, methods, and applications* (pp. 122–142). Newbury Park, CA: Sage.
- Rogelberg, S. G., Church, A. H., Waclawski, J., & Stanton, J. M. (2002). Organizational survey research. In S. G. Rogelberg (Ed.), *Industrial and organizational psychology* (pp. 141–160). Malden, MA: Blackwell.

BIG FIVE TAXONOMY OF PERSONALITY

Personality traits are characteristic behaviors, thoughts, and feelings of an individual that tend to occur across diverse situations and are relatively stable over time. Given this broad definition, literally thousands of personality traits can be identified. For the better part of 100 years, personality researchers have attempted to create a standard taxonomy, or organizing structure, of personality traits. Although some disagreement remains, the Big Five taxonomy is currently the dominant perspective on the organization of personality traits. The Big Five traits are identified in the following text, and trait descriptive terms are provided for each:

1. **Neuroticism:** Anxious, temperamental, nervous, moody versus confident, relaxed, unexcitable
2. **Extraversion:** Sociable, energetic, active, assertive versus shy, reserved, withdrawn, unadventurous
3. **Openness:** Intellectual, innovative, artistic, complex versus unimaginative, simple, unsophisticated
4. **Agreeableness:** Trusting, trustful, helpful, generous versus cold, harsh, rude, unsympathetic
5. **Conscientiousness:** Organized, neat, thorough, systematic, efficient versus careless, undependable, haphazard, sloppy

The term *Big Five* was coined by Lewis R. Goldberg in 1981 and was meant to signify that these traits are

broad in nature. Generally, the Big Five trait taxonomy is conceptualized as hierarchical, such that the Big Five traits are the broadest level. Within each of the Big Five traits, narrower trait dimensions can be defined, representing the second level of the hierarchy. As one progresses to lower points in the hierarchy, increasingly narrow trait dimensions can be identified. The lowest level of the taxonomy consists of specific behaviors.

ORIGINS OF THE BIG FIVE

Although human curiosity and examination of personality traits dates back to the ancient Greeks, the history of the Big Five begins with the work of Gordon W. Allport and Henry S. Odbert based on the lexical hypothesis. The lexical hypothesis suggests that important aspects of human behavior will be encoded into language; and the more important an aspect is, the more likely it will be encoded as a single word. Based on this hypothesis, Allport and Odbert turned to the dictionary to identify the basic elements of personality. They identified almost 18,000 personality related words, and organized these terms into four categories:

1. personal traits,
2. temporary moods,
3. evaluative terms (such as excellent or irritating), and
4. miscellaneous.

Although Allport and Odbert stopped with the identification of these personality descriptive terms, Raymond B. Cattell sought to bring order to them. Cattell began his work with the set of nearly 4,500 words Allport and Odbert placed in the personal trait category. As this set of terms was far too large to investigate empirically, Cattell conceptually combined the terms into 171 clusters. Still too numerous to work with given that his computations needed to be done by hand, he eventually worked his way down to a set of 35 clusters. He was then able to collect data on these clusters and conduct a factor analysis. Finally, he arrived at a set of 12 factors, but many believe that he overfactored the data.

Based on Cattell's work, two factor-analytic studies provided a foundation for what would eventually become the Big Five. Using 22 of Cattell's 35 clusters, Donald W. Fiske in 1949 and Ernest C. Tupes and Raymond E. Christal (1961/1992) found five

similar factors when scores from the 22 clusters were factor analyzed. The Tupes and Christal findings were particularly interesting in that they found the five factors within each of eight samples that differed in many ways: education (high school graduates, college students, graduate students), type of rating (self-ratings, peer ratings), and among the peer ratings, length of acquaintanceship (from 3 days to 1 year or more). The five factors identified by Fiske and by Tupes and Christal were defined in a manner that is similar to the way in which the Big Five are defined today.

Recognizing some of the limitations in Cattell's conceptual sorting of the trait terms, Warren T. Norman went back to the beginning and developed a new list of trait descriptive terms from the dictionary. Norman, like Allport and Odbert before him, sorted his set of terms into broad categories and focused his work on those terms that fell into the category he labeled biophysical traits. After doing considerable work to reduce the set of terms in this category to roughly 1,550 terms, he set out to organize them. First, the terms were sorted into the endpoints of the five factors identified by Tupes and Christal, giving him 10 groups of words. He then sorted each of the 10 groups of words, which resulted in 75 groups of words. A factor analysis of scores on these groups produced the expected five factors.

To this point, much of the research on the five factors had been directly related to the initial work of Cattell. Recognizing this fact, Goldberg (1990) conducted studies on trait terms that were common in the English language, finding the same five-factor structure. Given that these words were selected on the basis of common usage and not on the variables identified by Cattell, these studies demonstrated that the five factors were general and not specific to Cattell's variables. The Big Five was born.

To date, considerable research has been conducted to establish the Big Five. Numerous questionnaire measures of the Big Five traits have been developed, suggesting that the factors are not unique to the study of trait descriptive terms. The five factors have been found in a wide variety of cultures from across the globe in both adjective and questionnaire measures; and evidence suggests that they are, at least in part, heritable.

LINGERING TAXONOMIC ISSUES

Although the Big Five is the dominant perspective on the organization of personality traits, there remain

differences of opinion regarding some aspects of the taxonomy. Hans Eysenck (1992) and Auke Tellegen, for example, have argued that the highest level of the taxonomy should be represented by three rather than five traits. Eysenck has vigorously defended his position that the highest level of the taxonomy should be represented by the traits of extraversion, neuroticism, and psychoticism, a perspective that some have referred to as the *Even Bigger Three*. Although extraversion and neuroticism are defined by Eysenck in a manner that is consistent with the Big Five, he argues that psychoticism is made up of lower levels of conscientiousness and agreeableness. Tellegen has taken a position similar to Eysenck's, arguing that the three traits of positive emotionality (extraversion and part of conscientiousness), negative emotionality (neuroticism and low agreeableness), and constraint (part of conscientiousness and low openness) should dominate the highest levels of the trait taxonomy.

Some debate also remains about the names and definitions of some of the Big Five traits themselves. For example, the agreeableness dimension has also been referred to as love, likability, and nurturance, each of which conveys a somewhat different interpretation. Oliver John has argued, in fact, that the term *agreeableness* is somewhat misleading, suggesting a submissive nature that would actually be located at the lower end of the extraversion trait. Although the term *conscientiousness* seems to be well accepted at this point in time, this trait has also been referred to by various authors as dependability, work, will to achieve, responsibility, and constraint. Perhaps the most controversy, however, has surrounded the nature of the openness dimension. In addition to openness, this dimension has been referred to as culture, intellect, and intellectance. The controversy stems from the apparent incorporation of aspects of intelligence into the factor. For example, in Goldberg's work, the term *intelligent* was consistently an indicator of this dimension. Some researchers have been highly critical of the association of this dimension with intelligence, fearing that the dimension will be considered synonymous with intelligence as measured by IQ tests when, in fact, the dimension is much broader, encompassing artistic and creative aspects, a willingness to try new things, and a sense of open-mindedness.

It seems that much of the controversy surrounding the naming of the five dimensions is a result of their broad nature. Some clarity might be brought to the

issue if there were to be consensus regarding the next lowest level of the trait hierarchy. Scant work, however, has been done to identify and define the traits at the level below the five dimensions. There is some consensus among industrial/organizational (I/O) researchers interested in personality that the trait of conscientiousness can be broken down into two dimensions of achievement striving and dependability. Also, Robert and Joyce Hogan have argued that extraversion can be split into sociability and ambition. It seems clear that research focusing explicitly on this level of the hierarchy is warranted.

One problem with establishing the lower levels of the trait hierarchy is that the hierarchy is likely to be reticulated. That is, many lower-level traits are liable to relate to more than one trait at the higher levels. Using studies of adjectives as a source of examples, some researchers have associated warmth with extraversion whereas others have associated it with agreeableness. Likewise, the characteristic of impulsiveness has been associated with neuroticism, extraversion, and conscientiousness by various researchers. These cross-associations of traits at one level with traits at higher levels will make the process of achieving consensus at levels of traits below the Big Five difficult, but it would seem to be a worthwhile endeavor.

It is important to recognize that the Big Five taxonomy is simply descriptive and is not a theory. As such, it does not explain why people behave in the ways they do; it is only a system for classifying behavioral tendencies. Although many have criticized the Big Five because it is not theoretical, others have argued that the taxonomy is necessary before theory can be developed. To this end, Paul Costa and Robert McCrea have proposed a five-factor theory of personality. Although the theory is broad in scope, at its core it suggests that the Big Five are a result of biological processes and influence people's characteristic adaptations—the ways they think, feel, and behave in their unique environments.

THE BIG FIVE AND INDUSTRIAL/ ORGANIZATIONAL PSYCHOLOGY

The emergence of the Big Five through the 1980s was a tremendous benefit to both I/O-related research and the application of personality testing in organizational contexts. Although multitrait personality inventories began to emerge in the 1930s, the use of personality testing in applied settings was largely haphazard and

not theoretically grounded before the emergence of the Big Five. Reviews of the criterion-related validities of personality scales conducted in the 1950s suggested little support for using personality tests for predicting job performance. As noted by Robert Guion and Richard Gottier in 1965, the field seemed to be dominated by a *broadside* approach where every available personality test score was correlated with all available performance measures. Although many of the observed correlations were small, Guion and Gottier asserted that many of these would be expected, based on theory, to be small.

The emergence of the Big Five allowed researchers and practitioners to select traits (and scales representing those traits) based on a conceptual mapping of the traits to the performance dimension. As a result, numerous meta-analyses on the relationships between personality test scores and measures of work performance have resulted in positive findings regarding the criterion-related validities of personality tests. These meta-analyses have generally shown that conscientiousness is related to almost all job-related criteria (i.e., performance, training, attendance, etc.) across almost all jobs. Other Big Five dimensions have also proven important predictors but not as universally as conscientiousness. For example, extraversion has been shown to be related to performance in managerial and sales jobs, and openness has been related to training performance.

Having established the usefulness of personality testing, many researchers are exploring factors that may strengthen or weaken the personality–performance relationship. In 1993, for example, Murray Barrick and Michael Mount examined the extent to which the degree of autonomy given to employees would moderate the relationship between conscientiousness and job performance. They found that in autonomous situations (i.e., where workers had more control over their activities), the relationship between conscientiousness and job performance was stronger than in situations where workers were given less autonomy.

One contentious issue has been whether practitioners should use broad or narrow traits to predict performance; that is, whether to focus on the Big Five or on more narrow traits at some point lower in the hierarchy. Although authors on both sides of this issue have made potent arguments for their perspectives, it would appear that the solution is to attempt to match the breadth of the predictor with that of the criterion.

When predicting broad criteria, it appears optimal to use broad traits such as the Big Five. In contrast, when more narrow criteria are of interest, narrower trait constructs are preferred.

CONCLUSIONS

The Big Five trait taxonomy is the dominant organizing structure for personality traits. Although the traits emerged from the lexical approach to personality, the structure is found with questionnaire measures and identified in cultures around the world. The impact of the Big Five on the role of personality in I/O research and application has been immense, allowing for theoretically guided predictor-criterion mapping. At present, there is a great deal of interest in personality within the field of I/O psychology, an interest in no small part a result of the Big Five taxonomy of personality traits.

—Eric D. Heggstad

See also Factor Analysis; Individual Differences; Personality; Personality Assessment

FURTHER READING

- Barrick, M. R., & Mount, M. K. (1993). Autonomy as a moderator of the relationship between the Big Five personality dimensions and job performance. *Journal of Applied Psychology, 78*, 111–118.
- Block, J. (1995). A contrarian view of the five-factor approach to personality description. *Psychological Bulletin, 117*, 187–215.
- Costa, P. T., Jr., & McCrae, R. R. (1992). Four ways five factors are basic. *Personality and Individual Differences, 13*, 653–665.
- Eysenck, H. J. (1992). Four ways five factors are not basic. *Personality and Individual Differences, 13*, 667–673.
- Goldberg, L. R. (1990). An alternative description of personality: The Big-Five factor structure. *Journal of Personality and Social Psychology, 59*, 1216–1229.
- Guion, R. M., & Gottier, R. F. (1965). Validity of personality measures in personnel selection. *Personnel Psychology, 18*, 135–164.
- John, O. P., & Srivastava, S. (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 102–138). New York: Guilford Press.
- Tupes, E. C., & Christal, R. E. (1961/1992). Recurrent personality factors based on trait ratings (ASD-TR-61-97).

Lackland Air Force Base, TX: Aeronautical Systems Division, Personnel Laboratory. (Reprinted in 1992 in the *Journal of Personality*, 60, 225–251)

BIOGRAPHICAL DATA

Biographical data, or biodata, are measures of key aspects of individuals' life experiences intended to predict job applicants' future performance in organizations, whether that performance is task-specific job performance, teamwork, or shoplifting. Although biodata can be developed to measure a wide array of experiences and psychological constructs, the fundamental and general premises underlying the predictive power of biodata measures are that

- individuals in free societies shape their life experiences, and they also are shaped by them;
- this process of reciprocal influence between personality and situations occurs over a large time span; and therefore,
- measures of past experience should predict future work behavior, especially given a relatively unconstrained environment where employees' typical performance can be wide-ranging.

In light of these premises, items on a biodata measure can be relatively personality oriented or covert in nature (e.g., "To what extent does your happiness depend on how things are going at work?"), or they can be relatively situation oriented and overt in nature (e.g., "Approximately how many books have you read in the past three months?"). In either case responding involves some cognitive processing where test takers are required to recall and summarize information, the accuracy of which depends on the accuracy of prior perception and storage, and in many cases the saliency or recency of the event.

Although biodata can vary widely in their content and constructs measured and can be scored in different ways, they have consistently demonstrated moderate to high levels of validity across job types (approximately .30); they also demonstrate incremental validity beyond ability and personality measures in predicting performance. Constituent biodata items either explicitly or implicitly reflect constructs such as ability, personality, motivation, interpersonal skills, and interests. They can be relatively pure measures of these constructs; however, biodata items that ask test

takers about their experiences may be related to a combination of constructs, not just one. Analyses of the latter type of items may result in a weak general factor in a factor analysis or a low alpha reliability coefficient. Both test–retest reliability and alpha reliability should be considered when attempting to measure the stability of scores on biodata measures.

ITEM ATTRIBUTES

An outline of 10 major attributes of biodata items was proposed by F. A. Mael and is as follows:

1. Historical versus hypothetical (past behaviors versus predicted behaviors in the future, or behaviors in *what-if* scenarios)
2. External versus internal (behaviors versus attitudes)
3. Objective versus subjective (observable or countable events versus self-perceptions)
4. Firsthand versus secondhand (self-descriptions versus how people would say others describe them)
5. Discrete versus summative (single events versus averaging over a period of time)
6. Verifiable versus nonverifiable
7. Controllable versus noncontrollable (circumstances that could or could not be influenced by a decision)
8. Equal access versus unequal access (access to opportunities with respect to the group being tested)
9. Job relevant versus nonjob relevant
10. Noninvasive versus invasive

SCORING METHODS

Historically, biodata measures have developed out of a tradition of strong empiricism, and therefore a wide variety of scoring methods have been proposed. The criterion-keying approach involves taking individuals' responses to a given biodata item and calculating the mean criterion score or the criterion-related validity for each response option. This is done for each item, and these values are used as item response weights for scoring purposes. Weights may be rationally adjusted when nonlinear patterns in relatively continuous response options are found or when some weights are based on small sample sizes. A similar approach to criterion keying can be taken when keying biodata items not to criteria but rather to personality or

temperament measures. This is a particularly interesting approach in keying a set of objective or verifiable biodata items, which tend to be less susceptible to faking but often are harder to assign to single psychological constructs. (Even if such keying is not done, it remains helpful to place the biodata measure within a nomological net of cognitive and noncognitive constructs.) When biodata items can be assigned to constructs in a relatively straightforward manner, such as by developing item content around constructs or through an a priori or post hoc subject matter expert (SME) item-sorting procedure, a straightforward scoring of each item along a single underlying continuum may be possible as is done with traditional Likert-scale self-report measures of personality.

Configural scoring is an entirely different approach to scoring biodata items, because it involves grouping individuals into representative profiles of biodata scores. Subgroups are defined, both conceptually and methodologically, as internally consistent yet externally distinct, similar to the interpretation of statistically significant group differences in the analysis of variance. Individuals are often assigned to subgroups based on their similarity to a subgroup mean, such as in *k*-means analysis; or sometimes a set of data is aggregated until the appropriate balance between parsimony and descriptiveness is reached, such as in Ward's method. Subgroup profiles may then be labeled (e.g., *goal-oriented social leaders* or *emotional underachievers*) and then related to relevant external criteria, or profiles of criteria, for purposes such as personnel selection and placement; or subgroup profiles can be used in their own right for training and development.

Two general points regarding the scoring of biodata items are worth noting. First, any appropriate scoring method should be informed by both rational and empirical approaches. Being purely rational or theory based ignores important empirical data that could serve to revise the theoretical underpinnings that generated the biodata items in the first place—or at least it could revise subsequent item-development rules. Conversely, being purely empirical in the absence of a theoretical or conceptual rationale would impede, if not preclude, appropriate item development, item revision, and score use and interpretation. Second, item-scoring methods that are developed on one sample should be cross-validated on an independent sample, such as a holdout sample from the original data set or an entirely different sample. Doing so helps ensure that the

features of the model are generalizable and not sample specific; for example, cross-validation can ensure that increased validity, reduction of group mean differences, or a *cleaned up* exploratory factor analysis result achieved in one sample by selectively reweighting or removing biodata items can then be achieved in an independent sample using the same subset of items, so that the original results (in large part, at least) cannot be attributed to capitalization on chance. The same concern applies to regression models, where least-squares regression weights may capitalize on chance and thus artificially inflate validity. In this case, cross-validation formulas can be applied to the whole sample, to estimate what the shrinkage in validity would be should those weights be applied to an independent sample of the same size.

RACE DIFFERENCES

Because biodata items vary widely in content, no general statement about race differences can be made that is of any use. At a more specific level, however, biodata containing culturally relevant content have demonstrated Black–White subgroup differences in terms of differential item functioning (DIF). Black–White differences in biodata have also been found in the domain of swimming proficiency. Other race differences are likely when the biodata measures are aligned with constructs where it is known that race differences exist, such as general cognitive ability or certain personality traits.

APPLICANT REACTIONS

Meta-analysis indicates that studies using biodata measures generally show a favorability (i.e., job relevance and fairness) rating at about the midpoint of the scale, with measures such as interviews, résumés, and cognitive ability tests showing greater favorability and personal contacts and integrity tests showing less favorability. Although the meta-analytic mean across studies is stable, nontrivial variability in favorability ratings across studies exists; this is likely because of the variety of biodata measures that can be developed. This highlights a consistent theme in the research literature: Biodata measures tend to be viewed more favorably when they are perceived as relevant to the job at hand and part of a fair personnel selection system.

—Frederick L. Oswald

See also Individual Assessment; Individual Differences; Person–Job Fit; Prescreening Assessment Methods for Personnel Selection

FURTHER READING

- Dean, M. A., & Russell, C. J. (2005). An examination of biodata theory-based constructs in a field context. *International Journal of Selection and Assessment, 2*, 139–149.
- Mael, F. A. (1991). A conceptual rationale for the domain and attributes of biodata items. *Personnel Psychology, 44*, 763–927.
- Mount, M. K., Witt, L. A., & Barrick, M. R. (2000). Incremental validity of empirically keyed biodata scales over GMA and the five factor personality constructs. *Personnel Psychology, 53*, 299–323.
- Oswald, F. L., Schmitt, N., Ramsay, L. J., & Gillespie, M. A. (2004). Developing a biodata measure and situational judgment inventory as predictors of college performance. *Journal of Applied Psychology, 89*, 187–207.
- Oullette, J. A., & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychological Bulletin, 124*, 54–74.
- Reiter-Palmon, R., & Connelly, M. S. (2000). Item selection counts: A comparison of empirical key and rational scale validities in theory-based and non-theory-based item pools. *Journal of Applied Psychology, 85*, 143–151.

BONA FIDE OCCUPATIONAL QUALIFICATIONS

United States federal fair employment laws generally prohibit discrimination in employment on the basis of certain *protected characteristics*, including race, color, religion, sex, national origin, age, and disability. However, the fair employment laws permit employers to discriminate based on a protected characteristic in rare situations where the characteristic is considered a bona fide occupational qualification (BFOQ) for the job in question.

The BFOQ defense is potentially available in those Title VII cases where it has been established, and not merely alleged, that an employer’s employment policy intentionally discriminated on the basis of religion, sex, or national origin. The BFOQ defense does not apply to discrimination based on race or color. It is also potentially available in cases involving employer

policies that have been shown to intentionally discriminate the basis on age (Age Discrimination in Employment Act) or disability (Americans With Disabilities Act). Where successfully asserted, the BFOQ defense allows employers to treat job applicants or employees differently depending on their protected class status (religion, sex, national origin, age, disability), making permissible conduct that would otherwise be considered illegal discrimination. For example, although Title VII generally prohibits discrimination against job applicants based on their sex, if it is established that being male is a BFOQ for the job in question, the employer may lawfully refuse to consider women for the job. However, it is important to understand that the BFOQ defense is narrowly written and extremely narrowly construed by the courts and that employers asserting the defense have the burden of proving that its stringent requirements (discussed in the following text) are met. As a result, the BFOQ defense is available in relatively few situations.

REQUIRED ELEMENTS OF THE BFOQ DEFENSE

To establish a BFOQ, an employer must meet two requirements. First, the employer must prove that a strong, direct relationship exists between the protected characteristic in question (e.g., sex) and an employee’s ability to perform one or more functions of the job in question. Second, the employer must prove that the functions of the job to which the protected characteristic is directly related are important functions that go to the *essence* or *central mission* of the employer’s business operation.

The Direct Relationship Requirement

The direct relationship requirement must be met by showing either that *all or substantially all* members of the group that is being excluded based on a protected characteristic cannot perform the functions of the job, or that it is *impossible or highly impractical* to determine on an individual basis whether members of the excluded group can perform the functions of the job. For example, an employer seeking to justify a sex-based BFOQ that would allow it to hire only men must show either that all or substantially all females are unable to perform the functions of the job, or that it would be impossible or highly impractical to assess female applicants’ qualifications to perform the job

functions on an individual basis, for example, through the use selection tests.

It is clear that the *all or substantially all* standard can be met without proof that 100% of the excluded class cannot perform the functions of the job in question. However, it is also clear that the employer must produce credible evidence of a strong relationship between the protected characteristic and the ability to perform the job. Relying on stereotypes about the abilities or disabilities of women, older workers, and so on is insufficient. It is also not enough to merely show that members of the excluded group, on average, tend not to perform the job as well. Further, given the vast and growing array of selection tools that are available to assess job applicant qualifications on an individual basis (e.g., assessments of physical strength, motor skills, cognitive ability), it is extremely difficult for employers to successfully argue that they should be able to use a protected characteristic as a general hiring or promotion criterion because it is *impossible* or *highly impractical* to assess applicants' qualifications on a more individualized basis.

Essence of the Business Requirement

It is not enough to show a direct relationship between the protected characteristic in question and a job function that is only incidentally or marginally related to the employer's business operations. The protected characteristic must be directly related to the ability to perform one or more important job functions that are closely associated with the fundamental purpose(s) of the employer's business. This means that to determine whether an asserted BFOQ is justified, the court must determine the primary purpose(s) or *essence* of the business operation in which the job is embedded.

Cases considering whether safety concerns support the BFOQ defense illustrate how the *essence of the business* requirement affects whether the BFOQ defense is available to employers. Safety concerns may be the basis for a BFOQ but only if the safety concern is indispensable to the particular business at issue. For example, the safety of inmates was found to be a legitimate basis for a sex-based BFOQ applied to the prison guard position, because the safety of inmates goes to the core of a prisons guard's job performance and the essence of the business in which prisons are engaged. In contrast, when considering

whether to exclude female employees of childbearing age from jobs involving exposure to toxic material, the Supreme Court held that concerns about the safety of female employees' unborn children may not be the basis for a BFOQ because the essence of the employer's business was manufacturing batteries, and the fetuses of female employees were neither customers nor third parties for whom safety is essential to the business of manufacturing batteries.

General Guidance

Although the availability of the BFOQ defense is determined on a case-by-case basis, and there is some variation in how lower courts interpret and apply the Supreme Court's rulings in this area, useful guidance for assessing the availability of the BFOQ defense can be provided based on court cases, the legislative history, and EEOC (Equal Employment Opportunity Commission) guidelines. In addition to safety concerns, BFOQs have been recognized based on privacy concerns where, again, those concerns relate to the essence of the employer's business, such as sex-based BFOQs for bathroom attendant and masseur positions. The BFOQ defense has also been recognized when viewed as necessary to ensure the genuineness or authenticity of an employer's business operations. Examples of *authenticity* BFOQs include the use of male and female actors to play male and female roles in theater productions and a restaurant hiring only ethnic chefs where a primary goal of the employer is to maintain an authentic ethnic atmosphere.

The courts have uniformly refused to accept discriminatory customer preferences or biases as a basis for a BFOQ, usually noting that these biases are the type of discrimination that fair employment laws such as Title VII were intended to eliminate. For example, courts have refused to accept the preferences of male customers as a legitimate basis for a BFOQ allowing the hiring of only female flight attendants and have rejected the argument that being male was a BFOQ for an overseas assignment because customers and associates in other countries preferred to do business with men.

Finally, it is well settled that the BFOQ defense cannot be based merely on the incremental or extra cost associated with hiring one protected group versus another. Thus, for example, an employer cannot exclude women from a certain position merely because of concerns that allowing women to occupy the position

(i.e., not restricting the position to men) may result in greater health- or liability-related costs for the employer.

—Mark V. Roehling

See also Age Discrimination in Employment Act; Americans With Disabilities Act; Civil Rights Act of 1964, Civil Rights Act of 1991

FURTHER READING

- Berman, J. B. (2000). Defining the “essence of the business”: An analysis of Title VII’s privacy BFOQ after Johnson Controls. *University of Chicago Law Review*, 67, 749–775.
- Kapczynski, A. (2003). Same-sex privacy and the limits of antidiscrimination law. *The Yale Law Journal*, 112, 1257–1294.
- Lindeman, B., & Grossman, P. (1997). *Employment discrimination law* (3rd ed.). Washington, DC: The Bureau of National Affairs.
- McGowan, S. M. (2003). The bona fide body: Title VII’s last bastion of intentional sex discrimination. *Columbia Journal of Gender and Law*, 12, 77–127.

BOREDOM AT WORK

Feeling bored at work is a common complaint; a large percentage of employees feel bored at least occasionally and some feel bored much of the time. Boredom has not been studied extensively, but it has attracted some attention from scholars in diverse disciplines including human factors engineering, psychiatry, sociology, education, criminology, and industrial psychology.

DEFINITIONS OF BOREDOM

Most scholars would agree that boredom is an emotion. It is an unpleasant transient state in which individuals feel an extreme lack of interest in their current activity. Bored individuals find it difficult to keep their attention focused on work and may feel that time is passing very slowly. Boredom is usually accompanied by feelings of restlessness, irritability, and desire to escape or change the situation to a more interesting activity. Boredom has been described as the opposite of enthusiasm or *flow*.

Boredom is also sometimes conceptualized as a personality trait, and some individuals are more likely to experience boredom than others. Scores on the boredom proneness scale are related to measures of state boredom, impulsiveness, sensation seeking, depression, negative affect, aggression, hostility, self-reported physical and psychological symptoms, and job dissatisfaction. The remainder of this entry will focus on boredom as a transient state experienced while working.

CONSEQUENCES AND CAUSES OF BOREDOM AT WORK

The consequences of boredom are thought to be largely negative. Boredom at work has been associated with absence, dissatisfaction, accidents, reduced performance on vigilance tasks, performance variability, horseplay, and sabotage. However, it has been suggested that boredom has the potential to stimulate creativity and organizational citizenship behaviors in some cases.

There are many likely causes of boredom at work. These include aspects of work tasks, aspects of the surrounding work environment, and interactions of the task and performer.

Work Tasks

As an emotion, boredom depends on an appraisal of a situation by the performer. Thus boredom does not automatically reside in characteristics of work tasks but in how these tasks are appraised by the individual performing them. Nevertheless, there are types of tasks that are likely experienced as boring by most people. What makes a task seem boring is at least partly the opposite of what makes it interesting or intrinsically motivating. Simple, repetitive tasks that require little thought or judgment, such as some assembly line tasks, are likely to be experienced as boring. Once learned, these tasks require little conscious attention, provide little mental stimulation, and may prohibit incumbents from engaging in other forms of self-entertainment while working.

Another type of work that is often experienced as boring includes vigilance, inspection, checking, and driving tasks. These tasks require sustained and careful attention. However, they provide little variety or stimulation in return. This makes it difficult to sustain

attention and perform with high reliability over long periods of time.

A final category of work situation that is described as boring is having nothing to do. Some jobs do not contain enough tasks to keep incumbents occupied for the time they are required to remain at work. Other jobs are dependent on intermittent or less than completely predictable demand for services, such as checkout or help desk staff. When demand is low, there may be little to do but wait around in readiness to provide a service.

Work Environment

Compulsion and interruptions can also contribute to feelings of boredom while working, regardless of characteristics of the main work task. Individuals report feeling bored when they are compelled to perform tasks in set ways, in set places, and at set times. Lack of self-direction, autonomy, and personal causality are known to undermine intrinsic interest in work tasks.

Individuals may infer that they are bored when they experience problems holding their attention on a work task. Some research has suggested that low-level distractions and interruptions in the workplace can make maintaining attentional focus difficult, thus contributing to the experience of boredom. Interruptions can also stem from internal sources. Personal concerns may produce intrusive thoughts that distract an incumbent from a work task so it appears uninteresting.

Interactions of Task and Performer

Some authors attribute boredom largely to lack of personal meaning in an activity. Individuals are bored when they perform a task that lacks relevance for them. Simple repetitive tasks often fit this description, as might any required task when something else is more important or has greater meaning to the performer at that moment. Individuals are also bored when tasks are too difficult for their skills. Tasks may be varied and complex, but the performer lacks the expertise to extract meaning from the complexity. An example is listening to a lecture that is too advanced for a person's level of understanding.

REDUCING BOREDOM

Both individuals and organizations may act to reduce boredom. Bored employees adopt a number of

strategies to alleviate their unpleasant feelings. Sometimes it is possible to force attention on to the task and eventually become absorbed in it. Another option is to engage in *subsidiary behaviors* to provide additional stimulation while performing the boring task. For example, a worker may fidget, talk to others, daydream, listen to music, or invent varied ways to execute the task. If the task does not require full attention, these strategies may reduce boredom without compromising performance. Performance on vigilance tasks, however, will often suffer when subsidiary behaviors are performed. Alternatively, individuals may escape or avoid boring situations altogether by finding different work or nonwork tasks to do: engaging in counterproductive work behaviors such as horseplay or sabotage, taking breaks, being absent, or quitting the job.

Organizations may adopt job rotation or job enrichment and redesign to increase the variety and challenge in employees' tasks and thus reduce boredom. Frequent feedback, goal setting, and performance-contingent pay can make simple tasks more meaningful and therefore less boring. Although there is no research evidence yet, team-based work systems also might reduce boredom. Allowing social contact between workers and permitting other forms of concurrent self-entertainment can help reduce boredom on simple repetitive tasks. Because boredom occurs when skills are either too high or too low for task demands, creating an appropriate match between demands and skills through selection, training, and job design should minimize boredom.

—Cynthia D. Fisher

See also Intrinsic and Extrinsic Work Motivation; Job Characteristics Theory; Job Satisfaction; Role Overload and Underload

FURTHER READING

- Barbalet, J. M. (1999). Boredom and social meaning. *British Journal of Sociology*, *50*, 631–646.
- Conrad, P. (1997). It's boring: Notes on the meanings of boredom in everyday life. *Qualitative Sociology*, *20*, 465–475.
- Damrad-Frye, R., & Laird, J. D. (1989). The experience of boredom: The role of self-perception of attention. *Journal of Personality and Social Psychology*, *57*, 315–320.

- Farmer, R., & Sundberg, N. D. (1986). Boredom proneness: The development and correlates of a new scale. *Journal of Personality Assessment, 50*, 4–17.
- Fisher, C. D. (1993). Boredom at work: A neglected concept. *Human Relations, 46*, 395–417.
- Fisher, C. D. (1998). Effects of external and internal interruptions on boredom at work: Two studies. *Journal of Organizational Behavior, 19*, 503–522.
- Smith, R. P. (1981). Boredom: A review. *Human Factors, 23*, 329–340.
- Vodanovich, S. J. (2003). Psychometric measures of boredom: A review of the literature. *The Journal of Psychology, 137*, 569–595.

C

CAREER DEVELOPMENT

Most people participate in some form of paid labor during their lifetime. Typically, they engage in a series of jobs. As these jobs become increasingly related to one another, a career unfolds. This process occurs throughout the life span. Several theories have been proposed to describe the process of career development. Three of the most frequently cited are *career development theory*, the *social learning theory of career decision making*, and the *social cognitive career theory*.

CAREER DEVELOPMENT THEORY

Donald Super first proposed his career development theory in 1953, making it one of the earliest theories on career development. Combining life-stage psychology and social role psychology, Super's theory addresses the significant roles and career development tasks that occur during life stages.

One element of Super's theory that combines life stages and social roles is the *life-career rainbow*, a graphic representation of *lifespace* and *life span*, key terms in Super's theory. Lifespace refers to the roles that a person assumes that are related to both work and nonwork; examples of lifespace roles include child or worker. The life-career rainbow depicts changes in the centrality of roles over time—for example, the development from daughter or son to full-time worker to retirement. Life span, or time, refers to stages in a career, which coincide with developmental stages such as childhood and adulthood. Super identified six

major stages of career development and the important developmental tasks of each stage. Additionally, Super estimated the age range during which most people go through each stage.

The first stage that Super proposed is *growth*, a period of childhood development that takes place from age 4 to 13. Major developmental tasks of this stage include developing a concern about the future, increasing personal control over one's life, motivating oneself to achieve, and acquiring competent habits and attitudes toward work.

The next stage of career development is *exploration*, occurring from age 14 to 24. Super asserted that during this stage, people crystallize, specify, and implement an occupational choice. During this stage individuals are constructing their self-identity by choosing and preparing for an occupation. Super concentrated much of his research on understanding development in this stage.

When individuals enter into a specific career, they begin the *establishment* stage. Establishment, which occurs between the ages of 25 and 45, is the process of stabilizing one's position in an organization. Furthermore, individuals consolidate their position by demonstrating positive work habits and attitudes. Many individuals focus on having families and developing skills to be a parent during this stage. Toward the end of this stage, individuals are expected to advance their work roles by taking on new responsibilities or working toward promotion.

Once an individual decides to continue in the same career, the *maintenance* stage begins. This stage comprises the remainder of the time spent in paid labor, typically lasting from ages 45 to 65. During this stage,

individuals continue to maintain the skills needed for the occupation they have chosen. They also continue to learn new skills to keep up with changes in their job.

The final career developmental stage is *disengagement*. Around age 65, when individuals plan for or begin the process of retirement, they enter the disengagement stage. At this time, individuals reduce their work efforts as they retire from their careers, and they shift the focus of their lifestyle from work to other activities such as family or leisure interests.

Though individuals are assumed to progress through the career stages at certain ages and in a particular order, Super concedes that the stages may not take place at the same age for everyone, and people may actually cycle through each stage more than once. This concept, known as *recycling*, suggests that individuals go through previous stages when they begin a new job or new career. Furthermore, the theory speculates that this cycle of developmental stages may also apply to non-work-related roles such as leisure activities or familial roles. For example, if an individual becomes physically unable to participate in athletic leisure activities, he or she may recycle back to the exploration stage to develop skills for a new leisure activity.

As people progress through the career development stages, the choices they make reflect their self-concept. In other words, as individuals select vocations, they attempt to choose a career that depicts their own self-image. Career development, then, is an iterative process whereby the congruence between self-concept and career increases with each subsequent occupation or job.

SOCIAL LEARNING THEORY OF CAREER DECISION MAKING

John Krumboltz's social learning theory of career decision making (SLTCDM) has its origins in Bandura's social learning theory of behavior. Krumboltz contended that individuals are guided into careers based on their learning experiences and skill knowledge. He also proposed that reinforcement, whether positive or negative, plays an important role in shaping self-efficacy and motivations for behaviors. For example, if a student does poorly in math, SLTCDM predicts that the student's interest and motivation in math courses will decline, and the student will not enter a career that requires math skills. On the other hand, if the same student is rewarded in music by winning a

competition, SLTCDM predicts an increase in that student's music self-efficacy, and he or she will be likely to pursue a career related to music. These are examples of instrumental learning experiences, in which preference is developed for activities in which one succeeds or is reinforced and interest is diminished if one fails, receives no rewards, or is punished for participating.

The learning process can also occur through observation or associative learning experiences. Instead of participating in activities, individuals can learn about specific occupations and careers vicariously from the media, role models, or peers. Positive or negative associations about an occupation then influence an individual's assessment of that occupation and affect whether he or she decides to pursue that occupation.

As individuals accumulate learning experiences, they begin to make judgments—called *self-observation generalizations*—about how well or how poorly they can perform specific tasks. These generalizations may be accurate or incorrect, but they influence how individuals try to translate their skills into possible occupations. These skills, which Krumboltz referred to as *task approach skills*, provide information about an individual's problem-solving ability, work habits, performance, and work values.

Career development in SLTCDM, then, is a continual process of learning that shapes one's self-observation generalizations and task approach skills. Like Super's idea of enacting one's self-concept, SLTCDM explains how accumulated learning experiences guide career decisions and how individuals identify occupations that match their interests and skills.

SOCIAL COGNITIVE CAREER THEORY

Social cognitive career theory (SCCT), proposed by Robert Lent, Steven Brown, and Gail Hackett, takes a cognitive approach to the process of career development. It was formulated in response to growing ideological changes that placed importance on people's cognitions. This theory posits that individuals' interests are first influenced by contextual factors such as education, support, and role models and by individual factors such as gender, race, and culture. Contextual factors and individual factors then influence one's self-efficacy in certain activities that, in turn, reflect one's interests. Therefore, SCCT places importance on the individual's cognitive process of choosing a career based on environmental and social factors,

self-efficacy, interests, and performance outcomes. Additionally, SCCT contends that as individuals gain more learning experiences over time, they revise their career-related self-efficacy.

Both SCCT and SLTCDM conceptualize career development as a continuous process of participating in activities, assessing one's success, and refining career choices based on self-evaluations. The difference between the theories is that SLTCDM emphasizes learning new activities, whereas SCCT emphasizes self-efficacy for the tasks in which an individual participates.

VARIATIONS IN CAREER DEVELOPMENT PATHWAYS

For many people, career development may not be orderly and predictable. For example, when women entered the workforce in the 1940s to replace the men who had been called to military service, many had never worked outside the home. However, women were—and still are—expected to care for their families in addition to working. The demands of working in both arenas have created somewhat different career paths for women and for men. The conflict between the roles of wife, mother, and worker often has an effect on women's career progression. For example, single working women are more likely to be promoted than women who are married and have children. For men, having children does not seem to have as much effect on career development.

Increasingly, both women and men are beginning to take more time away from their careers to spend time with their families; therefore, the tradition of participating in full-time paid labor for the majority of one's adulthood is changing. Workers are also beginning to decentralize the role of employment in their lives to pursue other interests. In response to this shift in priorities, employers have begun to adapt to parents' desire for more family time and flexibility by developing new work situations such as job sharing, working from home, or working part-time. Maternity and paternity leaves offer parents the opportunity to leave the workforce temporarily to raise children. As a result of these changes, career development may not be a linear process for parents who take time away from the workforce to raise families.

Another group that has experienced variations in career development is immigrants. During the 20th century, the rapid increase in technology and

globalization of corporations made the world smaller. One result was the migration of workers. For immigrants in a new country, especially professionals, entering a career is more challenging than it is for citizens of that country. For example, people who are trained as doctors or lawyers in other countries may find they are unable to work in the United States because their training is not transferable. Therefore, they must retrain in the same career or move into another profession. Other challenges to career development for immigrants may include language barriers, access to well-paying jobs, difficulty obtaining a work visa, or discrimination.

APPLYING CAREER DEVELOPMENT THEORIES

Though career development theories offer some valuable explanations of the process of career choice and development, these theories do not address career decisions and career commitment that may result from external factors such as family expectations, job availability, or even occupational prestige. Moreover, for people who do not have the luxury of choosing occupations based on their interests or self-efficacy—for example, women, parents, or immigrants—extant developmental theories may not provide an adequate model of the process of career development. On the other hand, career development theories do offer some direction for career counselors. For example, Super suggested a counseling approach to apply his theory to practice. That approach includes assessments to help clients gain information about their level of career development, as well as information about their interests and values to identify potential careers. Krumboltz also provided suggestions for applying his theory, SLTCDM, to practice. Consistent with that theory's emphasis on learning, he suggested that counselors help clients recognize salient career information they have learned in past jobs and reframe unexpected incidents into positive career opportunities. Finally, SCCT provides a framework for counselors to address clients' career issues. At its core, career counseling modeled on SCCT assesses clients' self-efficacy for various activities and uses this information to suggest possible careers. Furthermore, counselors address perceived barriers to careers to give clients more options to pursue.

—*Jo-Ida C. Hansen and Melanie E. Leuty*

FURTHER READING

- Betz, N. E., & Fitzgerald, L. F. (1987). *The career psychology of women*. Orlando, FL: Academic Press.
- Brown, D., & Brooks, L. (Eds.). (1996). *Career choice and development* (3rd ed.). San Francisco: Jossey-Bass.
- Brown, S. D., & Lent, R. W. (Eds.). (2005). *Career development and counseling: Putting theory and research to work*. Hoboken, NJ: Wiley.
- Krumboltz, J. D., Mitchell, A. M., & Jones, G. B. (1976). A social learning theory of career selection. *Counseling Psychologist, 6*, 71–81.
- Lent, R. W., & Brown, S. D. (1996). Social cognitive approach to career development: An overview. *Career Development Quarterly, 44*, 310–321.
- Super, D. E., Osborne, W. L., Walsh, D. J., Brown, S. D., & Niles, S. G. (1992). Developmental career assessment and counseling: The C-DAC model. *Journal of Counseling and Development, 71*, 74–80.

CAREERS

A career differs from a job in terms of the length, breadth, and depth of personal involvement. A career is a profession in which one makes progressive achievement, whereas a job is defined by specific tasks. Establishing a career serves many purposes, including providing sustainable income, expressing personal beliefs and values, and providing social connections.

CAREER PATHS

Most individuals move through three career stages, each of which is associated with different social and psychological characteristics. During the first stage, individuals are motivated to establish a foundation in the organization and seek opportunities for advancement. The second stage, midcareer, is a time for people to seek new meanings and reenergize. For others, midcareer coincides with midlife crises or problems related to health and family, and it presents challenges related to work. For example, an individual may reach a career plateau when he or she progresses to a point at which hierarchical promotions are unlikely. The third stage, or late career, is a time when individuals maintain their established career status and gradually disengage from the full-time workforce. During this stage, many individuals seek part-time work, increase their volunteer activities, and become

valuable resources for the community in alternative ways.

HISTORY OF CAREER

The modern concept of the career can be traced to the Industrial Revolution. Before the 1800s, individuals worked primarily on family-owned farms. The Industrial Revolution introduced factories and modern industries, and many individuals moved to cities to work. During World War I, the first systematic placement of individuals in jobs took place. Using group-administered tests developed for the military, individuals' potential and expertise could be matched quickly with job demands.

The Great Depression of the 1930s raised the unemployment rate from 3.2% in 1929 to 23.6% in 1932; during this time, people worked more for survival than for personal fulfillment. World War II introduced 6 million workers into the workforce, the majority of whom were married women. After the war, counseling centers designed to serve returning veterans were established to address their career rehabilitation concerns. Over time, sophisticated tests and counseling tools were developed to help people make decisions related to career choice and development. More recently, the workforce has become increasingly diversified, raising important issues about career choice and work adjustment for workers of color and workers with different sexual orientations, disabilities, and lower social economic status.

CAREER SATISFACTION AND WELL-BEING

One important issue that is related to career is the contribution that work makes to individual well-being. Whereas unemployment rates are linked to mental and physical problems, maintaining a career helps individuals to stay active and connected. Research has shown, for example, that individuals with mental and physical disabilities who are able to enter the workforce, do part-time work, or even do volunteer work experience fewer symptoms, report higher self-esteem, and enjoy a better quality of life compared with nonworking peer groups.

Recently, occupational stress has been identified as a major cost for business organizations. The field of *occupational health psychology* is a new discipline that is dedicated to identifying individual and organizational factors that contribute to occupational

stress and career dissatisfaction. For example, research has shown that organizational variables such as environmental uncertainty, role conflict, opportunities for skill acquisition, social contact, physical security, organizational structure and climate, and physical, emotional, and cognitive job demands have both a direct and an indirect impact on individuals' sense of career satisfaction and level of occupational stress.

WORK-FAMILY BALANCE AND CAREERS

Although a broad distinction can be made between work life and nonwork life, the boundaries between work and home have become increasingly blurred. Two reasons for this trend are that married women have entered the workforce and communication technology has advanced. Dual-earning couples today face the challenge of balancing their work and home lives. Cell phones, the Internet, and portable computers allow individuals to work when they are at home or on vacation. Thus, technological advances have made it difficult for individuals to maintain boundaries between work and home.

Two perspectives, *scarcity* and *expansion enhancement*, attempt to explain the interactions between work and family. The scarcity perspective assumes that multiple roles at work and at home compete for an individual's psychological and physiological resources. Generally, work-to-family conflict is linked to outcomes such as marital dissatisfaction and family distress. Family-to-work conflict is associated with poor work performance, low job satisfaction, and work-related absenteeism. In contrast, the expansion-enhancement perspective emphasizes the benefits of multiple roles in life, which may outweigh the cost of additional stress.

CAREER THEORIES

Some of the most influential career theories include John Holland's person-environment typology; René Dawis and Lloyd Lofquist's theory of work adjustment; Donald Super's developmental approach; and Robert Lent, Steven Brown, and Gail Hackett's social cognitive career theory. Holland's theory proposes six types of vocational interest personality—realistic, investigative, artistic, social, enterprising, and conventional—and describes the way those interests fit work environments. The theory of work adjustment

captures the dynamic interaction between individual workers' needs and abilities and the reinforcers and skill requirements of jobs. Super's model outlines six stages of career development that occur throughout the life span. Social cognitive career theory identifies the personal, environmental, and behavioral variables that influence career choices. The theory also focuses on the connection between self-efficacy, interests, outcome expectancy, environmental supports, and social barriers that people experience when making their career choices.

CAREER ASSESSMENT AND COUNSELING

The field of career counseling has continued to evolve since it was established during the early 1900s. Today, career counselors work in a variety of settings: schools, hospitals, business organizations, public services, and private practice. They help individuals explore career options, plan for career paths, locate job placements, and better understand how social and personal concerns interact with one's career. Career counselors use assessment instruments to help individuals explore factors that may influence their career choices. Four frequently assessed constructs are interests, personality, needs and values, and abilities. Major interest inventories used in career counseling include the Strong Interest Inventory, the Campbell Interest and Skill Survey, and the Self-Directed Search. The Myers-Briggs Type Indicator and the California Psychological Inventory are two popular personality measures. Value measures include instruments such as the Minnesota Importance Questionnaire and the Values Scale. Both self-report and objective assessment instruments of abilities are available. For example, the Harrington-O'Shea Career Decision-Making System has a section devoted to self-estimated abilities. The most often used objective assessment instruments are the Differential Aptitude Tests, the Armed Services Vocational Aptitude Battery, and the General Aptitude Test Battery.

—Jo-Ida C. Hansen and Shuangmei Zhou

See also Career Development

FURTHER READING

Arthur, M. B., Hall, D. T., & Lawrence, B. S. (Eds.). (1989). *Handbook of career theory*. New York: Cambridge University Press.

- Brown, S. D., & Lent, R. W. (Eds.). (2005). *Career development and counseling: Putting theory and research to work*. Hoboken, NJ: Wiley.
- Kossek, E. E., & Lambert, S. J. (Eds.). (2005). *Work and life integration: Organizational, cultural, and individual perspectives*. Mahwah, NJ: Lawrence Erlbaum.
- Quick, J. C., & Tetrick, L. E. (Eds.). (2003). *Handbook of occupational health psychology*. Washington, DC: American Psychological Association.

3. Collective case: Multiple cases (either individuals or organizations) are used to explore an issue. One application of this method could be an examination of selection practices for assembly line workers in four different automotive organizations.
4. Collective instrumental case: Multiple cases provide evidence in support of a point. For example, organizations that recently implemented a 360-degree feedback system could be selected to support the argument that these systems are most appropriate for developmental purposes.

CASE STUDY METHOD

A *case study* is an in-depth examination of entities (individuals or organizations), processes, or activities that seeks further theoretical understanding and practical knowledge of some phenomenon. This qualitative research tool relies on a variety of techniques to achieve context-rich, detailed information about a single group or issue. Historically, case studies reflect the postmodern view of research, which emphasizes inductive and subjective methods rather than deductive and objective approaches to assessing behavior within context. Case studies have been used extensively in the political science, sociology, and education literature.

Because of the inherent flexibility of this method of study, case studies can be used to move beyond the extant empirical or theoretical literature to investigate creative and innovative solutions to organizationally relevant problems. There are many types of case studies, each reflecting a different method of addressing the research question under investigation. Delbert Miller and Neil Salkind identified four general types of cases:

1. Intrinsic case: The case (individuals or organizations) itself is of interest. An examination of best practices for Web-based training within a single technologically advanced organization is an example of an intrinsic case study.
2. Instrumental/illustrative case: The research question involves the examination and description of a specific issue in the context of a single unit of study; the case is used as a means to explore this question. For example, the abuse of skill-based pay plans could be researched in an organization that recently implemented this pay system to illustrate how important guidelines are to appropriate expenditures.

DATA COLLECTION AND ANALYSIS

The design and incorporation of hypotheses depends on the nature of the research. Like traditional quantitative research, theory and expectations should guide the design of qualitative research when possible. The identification and number of participants should reflect this theory and boundaries. However, in some instances, case studies are used as the primary tool for theory building, making it difficult for the researcher to identify expectations or propositions prior to designing the study. In other instances, the case study may be used to verify existing theory with one or more organizations in context; in this situation, expectations or hypotheses should be explicated prior to designing the study.

Yin identified a number of techniques that can be used to conduct case study research. These include participant observation, direct observation, interviews, document analysis, archival data analysis, and field studies. Thorough explication of the methodology and participants involved in the case study is critical to enhancing perceptions of the generalizability and meaningfulness of the findings. Additionally, the use of multiple standardized methods to triangulate across sources can bolster the representativeness of case study results.

Once the data are collected, analysis traditionally progresses in one of two ways: holistically or through the use of coding schemes. This analysis may occur within a single case, across individuals, or across multiple cases. If the researcher is interested in the information obtained as a whole rather than smaller units of meaning, the holistic method of analysis is used. In this instance, general patterns or themes of behavior are identified in the data. Alternatively, elements of the material gathered can be coded to quantify the prevalence of certain themes or behaviors across

individuals or organizations. Because of the subjective nature of the coding process, the use of multiple coders and some assessment of intercoder reliability (e.g., Cohen's kappa) is strongly recommended.

STRENGTHS OF THE CASE STUDY METHOD

The main benefit of case study research is the depth of information provided about a single unit (person, organization, or issue) within context. This detailed information, often referred to as *thick descriptions*, provides a real-world context in which the processes under investigation can be better understood. Because it focuses on the context of events and behaviors, this type of research may be more relevant to the practitioner than mean-level, quantitative survey data.

Case study research may also benefit theory building and result in more robust theories that reflect contextual influences. Because of the inherent flexibility of the techniques associated with the case study method, researchers can better identify unexpected themes or results and further explore these to build more realistic theories. Some qualitative researchers argue that the case study method has high construct validity because it does not place constraints on the situation, traditionally a necessary element of quantitative research.

WEAKNESSES OF THE CASE STUDY METHOD

The most common argument against the use of the case study method as a technique for scientific inquiry is the lack of generalizability of findings because of the narrow focus and sample. For many researchers, external validity only involves the use of sample data to approximate population parameters in order to identify a universal law of behavior and achieve statistical generalizability. Proponents of the case study method argue that researchers should focus instead on analytical generalization, whereby findings are generalized to a broader theory. Additionally, researchers using multiple groups of individuals or multiple organizations to triangulate across sources can argue for increased generalizability of patterns or themes.

Internal validity may also be an issue in case study research in that there is little to no control over the factors influencing the behavior or individuals of interest. This lack of control may call into question the establishment of any patterns of behavior. However,

the creation and evaluation of alternative explanations for repeated patterns of behavior can help the case study researcher to refute claims of a lack of internal validity of results.

Because of the inherent subjectivity of the case study process, which is a result of the individualistic techniques used (e.g., interviews, observation), the reliability of results is often questioned. Case study researchers argue, however, that the consistency of the case study process can be enhanced by thorough research protocols with careful documentation. Some have argued that researchers should shift their thinking to an examination of dependability, or the stability and consistency of the *process* of collecting the in-depth data, rather than focusing on the *outcome* of the data-collection procedure.

SUMMARY

The case study method of research provides context-rich information about an individual or group, process, or activity. As a qualitative and subjective method of inquiry, it suffers from problems with internal and external validity, as well as reliability in results. However, its disadvantages are balanced by the rich detail it provides, which contributes to theory development and practical understanding of issues that are relevant to social scientists and those interested in organizational behavior. The use of multiple sources and multiple methods can enhance perceptions of the utility of this method of research.

—Jennifer P. Bott

See also Cross-Cultural Research Methods and Theory; Naturalistic Observation

FURTHER READING

- Miles, M. B., & Huberman, A. M. (1984). *Qualitative data analysis: A sourcebook of new methods*. Beverly Hills, CA: Sage.
- Miller, D. C., & Salkind, N. J. (2002). *Handbook of research design and social measurement* (6th ed.). Thousand Oaks, CA: Sage.
- Reige, A. M. (2003). Validity and reliability tests in case study research: A literature review with "hands-on" applications for each research phase. *Qualitative Market Research*, 6(2), 75–86.
- Yin, R. K. (1989). *Case study research: Design and method*. Newbury Park, CA: Sage.

CHARISMATIC LEADERSHIP THEORY

Charismatic leadership is a relatively new and distinct paradigm. Since the 1970s, researchers have conducted studies on charismatic leadership in areas such as management, academia, the military, and government. Although researchers have used different approaches to study charismatic leadership, their findings have been fairly consistent.

Through empirical investigation, researchers have uncovered the key features of charismatic leadership. Charismatic leadership theory identifies the extraordinary characteristics that inspire devotion and motivation in followers and highlights the relationship between charismatic leaders and their followers. Studies describe charismatic leaders as highly influential and confident individuals who hold strong beliefs. They are change agents who communicate their vision to others, set high expectations, attend to the needs of their followers, and behave in unconventional ways. Researchers assert that charismatic leadership tends to manifest itself in crisis situations, when the leader is of high authority, when vague and complicated assignments are given, and when extrinsic rewards are not offered. These circumstances provide opportunities for charismatic leaders to implement change and to promote their vision.

Charismatic leaders are inherently motivated and committed to setting and meeting their goals. They are naturally diplomatic and work in partnership with their followers to identify organizational issues and undertake challenges and risks. They maintain a collective identity while providing a sense of direction that helps followers achieve both organizational and personal goals.

RESEARCH ON CHARISMATIC LEADERSHIP

Researchers have documented the positive effects of charismatic leadership. For example, they have found that followers of charismatic leaders not only support and trust their leader but also strive to accomplish their manager's mission. They often learn from their leader and emulate his or her behavior. Studies suggest that followers embrace a charismatic leader and his or her mission because of the leader's self-confidence, exceptional persona, extraordinary vision,

ideology, and motivation to maximize his or her subordinates' potential. Typically, followers experience higher satisfaction than do counterparts without charismatic leaders. However, findings from previous studies show that charismatic leaders can also create divisions within the groups they lead, display an authoritative management style, and focus on trivial matters.

LIMITATIONS OF CHARISMATIC LEADERSHIP THEORY

Despite the amount of research that has been conducted on charismatic leadership theory, the exact definition of charismatic leadership remains uncertain. Some researchers assert that leaders are considered charismatic when followers perceive their leader as possessing extraordinary characteristics and when followers develop strong ties with their leader; however, such attributes are based on several presumptions: the quantity of components demonstrated in a leader's behavior, the significance of the components, and the amount of influence of the components. Some of these components include the leader's focus on the organizational environment, future goals, and likeability. Some researchers affirm that charismatic leadership exists when a leader affects a follower's attitude and drive, even if the follower does not characterize the leader as exceptional or charismatic. Alternatively, others argue that a leader's traits, followers, and situation collectively determine whether charismatic qualities are present.

Researchers suggest that charismatic leadership is not essential or necessary. Some argue that an organization's vision is created through the collaborative efforts of leaders and subordinates, and some insist that major transformations within organizations occur as a result of transformational leaders. Still others argue that charismatic leadership is needed during turbulent or stressful times—for example, when a company experiences a reduction in its workforce or when an organizational merger occurs.

Charismatic leadership theory fails to provide a well-defined explanation of the significance of underlying influence processes. Some theorists propose that personal identification is the primary influence process, whereas others contend that collective identification and internalization are the dominant influence processes. They claim that followers become loyal to

their leader and eagerly execute the leader's tasks and objectives. These devoted followers work diligently to gain their charismatic leader's approval and tend to emulate their leader's behavior.

On the other hand, others contend that collective identification and internalization are the dominant influence processes. They claim that if internalization is the dominant influence process and followers are goal oriented, the attainment of goals will be an integral part of their self-confidence. Consequently, followers will work assiduously to fulfill their goals and exhibit more loyalty to their tasks than to the charismatic leader. Followers will likely refrain from executing the leader's unrealistic goals and presumably reject objectives that infringe on their principles.

Unfortunately, there is not a shared understanding of the fundamental behaviors of charismatic leadership. Although the majority of studies on charismatic leadership address leader behaviors, there is presently no agreement among theorists regarding the essential behaviors of charismatic leadership, nor is there a clear understanding of the relationship between leader behavior and the rationale behind that behavior. Most of the behaviors seem to have been identified by their association with socialized leadership effectiveness rather than their link to qualities of charisma.

Additionally, there seems to be a greater focus on socially accepted behaviors than on manipulative behaviors. Some charismatic leaders engage in manipulative behaviors by inflating situations so as to depict a crisis, reprimanding others for their mishaps, and overstating their accomplishments. These manipulative behaviors often create dependent followers and a propensity for leaders to be viewed as experts.

—Angela Camille Bullock

See also Leadership and Supervision; Leadership Development; Transformational and Transactional Leadership

FURTHER READING

- Conger, J. A., & Kanungo, R. N. (1998). *Charismatic leadership in organizations*. Thousand Oaks, CA: Sage.
- Neider, L. L., & Schriesheim, C. A. (2002). *Leadership*. Greenwich, CT: Information Age.
- Raelin, J. A. (2003). The myth of charismatic leaders. *Training and Development*, 57(3), 46–54.

Riggio, R. E. (2003). *Introduction to industrial/organizational psychology* (4th ed.). Upper Saddle River, NJ: Prentice Hall.

CIVIL RIGHTS ACT OF 1964, CIVIL RIGHTS ACT OF 1991

The Civil Rights Act of 1964 (CRA 1964) is a landmark piece of legislation that created the legal basis for nondiscrimination in housing, education, public accommodations, federally assisted programs, and employment. Title VII of the CRA 1964 prohibits discrimination in employment based on an individual's race, color, religion, sex, or ethnic origin. This prohibition applies to a wide range of employment actions, including hiring, promotion, training, compensation, disciplinary actions, discharging of employees, and other actions pertaining to the "terms, conditions, or privileges of employment" as set forth in the act. Title VII also makes it unlawful for an employer to take retaliatory action against any individual for opposing employment practices made unlawful by Title VII; filing a discrimination charge; or testifying, assisting, or participating in an investigation, proceeding, or hearing under Title VII. The act generally applies to all employers with 15 or more employees; the U.S. government, however, is the most notable exception (federal employees are protected from discrimination by other legislation).

Title VII is the single most influential fair employment law in the United States. It is credited with improving the availability of meaningful employment opportunities for women and minorities and reducing the wage disparities these groups historically experienced. With the passage of Title VII, employers could no longer make biased employment decisions with impunity. The legal obligations imposed on employers by Title VII—and the greatly increased threat of employment litigation—prompted employers to reconsider their employment practices and, in many instances, make changes that were improvements from a behavioral science perspective (e.g., greater efforts to use criteria with demonstrable job-relatedness).

Since its enactment, Title VII has been amended several times. The most far-reaching amendments were made by the Civil Rights Act of 1991 (CRA 1991). The following sections discuss Title VII and its

interpretation by the courts, both before and after the 1991 amendments.

CIVIL RIGHTS ACT OF 1991

The CRA 1991 was enacted in response to a series of U.S. Supreme Court decisions that were widely viewed as adversely affecting victims of employment discrimination. In addition to making far-reaching amendments to Title VII, the CRA 1991 also amended aspects of the Americans With Disabilities Act of 1990 (ADA), the Age Discrimination in Employment Act of 1967 (ADEA), and the Civil Rights Act of 1866 (CRA 1866).

Extended Coverage of Fair Employment Laws

The CRA 1991 broadened the coverage of U.S. fair employment laws in two ways. First, it extended the application of Title VII and the ADA to U.S. citizens working abroad for U.S.-based employers. This provision reversed the Supreme Court's 1991 decision in *EEOC v. Arabian American Oil Co.*, which held that Title VII does not apply outside the United States. Second, the CRA 1991 extended the application of all major federal fair employment laws (e.g., Title VII, the ADA, and the ADEA) to previously unprotected Senate employees, allowing them to redress employment discrimination claims through an internal procedure and a limited right of appeal in federal court (employees in the House of Representatives were already covered).

Required Proof in Employment Discrimination Cases

Title VII, the ADA, and the ADEA all recognize two basic theories of discrimination: disparate treatment and disparate impact. The CRA 1991 includes several provisions that either reversed or codified Supreme Court decisions regarding procedural and evidentiary requirements in these two distinct types of cases.

Disparate Impact Cases

Disparate impact discrimination claims involve employer policies or practices that appear neutral on their face but have a substantially greater negative impact on a group that is protected by fair employment

legislation (e.g., gender, race, age, disability) when put into effect. For example, although an employer's use of height requirements in its hiring decisions appears to be race neutral on its face, the requirement was found to have a substantially greater impact in screening out Hispanic and Asian job applicants because those two groups tend to be shorter than White applicants.

The Supreme Court's 1989 decision in *Wards Cove Packing Co. v. Atonio* made it significantly more difficult for plaintiffs to prove disparate impact by holding that it is not enough for a plaintiff to show there is a racial, ethnic, or gender imbalance in the employer's workforce; rather, the plaintiff must identify the specific policy or requirement that produced the disparate impact. For example, a plaintiff could not merely show that significantly fewer women hold entry-level jobs compared to the proportion of females in the relevant labor market; instead, the plaintiff would have to identify the specific recruiting or selection practice that has differentially kept women from being hired.

The CRA 1991 made the plaintiff's burden in disparate impact cases somewhat easier to meet by providing that if the plaintiff can demonstrate that the elements of an employer's decision-making process are not capable of separation for analysis, it is not necessary for the plaintiff to identify the specific policy or practice causing the disparate impact. For example, if it is not possible to determine the criteria used to screen applicants or select employees because of a highly subjective hiring process, the plaintiff may make a prima facie case of disparate impact discrimination without identifying the specific policy or practice.

Even if a plaintiff is able to establish that an employer's practice has had a disparate impact on a protected group, a finding of illegal discrimination does not automatically follow. Instead, the employer is permitted to attempt to justify the use of the challenged practice. In addition to making it harder to prove disparate impact by requiring plaintiffs to identify the specific practice causing it, the *Wards Cove* decision also made it easier for employers to avoid liability because all an employer needed to do to justify such a practice was to produce some proof the challenged practice was "reasonable."

In response to the *Wards Cove* ruling, the CRA 1991 made it more difficult for employers to establish a legal defense for a practice found to have a disparate impact. First, the act increased the employer's burden by requiring that once a plaintiff establishes the fact of disparate impact, the employer must demonstrate that

the challenged practice is both job related and necessary for business. Although the CRA 1991 does not define these terms, it is well settled that it is not enough for the employer to show that it acted in good faith, that it had some nondiscriminatory reason for the practice, or that the practice was merely reasonable. Instead, the employer must produce credible evidence showing that the requirement is related to performance on the job. For example, although formal validation studies are not necessarily required, if it is shown that an employer's use of a selection test has a disparate impact on the hiring of minorities, evidence of significant correlation between applicant scores on the selection test and performance on the job would allow the employer to establish a defense.

The CRA 1991 also made it more difficult for employers to establish a defense to a showing of disparate impact by making it clear that the employer not only has to *produce* some evidence indicating the challenged practice is job related and consistent with a business necessity, the employer must also *persuade* the court of that alleged fact. As a practical matter, this means that if the plaintiff produces contradictory evidence of equal quality, the employer would fail to establish a legal defense (i.e., "ties" go to the plaintiff).

Mixed-Motive Disparate Treatment Cases

Disparate treatment discrimination claims involve intentional discrimination in that the employer is alleged to have intentionally used race, gender, or another protected characteristic as a factor in an employment decision or action. In a "mixed-motive" disparate treatment case, there is evidence that the protected characteristic in question was only one of multiple factors influencing the employer's decision; in other words, a discriminatory motive was a factor, but not the *only* factor contributing to the employment action in question.

The 1989 Supreme Court decision in *Waterhouse v. Hopkins* made it more difficult for plaintiffs to meet their burden of proving disparate treatment in mixed-motive cases by holding that the plaintiff loses in such cases if the employer can show the same decision would have been made even without the unlawful motive (for example, because the plaintiff was objectively less qualified). The CRA 1991 clarified that intentional discrimination occurs when race, color, sex, religion, or national origin is a motivating factor

in an employment decision, even if there are other nondiscriminatory reasons for the decision. Although an employer's proof that it would have made the same decision in any event is no longer a complete defense in mixed-motive cases, such a showing is a partial defense in that, if established, the damages available to the plaintiff are limited.

Damages Available to the Successful Plaintiff

Prior to the passage of the CRA 1991, remedies for discrimination under Title VII and the ADA were limited to "make-whole" relief (e.g., back pay, lost future earnings, attorneys' fees, court costs) and injunctive relief. The CRA 1991 added compensatory damages and punitive damages in certain circumstances. Compensatory damages (e.g., emotional distress, mental anguish, loss of enjoyment of life) may be recovered by victims of disparate treatment or intentional discrimination under Title VII and the ADA. Punitive damages may be recovered if the employer is shown to have acted with malice or reckless indifference for the law. However, the total amount of compensatory and punitive damages available for victims of intentional discrimination is capped at \$50,000 to \$300,000, depending on the size of the employer.

The damages available to plaintiffs in Title VII and ADA cases may be further limited in mixed-motive intentional discrimination cases if the employer is able to establish the "same-decision" defense. That is, even if it is established that an employer had a discriminatory motive (e.g., gender was a motivating factor in the decision), if the employer can show that the discriminatory intent did not have any practical effect because the employer would have reached the same decision even without the discriminatory intent, then the plaintiff is not entitled to reinstatement, back pay, or compensatory or punitive damages. However, the plaintiff may receive declaratory and injunctive relief, as well as attorneys' fees and costs.

Right to a Jury Trial

When Title VII was passed in 1964, there was concern that some Southern juries would not be able to render a fair verdict in discrimination cases. As a result, jury trials were not permitted under Title VII as it was originally enacted—the judge assigned to the case decided both questions of law and issues of fact

(e.g., did the employer intentionally discriminate?). Under Title II, the CRA 1991 permits jury trials at the request of either the plaintiff or the defendant when compensatory or punitive damages are sought. Because compensatory and punitive damages are unavailable in disparate impact cases, jury trials are not available either.

OTHER PROVISIONS

The CRA 1991 also includes the following provisions:

- Banning *race norming*, the practice of adjusting scores, using different cutoff scores, or otherwise altering the results of employment-related tests based on race, color, religion, sex, or national origin to ensure that an employer has a minimum number of minority applicants
- Establishing the Glass Ceiling Commission to study the opportunities for and artificial barriers to the advancement of women and minorities to management and decision-making positions in business
- Broadening protection against private race discrimination based on Section 1981 of the CRA 1866
- Expanding the right to bring claims challenging discriminatory seniority systems
- Limiting the rights of nonparties to attack consent decrees in employment discrimination cases by barring any challenges by parties who knew or should have known of the decree or who were adequately represented by the original parties

IMPACT OF THE CRA 1991

The CRA 1991 significantly expanded the legal rights and remedies available to victims of discrimination in the American workplace. The objective increase in the likelihood that a plaintiff could succeed at trial, as well as the substantial increase in monetary damages potentially available to plaintiffs, prompted employers to become more concerned with the threat of employment discrimination litigation. Empirical evidence indicates that the perceived greater threat of employment litigation was, in fact, realized. For example, research examining employment lawsuits filed before and after the passage of the CRA 1991 indicates the number of federal cases alleging discrimination in employment more than doubled from 1991 to 1995; the greatest increase came from lawsuits by former employees alleging discrimination in a firing decision (a trend that had begun before the passage of the CRA

1991). The amount of monetary awards received by plaintiff workers in employment discrimination cases also increased dramatically over the same period, although there is evidence that media reporting contributed to a greatly inflated perception of these awards.

The effect of the CRA 1991 on employment levels for women and minorities was less dramatic. Critics of the CRA 1991 argued that the threat of hiring-based disparate impact lawsuits would force employers to hire by quota. That is, employers would simply hire representative percentages of applicants from protected groups—with little or no regard for applicants' actual job qualifications—to avoid statistical disparities that might lead to a disparate impact claim. However, others argued that the cost of discharge litigation would motivate employers to avoid hiring minorities and women because of the perceived greater risk associated with firing employees in those groups. Overall, studies looking at the impact of the CRA 1991 on the employment of women and minorities suggest that quota-based hiring fears were unfounded. However, unlike Title VII, the CRA 1991 does not appear to have significantly improved the employment level of women and minorities in industries with traditionally low representations of those groups, nor does it appear to have led to significant gains in wages. In fact, a recent study suggests that employers with greater susceptibility to employment discrimination litigation actually reduced their hiring of protected workers after the passage of the CRA 1991.

Finally, as a result of the increased threat of litigation following the passage of the CRA 1991 and the act's emphasis on the need for employers to provide credible evidence of the job-relatedness of their employment practices, the role of industrial and organizational psychologists and well-trained human resource professionals within an organization has taken on greater importance. As others have argued, it appears that the best approach to dealing with the increased litigation threat posed by the CRA 1991 is to use the type of sound employment practices developed and promoted by these groups of professionals.

—Mark V. Roehling and Richard A. Posthuma

See also Adverse Impact/Disparate Treatment/Discrimination at Work; Human Resource Management; Human Resources Strategy; Labor Law; Sexual Discrimination

FURTHER READING

- Bennett-Alexander, D. D., & Hartman, L. P. (2004). *Employment law for business* (4th ed.). New York: McGraw-Hill.
- Lindeman, B., & Grossman, P. (1997). *Employment discrimination laws* (3rd ed.). Washington, DC: Bureau of National Affairs.
- Oyer, P., & Schaefer, S. (2003). The unintended consequences of the '91 Civil Rights Act. *Regulation*, 26(2), 42–68.
- Robinson, R. K., Franklin, G. M., & Wayland, R. (2002). *The regulatory environment of human resource management*. New York: Harcourt College.

CLASSICAL TEST THEORY

Measurement is the process of quantifying the characteristics of a person or object. Theories of measurement help to explain measurement results (i.e., scores), thereby providing a rationale for how they are interpreted and treated mathematically and statistically. Classical test theory (CTT) is a measurement theory used primarily in psychology, education, and related fields. It was introduced at the beginning of the 20th century and has evolved since then. The majority of tests in psychology and education have been developed based on CTT. This theory is also referred to as *true score theory*, *classical reliability theory*, or *classical measurement theory*.

Classical test theory is based on a set of assumptions regarding the properties of test scores. Although different models of CTT are based on slightly different sets of assumptions, all models share a fundamental premise postulating that the observed score of a person on a test is the sum of two unobservable components, *true score* and *measurement error*. True score is generally defined as the expected value of a person's observed score if the person were tested an infinite number of times on an infinite number of equivalent tests. Therefore, the true score reflects the stable characteristic of the object of measurement (i.e., the person). Measurement error is defined as a random "noise" that causes the observed score to deviate from the true score.

ASSUMPTIONS OF CTT

Classical test theory assumes linearity—that is, the regression of the observed score on the true score is linear. This linearity assumption underlies the practice

of creating tests from the linear combination of items or subtests. In addition, the following assumptions are often made by classical test theory:

- The expected value of measurement error within a person is zero.
- The expected value of measurement error across persons in the population is zero.
- True score is uncorrelated with measurement error in the population of persons.
- The variance of observed scores across persons is equal to the sum of the variances of true score and measurement error.
- Measurement errors of different tests are not correlated.

The first four assumptions can be readily derived from the definitions of true score and measurement error. Thus, they are commonly shared by all the models of CTT. The fifth assumption is also suggested by most of the models because it is needed to estimate reliability. All of these assumptions are generally considered "weak assumptions," that is, assumptions that are likely to hold true in most data. Some models of CTT make further stronger assumptions that, although they are not needed for deriving most formulas central to the theory, provide estimation convenience:

- Measurement error is normally distributed within a person and across persons in the population.
- Distributions of measurement error have the same variance across all levels of true score.

IMPORTANT CONCEPTS IN CTT**Reliability and Parallel Tests**

True score and measurement error, by definition, are unobservable. However, researchers often need to know how well observed test scores reflect the true scores of interest. In CTT, this is achieved by estimating the *reliability* of the test, defined as the ratio of true score variance to observed score variance. Alternatively, reliability is sometimes defined as the square of the correlation between the true score and the observed score. Although they are expressed differently, these two definitions are equivalent and can be derived from assumptions underlying CTT.

To estimate reliability, CTT relies on the concept of *parallel test forms*. Two tests are considered parallel if they have the same observed variance in the population of persons and any person has the same true score

on both tests. If these conditions hold, it can be shown that the correlation between two parallel tests provides an estimate of the reliability of the tests.

Validity Versus Reliability

The definition of true score implies an important notion in CTT: that the true score of a person on a measure is not necessarily the same as that person's value on the construct of interest. *Validity* concerns how well observed scores on a test reflect a person's true standing on the construct that the test is meant to measure. As such, validity is a concept that is totally distinct from reliability. Reliability reflects the strength of the link between the observed score and the true score, whereas validity indexes the link between the observed score and the construct of interest. The reliability of a test sets an upper bound for its validity; hence, a test cannot have high validity with low reliability.

BEYOND CTT

As useful as it is, CTT has certain limitations. It has been criticized for its nonspecific concept of measurement error. Its assumption about the linearity of the regression line of observed score on true score has also been questioned on both theoretical and empirical grounds. Accordingly, more sophisticated theories have been proposed to address those limitations. In particular, generalizability theory explicitly considers the contributions of multiple sources of measurement error to observed scores and offers methods for estimating those effects. Item response theory postulates a nonlinear regression of a person's responses to a test item on his or her latent ability (a concept that is similar to true score in CTT). These measurement theories offer certain advantages over CTT, but they are more complex and depend on stronger assumptions. Therefore, CTT remains popular because of its simplicity and, more important, the robustness against violations of its basic assumptions.

—Huy Le

See also Generalizability Theory; Item Response Theory; Reliability; Validity

FURTHER READING

Feldt, L. S., & Brennan, R. L. (1989). Reliability. In R. L. Linn (Ed.), *Educational measurement* (3rd ed., pp. 105–146). New York: American Council on Education.

Lord, F. M., & Novick, M. R. (1968). *Statistical theories of mental test scores*. Reading, MA: Addison-Wesley.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.

Traub, R. E. (1994). *Reliability for the social sciences: Theory and applications*. Thousand Oaks, CA: Sage.

CLASSIFICATION

See PLACEMENT AND CLASSIFICATION

COGNITIVE ABILITIES

The term *cognitive ability* generally refers to the capacity to mentally process, comprehend, and manipulate information—in short, the ability to learn. For example, reasoning deductively or inductively, grasping general principles from observing the behavior of objects, mentally rotating objects in one's mind, quickly and accurately comprehending what one is reading, and dealing effectively with mathematical concepts are all cognitive abilities. Cognitive abilities largely constitute what most people intuitively call *intelligence*. Cognitive abilities are also referred to as *cognitive aptitudes*.

The scientific study of cognitive abilities has a long and sometimes contentious history. However, researchers' interest has centered on two common themes: the structure of cognitive abilities (i.e., how many are there, and what do they look like?) and the impact of differences in cognitive abilities on outcomes of importance (i.e., what do they predict?).

THE STRUCTURE OF COGNITIVE ABILITIES

The debate over the structure of cognitive abilities is perhaps one of the most storied arguments in differential psychology. At the risk of oversimplifying its history, the debate largely centers on the question of whether there is a single general cognitive ability or many independent specific abilities. Today, most scientists accept a model of cognitive abilities similar to the one proposed by John B. Carroll. In an exhaustive and remarkable endeavor, Carroll reanalyzed more than 400 data sets spanning more than 60 years of research. His results convincingly demonstrated that the psychometric structure of cognitive abilities is

best described by a hierarchical model with three basic strata or levels. At the apex is a single general cognitive ability factor, referred to as *g*, below which are a small number of narrow abilities, often referred to as group factors, each of which sits, in turn, on top of a large number of task-specific abilities. The primary levels of interest are the top level (*g*) and the second level, which contains 8 to 10 narrow abilities.

Definition of the *g* Factor

The *g* factor reflects one's general ability to learn. Formally, it is defined as the "education of relations and correlates," that is, the ability to infer or deduce meaningful principles and concepts from abstract and novel situations. The *g* factor is reflected in the pervasive positive correlations among any set of tests or tasks that require any form of cognitive manipulation or processing of information. That is, although more narrow mental abilities (e.g., verbal ability, quantitative ability, visual-spatial ability, short-term memory) can be identified, people who are high (or low) on any individual narrow ability tend to be relatively high (or low) on the others. Reliable measures of cognitive abilities are always positively correlated.

Definition of Narrow Abilities

There remains some slight disagreement and uncertainty regarding the exact specification of narrow abilities. In fact, Carroll himself cautioned that some slight modification or further refinement to those factors may be in order. Nonetheless, the following narrow abilities are included in most models of cognitive abilities:

- Fluid intelligence/reasoning: The ability to apply rules and premises to reach a solution; the ability to discover the underlying characteristics that govern problems
- Quantitative reasoning/skills: The ability to reason, either inductively or deductively, with mathematical concepts, relations, and properties; general knowledge of mathematical concepts
- Crystallized intelligence: The size and sophistication of one's vocabulary; the ability to comprehend and communicate orally and use communication skills with fluency; the range of general and acculturated knowledge
- General verbal ability: The ability to recognize and decode words or disguised words; the ability to

comprehend and communicate with clarity of thought and expression in written discourse; general understanding of language rules of (native) language

- Short-term memory: The ability to form and store mental representations of stimuli and then recognize or recall them after a short duration (memory span, visual memory)
- Long-term associative storage and retrieval: The ability to store and recall previously learned material regardless of whether it is meaningful; the ability to rapidly produce series of ideas, words, or other elaborative information related to a specific theme or object; the ability to rapidly produce novel or uncommon connections among stimuli or solutions to problems
- Visual-spatial processing: The ability to mentally manipulate objects or visual patterns, such as mentally rotating multidimensional objects in space; the ability to quickly discern a meaningful object from partially obscured or vague patterns and stimuli
- Auditory processing: The ability to process speech sounds; phonological awareness; the ability to discriminate speech sounds in normal and distorted contexts; the ability to discriminate tones, tone patterns, pitch, and other variations in sound qualities; the ability to localize sounds in space
- Cognitive processing speed: The ability to rapidly make simple decisions or perform simple tasks; the ability to compare visual symbols; the ability to rapidly manipulate and deal with numbers in elementary ways

PREDICTIVE VALIDITY OF COGNITIVE ABILITIES

That differences in cognitive abilities exist and that they appear to have something to do with differences in a wide array of behaviors has been recognized for several thousand years. Therefore, a wide variety of methods for assessing individual differences in cognitive abilities have been developed, and many have proved useful in understanding or predicting behaviors as varied as academic performance and technical job performance, occupational and economic attainment, delinquency, criminal behavior, accident proneness, and mortality, to name just a few.

Predictive Validity of *g*

A wealth of data has confirmed that *g* is predictive (at levels of both theoretical and practical significance) of individual differences in a wide range of

academic, occupational, and social outcomes. Of interest to industrial and organizational psychologists, g is consistently the best single predictor of job training performance and technical job performance across a wide range of ages, settings, and domains. There is no job for which g is not at least a moderately strong predictor of technical performance.

For example, meta-analytic estimates place the predictive validity of g for technical job performance around .50 to .60 and .56 for performance in job training programs. The exact value varies depending on the nature of the job in question, however. For example, the correlation between g and technical performance for managerial and many information-dependent white-collar jobs is typically in the range of .50 to .61. By contrast, the correlation for manual labor jobs is typically around .25. It is the cognitive complexity of the occupation that moderates the predictive validity of g . In addition, g maintains its predictive validity across experience levels. In fact, some studies show that the predictive validity of g actually increases as experience increases. At first, this may seem counter-intuitive: After all, people with more experience have had the opportunity to learn more and hence acquire greater levels of job-specific knowledge and skills. All things being equal, an employee with greater experience will perform better than an inexperienced employee. However, all things are not equal. It is the ability to profit from experience that is of importance, and g essentially reflects the ability to learn from experience. Those with higher g learn faster; thus, as experience increases, differences in knowledge and skills attributable to g become increasing exaggerated.

Predictive Validity of Narrow Abilities

Unlike g , the predictive validity of narrow abilities is tied more closely to the nature of the criteria that one seeks to predict. Thus, it is more difficult to speak of generalized findings regarding the predictive validity of narrow abilities. In addition, given the robustness of g 's predictive validity, the value of narrow abilities has typically been gauged by their incremental validity. That is, in order to merit attention as practically significant, evidence for the incremental contribution of narrow abilities above and beyond g should be substantial, dependable, and related to meaningful outcomes. However, even the most optimistic interpretation of the existing empirical

literature would fall short of this standard for practical significance. That is, narrow abilities typically do not add significant amounts of incremental predictive validity above and beyond g in the prediction of academic or technical job performance. For example, after accounting for the variance attributable to g , the inclusion of the set of narrow abilities typically increases the correlation with technical job performance by less than .05. Thus, the narrow abilities, despite their psychological significance, may have only practical significance in situations in which the range of general ability has been restricted (e.g., among a group of doctoral graduate students, for whom prescreening produces significant range restriction in g) or in which there is a single, domain-specific criterion to be predicted (i.e., development of reading skills).

On the other hand, there are times when one is less interested in predicting between-person differences in performance and more interested in matching an individual person's profile of narrow abilities (i.e., their relative strengths and weakness) with the narrow ability demands of the work or educational environment. This corresponds to the dominant perspective within the vocational counseling literature. Indeed, it is well-known that g is an insufficient descriptor of work demands; occupations display distinct patterns of narrow ability demands. As such, the assessment of within-person differences in narrow abilities may be especially useful in personnel classification and academic and career counseling.

SUMMARY

Arguably, it is the potential breadth and magnitude of the impact of individual differences in cognitive abilities that makes their study of great interest to both scientists and the general public. Although scientific treatment of cognitive abilities did not appear until the late 19th century, theory development and a wealth of empirical data accumulated since then supports two conclusions: (1) The psychometric structure of cognitive abilities is best modeled as a three-tiered hierarchical structure with a general mental ability factor, g , at the apex, and (2) general mental ability is of great functional importance in virtually every aspect of life.

—Charlie L. Reeve

See also Cognitive Ability Tests; Factor Analysis; Individual Differences

FURTHER READING

- Carroll, J. B. (1993). *Human cognitive abilities: A survey of factor-analytic studies*. New York: Cambridge University Press.
- Gottfredson, L. S. (1997). Why *g* matters: The complexity of everyday life. *Intelligence*, 24, 79–132.
- Hunter, J. E., & Hunter, R. F. (1984). Validity and utility of alternative predictors of job performance. *Psychological Bulletin*, 96, 72–98.
- Jensen, A. R. (1998). *The g factor: The science of mental ability*. Westport, CT: Praeger.
- Lubinski, D., & Dawis, R. V. (1992). Aptitudes, skills, and proficiencies. In M. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 3, 2nd ed., pp. 1–59). Palo Alto, CA: Consulting Psychologists Press.
- Reeve, C. L., & Hakel, M. D. (2002). Asking the right questions about *g*. *Human Performance*, 15, 47–74.
- Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin*, 124, 262–274.

COGNITIVE ABILITY TESTS

Although there are many definitions of cognitive ability, most focus on the notion that cognitive ability is both a determinant and a product of human learning. A common definition of cognitive ability describes it as a general mental capability that involves, among other things, the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly, and learn from experience. Given this definition, it is easy to see why cognitive ability is often used synonymously with the term *intelligence* and why it has long been an important construct for industrial and organizational psychologists.

COGNITIVE ABILITY TESTING IN INDUSTRY

Over the past century, a number of mental tests have been created to measure both general cognitive ability and specific abilities or aptitudes. In particular, such tests have been used to assess preemployment candidates in industry since the 1920s. These tests usually contain questions related to mathematical, verbal, spatial, and mechanical material and are typically delivered using paper and pencil. For example, cognitive

ability tests have been created to measure people's specific aptitude to solve math problems, read and answer questions about written material, and mentally rotate figures. Given the long history of these tests in industry, it is not surprising that there is widespread, global use of cognitive ability tests in companies for predicting on-the-job performance and a number of other important workplace outcomes.

Prediction of Workplace Outcomes

Cognitive ability tests have long been used in industry to assess preemployment candidates because of the strength with which they predict on-the-job performance for all jobs. In fact, extensive meta-analytic evidence from validity studies across a range of jobs (e.g., clerical, military, sales, and white-collar positions) makes a strong case for *g*, or general mental ability (GMA), as the single best predictor of performance. Meta-analytic studies conducted in the United States report predictive validity between GMA and performance ranging from .31 (refinery workers) to .73 (computer programmers), and meta-analytic studies from the European Community report a similar range and an overall operational validity of .62.

As evidenced by this wide range of correlations in the United States and in Europe, the value of the predictive validity of GMA for job performance varies according to the complexity of the job. For example, manual labor jobs tend to have validity coefficients around .25, whereas most white-collar jobs tend to have coefficients ranging from .50 to .60. Therefore, it is the complexity of the job that moderates the validity of GMA for predicting job performance. Along with job complexity, another factor originally thought to be related to the GMA–performance relationship is job experience. In particular, it was thought that this relationship would decrease with increasing job experience. Recent investigation, however, shows that the predictive validity of GMA is stable and does not decrease over time with increased job knowledge. This finding makes sense because GMA is believed to be the factor that turns experience into increased performance.

In addition to their use in predicting job performance, cognitive ability tests have also been used to successfully predict other important workplace criteria. For example, U.S. meta-analytic research findings show a strong predictive correlation of .62 between

GMA and training performance, whereas European findings report a correlation of .54. Meta-analytic research also shows that GMA is related to occupational attainment, though findings vary depending on whether the investigation is cross-sectional (.62) or longitudinal (.51). Cognitive ability results increase and standard deviations and score ranges decrease with increasing occupational level; in other words, it seems that those low in GMA have a more difficult time attaining high-level occupations.

To this point, only the relationship between GMA and workplace outcomes has been discussed despite the existence of specific aptitude theory, which posits that different jobs require different specific abilities and that testing for these specific abilities should increase or optimize the prediction of workplace outcomes. The reason for this omission is that specific aptitude tests measure GMA in addition to some specific ability, but it is the GMA component of these tests—not the specific aptitude (e.g., mathematical, spatial, verbal) components—that predicts workplace outcomes. In other words, it appears that assessing a candidate's specific aptitudes apart from GMA adds little or nothing to the prediction of posthire performance. One area in which specific abilities may be of importance in industry, however, is vocational counseling, where within-person aptitude differences can be useful in placing individuals in positions.

Utility of Cognitive Ability Testing in Preemployment Selection

In addition to investigating the predictive validity of GMA for important workplace outcomes, industrial and organizational psychologists have examined the utility, or practical value, of GMA compared to and combined with other common selection tests. It appears that cognitive ability tests (predictive validity of .51) should be used when there is only a single selection instrument for screening candidates. In cases in which multiple instruments are used to screen inexperienced candidates, cognitive ability tests should be used in combination with an integrity test (composite validity of .65), structured behavioral interview (composite validity of .63), or conscientious test (composite validity of .60). When screening experienced candidates, however, a combination of cognitive ability and work sample testing (composite validity of .63) may offer the most utility.

Prevalence of and Concerns About Cognitive Ability Testing in Industry

Surveys on the prevalence of GMA test batteries and specific aptitude tests in industry report that they are used at similar levels across countries. For example, it appears that approximately 16% of companies in the United States administer GMA tests, and 42% use aptitude tests. In Canada, it is reported that 43% of companies administer aptitude tests. In the European Community, surveys report that GMA test usage ranges from 6% (Germany) and 20% (Italy) to 70% (United Kingdom) and 74% (Finland), and that aptitude test usage ranges from 8% (Germany) to 72% (Spain). In addition, one survey reported that 56.2% of companies in Australia use cognitive tests.

Although these percentages indicate widespread global use of GMA and aptitude tests, their prevalence is far less than the nearly 100% global use of interviews as screening instruments. In addition, these numbers show that many companies are not using cognitive ability tests despite the accumulated evidence of their ability to predict important workplace outcomes compared to other selection instruments.

There are many reasons for these results, including the cost of testing candidates, the difficulty of administering paper-and-pencil or computerized tests under supervised conditions, the possibility of negative candidate reactions, the length of the recruiting process when tests are added, and concerns about test security. In addition, industry remains concerned about legal challenges to the use of cognitive ability tests in employment screening, as the tests are perceived as being plagued by measurement bias against protected groups. The persistence of this perception, despite enormous empirical evidence showing that professionally developed cognitive ability tests are not biased against any group, is a bit of a mystery. Although concern over measurement bias has been empirically solved, many of the issues surrounding cognitive ability testing are exacerbated by recruiting and selection processes that are increasingly being managed and delivered through the Internet under unsupervised conditions.

SUMMARY

More than 100 years of theory development and empirical investigation of cognitive ability have shown this measure to be a valid and fair predictor of

important job outcomes in companies throughout the world. Despite overwhelming evidence of its success and its strengths compared with other selection instruments, however, many companies are still not using cognitive ability tests. It is hoped that cognitive ability researchers and test developers will focus on technological advances in delivering cognitive tests and developing tests with less adverse impact that can be transported globally. These advances in cognitive ability testing will surely allow more companies to benefit from its use.

—Robert Erwin Gibby

See also Cognitive Abilities; Computer Assessment; Factor Analysis; Individual Differences

FURTHER READING

- Hunter, J. E., & Hunter, R. F. (1984). Validity and utility of alternative predictors of job performance. *Psychological Bulletin*, *96*, 72–98.
- Jensen, A. R. (1980). Varieties of mental test items. In *Bias in mental testing*, by A. R. Jensen (pp. 125–168). New York: Free Press.
- Jensen, A. R. (1998). Construct, vehicles, and measurements. In *The g factor: The science of mental ability*, by A. R. Jensen (pp. 306–349). Westport, CT: Praeger.
- Keith, T. Z. (1997). Using confirmatory factor analysis to aid in understanding the constructs measured by intelligence tests. In D. P. Flanagan, J. L. Genshaft, & P. L. Harrison (Eds.), *Contemporary intellectual assessment: Theories, tests, and issues* (pp. 373–402). New York: Guilford Press.
- Murphy, K. R., Cronin, B. E., & Tam, A. P. (2003). Controversy and consensus regarding the use of cognitive ability testing in organizations. *Journal of Applied Psychology*, *88*, 660–671.
- Salgado, J. F., Anderson, N., Moscoso, S., Bertua, C., & De Fruyt, F. (2003). International validity generalization of GMA and cognitive abilities: A European Community meta-analysis. *Personnel Psychology*, *56*, 573–605.

COMPARABLE WORTH

The commonly accepted definition of comparable worth is that dissimilar jobs that are of equal worth to the organization (e.g., nurses and truck drivers) should be paid the same wage. The term *comparable worth* must be distinguished from related terms, such as

equal pay for equal work. The latter term is associated with the U.S. law known as the Equal Pay Act of 1963, which requires that men and women doing essentially the same job should be paid the same unless the differences are attributable to factors such as merit, seniority, or other job-related criteria. The Equal Pay Act of 1963, then, requires that the plaintiff perform the same job as the comparison group. Comparable worth is sometimes referred to as *pay equity*. The underlying premise of comparable worth is that persistent discrimination against predominantly female jobs results in women earning consistently lower wages than men. Only by comparing different jobs in terms of their worth to the organization—and adjusting the pay of jobs held predominantly by women when necessary—can fairness be achieved.

Comparable worth advocates typically assume that market wages, as determined by salary surveys, reflect sex bias because the skills and job requirements associated with women's work (e.g., verbal skills, small motor dexterity) are inherently undervalued by the labor market. As an alternative, comparable worth proponents advocate the use of job evaluations to determine the value of an organization's jobs.

LEGAL STATUS OF COMPARABLE WORTH

Despite the appeal of the comparable worth notion, laws to regulate this concept have made minimal progress in the United States. The most significant lawsuit to invoke the comparable worth premise was *AFSCME v. State of Washington*, which was decided by the U.S. Court of Appeals for the Ninth Circuit in 1985. The plaintiffs in this case argued that the state failed to put into practice the implications of its own job evaluation study, which indicated that predominantly female jobs were undervalued. The court sided with the state of Washington, arguing that the state was merely relying on the market rate (i.e., paying what other organizations were paying for these jobs). This market argument proved to be a fatal blow to the comparable worth principle.

Since that decision, neither the courts nor the U.S. Congress have accepted the comparable worth concept. Approximately 20 states, however, have enacted comparable worth laws requiring some form of pay equity for state employees. Canada has passed pay laws that are similar to laws in the United States. The province of Ontario, one of 12 provinces in Canada,

passed the most pro-employee pay law, which became effective in January 1988. That law, referred to as the Pay Equity Act, requires companies with 100 or more employees to conduct a job evaluation to determine whether there is gender discrimination in pay across different jobs.

CONDUCTING A COMPARABLE WORTH STUDY

A typical comparable worth study comprises two steps. In the first half of the study, a job evaluation is conducted for the relevant jobs to determine their major tasks, responsibilities, and working conditions. Next, a job evaluation tool must be chosen (i.e., an off-the-shelf version) or created, and the pertinent jobs must be evaluated. Each job is assigned a quantitative value reflecting its worth to the organization. In the second half of the study, salary information is gathered from other organizations in the labor market. This salary information and the results of the job evaluation are then used to develop a mathematical formula. Job evaluation points from predominantly female jobs are entered into the formula to determine what the pay would be in the absence of discrimination.

Job evaluation, however, may be susceptible to gender bias, the very problem it is intended to ameliorate. Specifically, there may be bias in terms of the information collected about jobs, the choice of factors used to evaluate jobs (i.e., compensable factors), how those factors are defined and anchored, and how those factors are weighted. Research shows that the current salary and organizational level of a job may indirectly contribute to gender bias in a job evaluation. Despite the potential bias against predominantly female jobs even when conducting a job evaluation, comparable worth studies generally find that these jobs pay less than predominantly male jobs of the same worth.

CRITICISMS OF COMPARABLE WORTH

Critics have raised several objections to the comparable worth principle. One objection is that the implementation of comparable worth will significantly increase payroll costs; however, a recent study of eight states indicated that increasing the wages of predominantly female jobs increased payroll costs only 1% to 4%, with most increases around 3.5%.

Another criticism is that the value or worth of a particular job is in the eye of the beholder. Indeed,

research indicates that different job evaluation procedures may yield different conclusions about whether comparable worth is present; even the way in which compensable factors are weighted may affect the conclusions one draws about the degree to which comparable worth is present.

A third criticism of the comparable worth concept is that pay should be treated as a free market with as little government intervention as possible. That is, the basic principle of supply and demand should determine appropriate wages—employees are free to apply for a different job if they do not like the pay that is associated with a particular position. This argument asserts that companies should be allowed to set whatever wage they believe is appropriate for a specific job (although the Equal Pay Act of 1963 prohibits pay discrimination for men and women doing the same job) and that workers should be able to choose whatever jobs they wish (the Civil Rights Act of 1964 prohibits sex discrimination in hiring and promotions).

A fourth criticism of comparable worth is that other factors, such as unionization rates and labor market shortages, may play a role in setting salaries but are not reflected in job evaluations. Critics argue these factors are important determinants of pay and must also be considered in setting pay.

Clearly, the comparable worth notion is a complicated one. Although industrial and organizational psychology can make important contributions here, whether one accepts or opposes this concept ultimately depends on one's values and beliefs about the world of work.

—Michael M. Harris

See also Equal Pay Act of 1963; Job Evaluation

FURTHER READING

- Chamallas, M. (2001). The market excuse. *University of Chicago Law Review*, 68, 579–612.
- Michael, R. T., Hartmann, H. I., & O'Farrell, B. (1989). *Pay equity: Empirical inquiries*. Washington, DC: National Academy Press.
- Mount, M. K., & Ellis, R. (1987). Investigation of bias in job evaluation ratings of comparable worth study participants. *Personnel Psychology*, 40, 85–98.
- Rudin, J. P., & Byrd, K. (2003). U.S. pay equity legislation: Sheep in wolves' clothing. *Employee Responsibilities and Rights Journal*, 15, 183–190.

COMPENSATION

The simple act of receiving a paycheck for one's job is the result of many complex processes involved in the art and science of compensation. Compensation systems are designed to comply with a large number of organizational objectives, including serving as an exchange for hourly labor, motivating behavior, and accomplishing social objectives such as covering the cost of medical insurance. The design of compensation systems and methods for distributing pay and benefits is influenced by cultural traditions and legal requirements.

Within the organizational sciences, compensation has traditionally encompassed base pay, pay raises, pay systems, benefits, the psychology of pay, and legal issues. Recently, the area of compensation has expanded to include nontraditional conceptions of pay that are often captured under the term *total compensation*. Total compensation includes not only pay and benefits but also nonmonetary rewards, such as the value of positive job characteristics (e.g., having a creative job has a positive nonmonetary value that should be seen as part of total compensation). A second change that has occurred in the area of compensation over the last 20 years is an increased emphasis on at-risk pay, variable pay, or pay for performance. Despite the importance of these two recent trends, compensation will be treated here in its more traditional fashion, although brief mention will be made of total compensation and at-risk pay.

BASE PAY

Establishing the base pay, the basic annual salary or hourly wage, for a job can be a challenge. Organizations often rely on the market, which can be assessed through market surveys. However, the market can be unstable and unreliable. Industrial and organizational psychologists have made a significant contribution to the field of compensation through their work on job analysis and job evaluation systems. Job evaluation systems, particularly the point system, provide reliable, valid methods of measuring the compensable worth of jobs through the ratings of job characteristics such as skill, effort, responsibility, and working conditions. Job evaluation systems allow for the distribution or slotting of jobs into *grades*. Jobs within a grade receive the same base pay, although

there can be fluctuations based on the step within the grade.

During the 1990s, the idea of broadbanding became more popular. Under a traditional system, there may be as many as 12 to 20 grades. Under a broadband system, there may be as few as 3 to 5 grades. Broadbanding systems are seen as allowing for greater managerial discretion and flexibility in the assignment of initial rates of base pay.

PAY RAISES

In traditional pay systems, individuals start at a certain entry pay rate. Over time, they receive pay increases. In most systems, these increases are a function of both seniority and the cost of living. Pay raises may also depend on merit. Although merit may be based on some type of objective performance criteria, it is usually operationalized based on supervisor recommendations or ratings. Thus, the merit component is heavily dependent on the perceived fairness of the performance appraisal system. In addition to individual performance, pay raises may vary based on organizational performance, organizational productivity, or market conditions.

PAY SYSTEMS

Traditional pay systems rely on the payment of a fixed annual salary or hourly wage. This may be accompanied by periodic raises based on the cost of living or on merit. Over the last 40 years, however, this traditional view of pay has been challenged. For example, the *new pay movement* emphasizes paying workers for skills (i.e., skill- or competency-based pay) as opposed to the actual duties performed on the job.

The *total compensation movement* argues that pay should be conceived as being more than just salary and benefits, including as well the psychological benefits of the job. For example, having a good leader or having a lot of autonomy could be considered part of the total compensation package because these elements of the job represent a psychological benefit.

The *variable* or *at-risk pay* approach is based on the concept that pay is often seen as an entitlement and that more of an employee's compensation dollar should be at risk and earned through effective performance. As a result, companies have begun to introduce a variety of pay-for-performance and incentive systems, including gainsharing, goal sharing, and profit sharing.

BENEFITS

Relatively little psychological research has been conducted in the area of benefits. Benefits are important to pay satisfaction overall, but the overall value of benefits tends to vary as a function of the degree to which workers need benefits. For example, younger workers tend to be more aware of their maternity benefits, whereas older workers tend to be more aware of their retirement benefits. Thus, the value of benefits is likely to shift as a function of both the culture of the worker's generation and the point in his or her career path.

PSYCHOLOGY OF PAY

It may be somewhat surprising that industrial and organizational psychologists have not paid more attention to the psychology of pay. This lack of attention is partly a result of the humanistic-organizational movement of the 1950s and 1960s. Nevertheless, there are some theories aimed at explaining pay processes and pay satisfaction.

Three major theories attempt to explain satisfaction with distribution rules: *equity theory*, *equality theory*, and *utility theory*. In recent years, *justice theory* has also emerged as a major research framework. Justice theory argues that it is not just the fairness of the distribution that matters but also the fairness of the procedures used to make decisions. A major theoretical contribution to our understanding of executive pay is *agency theory*, which argues that stockholders use large incentives to motivate their agents (executives) to act in the best interest of the stockholders.

Major contributions have been made in the area of pay satisfaction measurement. The main facets of pay satisfaction are pay level, raises, benefits, and administration.

LEGAL ISSUES

As in most areas of human resources in the United States, federal and state laws have had a huge impact on the practical design of compensation systems and on the topics studied by researchers. Some of the laws that affect compensation in the United States include the Fair Labor Standards Act of 1938, the Equal Pay Act of 1963, and Title VII of the Civil Rights Acts of 1964 and 1991. Unions also have a major impact on pay systems.

During the 1970s, the issue of sex discrimination in pay was much debated. This debate, referred to as the *pay equity* or *comparable worth* debate, prompted a great deal of research by industrial and organizational psychologists on the psychometric properties of job evaluation systems and gender issues in pay systems.

SPECIAL GROUPS AND TOPICS

Some groups, such as salespeople and executives, have special compensation systems. For example, some salespeople work on 100% commission based on their sales. Executive pay in the United States has become a controversial topic because of the large differences between worker and executive pay and the apparent disconnect between firm performance and executive pay.

The increased globalization of companies has also led to special compensation challenges. As with other types of pay, organizations have attempted to place limitations and controls on the amounts spent on expatriate pay.

One of the most interesting challenges to traditional compensation arose during the late 1990s as a result of the rise of virtual companies and e-jobs. A question that may have to be answered in the future is how to best compensate people working for virtual companies.

CONCLUSION

Pay is a complex process that is influenced by culture, society, and the law. At the individual level, pay satisfaction is important to job satisfaction, organizational commitment, and turnover intentions. Although individuals do not necessarily stay with an organization because of pay, it is clear that a major reason individuals leave organizations is the receipt of generous pay offers from other companies. Organizations continue to strive to develop pay systems that will give them a competitive advantage, although it is unclear whether pay satisfaction causes organizational financial performance or whether the financial performance of organizations leads to increased pay satisfaction.

—Dennis Doverspike

See also Age Discrimination in Employment Act; Americans With Disabilities Act; Civil Rights Act of 1964, Civil Rights Act of 1991; Equal Pay Act of 1963

FURTHER READING

- Arthur, W., Jr., & Doverspike, D. (2005). Achieving diversity and reducing discrimination in the workplace through human resource management practices: Implications of research and theory for staffing, training, and rewarding performance. In R. L. Dipboye & A. Colella (Eds.), *Discrimination at work: The psychological and organizational bases* (pp. 325–327). San Francisco: Jossey-Bass.
- Harvard Business Review. (2001). *Harvard Business Review on compensation*. Boston: Harvard Business School Press.
- Milkovich, G. T., & Newman, J. M. (2005). *Compensation* (8th ed.). Homewood, IL: BPI/Irwin.
- Pogson, C., Cober, A., Doverspike, D., & Rogers, J. (2003). Differences in self-reported work ethic across three career stages. *Journal of Vocational Behavior*, 62, 189–201.
- Rynes, S. L., & Gerhart, B. (Eds.). (2000). *Compensations in organizations*. San Francisco: Jossey-Bass.

COMPETENCY MODELING

Competency modeling is a method of collecting and organizing job information and worker attributes into broad *competencies*. Competencies are descriptions of the characteristics and qualities that a person needs to possess to perform a job successfully. Although the practice of competency modeling is relatively new to the field of industrial and organizational psychology, the idea of defining and assessing competencies is not. In 1966, Blake Root and Ray Roberts described the competencies needed for training directors. In 1972, J. M. Dornan outlined five primary competency areas that managers should develop to be maximally effective. In 1973, a study by David McClelland suggested that psychologists focus their efforts on assessing an individual's competence at tasks rather than measuring their intelligence. Today, industrial and organizational psychologists see competency modeling as an extension of job analysis in a more pragmatic business context, in which in-depth analysis is neither supported nor warranted.

COMPETENCIES

A competency is an attribute of an individual that is needed to meet job requirements successfully. For example, a required competency for a sales executive could be a *drive for results*. A well-designed

competency model describes specific performance standards and identifies behaviors that anchor a competency to levels of performance. To perform well in a job, an individual typically must be proficient in a number of competencies. Although there is no hard-and-fast rule as to how many competencies may be linked to a job, typically a range of 8 to 12 competencies should be sufficient and practical for any given job.

COMPETENCY MODELING

A *competency model* is a set of competencies that are necessary for effective performance. Competency models typically cover a broader range of jobs than traditional job analysis and may be divided into job levels that cut across an organization (e.g., individual contributor, first-level manager, midlevel manager, senior manager). Competency models often explicitly include a consideration of the values, strategies, and objectives of the organization. Partly because of the strategic significance of competencies, many organizations adopt a critical set of *core competencies* that are required of the organization's members across all jobs and all levels. Core competencies are typically embedded within all of the competency models for an organization and tied to the organization's culture, viability, and identity.

Competency Modeling Processes

There are a variety of approaches to developing competency models. One method involves the use of focus groups conducted with subject-matter experts. This process provides the developer with opportunities to interact with incumbents, supervisors, and organizational leaders to retrieve rich, qualitative input and gain support and buy-in for the resulting competency models. Behavioral event, or critical incident, interviews may also be conducted with job experts. These interviews allow the interviewer to gain in-depth, behaviorally based information about what is required of an individual on the job and which key behaviors drive success and failure. Developers of competency models may also choose to use questionnaires, which tend to provide more quantitative information and can be used for competency models that require more rigorous development (e.g., for selection purposes). Although traditional job analysis processes are considered more rigorous than competency

modeling processes, if the objective is to link jobs to organizational goals and strategies, a competency modeling approach is generally preferred.

Competency Modeling Outcomes

Competency models may be developed and implemented to meet a variety of organizational objectives. The reason the competency model is being developed often predicated the manner in which it is organized and presented. Some organizations opt to develop a single, broad-based, organization-wide competency model. Others choose to develop job-specific competency models for each position or role within the organization.

Broad Competency Models

When an organization-wide approach to competency modeling is used, technical and functional distinctions between job roles and positions are not included in the overall competency model. The organization may choose to add additional competencies by level or by individual functional groups. Another broad competency model approach involves the development of key competency models divided by organizational levels, such as individual contributor, first-level manager, midlevel manager, and senior manager. The broad competency model approach can aid in organization-wide succession planning and employee development efforts because the competencies needed at all levels of the organization and in all positions are transportable.

Job-Specific Competency Models

A competency model may also define a set of competencies required for a more narrowly defined job or position. When organizations define talent requirements for a specific part of the business, these models are very helpful. Job-specific competency models often include functional and technical competencies, and the behavioral standards are even more specific to the individuals performing the jobs. The downside is that developing job-specific competency models across the business can be time intensive and costly. One way to handle this challenge is to develop core competencies that apply across a range of jobs and leave it up to individual business units or functional areas to define more job-specific competencies.

USES OF COMPETENCY MODELS

Competency models can be thought of as an infrastructure on which an organization can base selection, development, and evaluation efforts. Competency models and performance standards can be used to structure the following talent management systems:

- Performance appraisal systems, in which competencies are included along with specific results of performance; results may be seen as the *what* of performance, and competencies define *how* the results were achieved
- Multirater (360-degree) performance feedback systems, in which competencies and performance standards are rated by colleagues
- Individual assessment processes and assessment centers, in which competencies and performance standards are used to organize evaluation and feedback
- Training and development programs, in which competencies serve as an organizing framework to ensure there is adequate coverage of a range of critical skills for the business
- Organizational succession planning programs, in which potential successors are identified and groomed based on their level of proficiency, measured against organizational competencies

Finally, organizations may use competency models as a springboard for organizational change. A public utility organization (telephone, electricity, natural gas), for example, which previously thrived during times of government regulation and limited competition, might develop a new competency model for the organization to prepare it for the future challenges of deregulation and increased competition. The competency model it develops could incorporate competencies that address customer service expectations and cost-reduction efforts. Though these constructs may be new to many of the organization's members, by beginning to evaluate and assess employees based on this "stretch" competency model, the organization will drive home the importance of the new standards of performance. In this manner, the strategic competency model will drive forward the change that needs to occur in the organization at a specific, behavioral level.

—Robert A. Schmieder and Mark C. Frame

See also Job Analysis; Job Performance Models

FURTHER READING

- Cooper, K. C. (2000). *Effective competency modeling and reporting*. New York: American Management Association.
- Schippmann, J. S., Ash, R. A., Battista, M., Carr, L., Eyde, L., Hesketh, B., et al. (2000). The practice of competency modeling. *Personnel Psychology*, 53(3), 703–740.

COMPRESSED WORKWEEK

In compressed workweek schedules, the workweek is compressed into fewer than five days by increasing the number of hours an employee is required to work each day. The most common form of compressed workweek in the United States is the four-day, 40-hour workweek (4/40). Usually employees will take either Friday or Monday off, extending their weekend to three days. However, because some compressed workweek schedules are implemented because of long distances between the worker's home and workplace (e.g., oil industry, merchant shipping), having a three-day weekend is not necessarily a part of a compressed workweek schedule. Recently, variations of the typical 4/40 schedule (e.g., 3/36, 3/38, and 3/40) have been adopted by some organizations. The Society for Human Resource Management's 2001 Benefits Survey showed that 31% of respondents offered compressed workweeks.

The literature indicates that compressed workweek schedules are most commonly used in manufacturing settings. This is probably attributable to two reasons. First, because compressed workweek schedules still require all workers to attend work at the same time, they meet the interdependence requirement of assembly line settings. Second, manufacturing organizations typically do not serve retail customers and thus do not require employees to be present at regular time intervals (e.g., Monday to Saturday).

When considering the use of compressed workweeks, employers must keep in mind that the workweek can only be compressed to the extent that an employee's daily working hours do not exceed any legal limit. Although the United States does not have any federal law that caps the number of working hours, many state and industry-specific laws do impose a cap. For example, truck drivers are only allowed to drive 11 hours per work period. Many other industrialized countries have federal caps that

limit the use of certain types of compressed workweek schedules (e.g., a 3/40 schedule). For example, Germany and Japan have a 10-hour legal limit on the number of hours that can be worked on any given day.

Compared with other alternative work schedules (e.g., flexible work schedules), compressed workweeks are not always desired by employees and sometimes are even less desirable than the normal 5/40 work schedule. Research has found that younger employees favor compressed workweeks, whereas older workers do not. In addition, employees who favor compressed workweeks tend to occupy lower-income or lower-level jobs.

PERCEIVED BENEFITS OF A COMPRESSED WORKWEEK

From the employer's perspective, compressed workweeks allow for longer working hours and thus lower start-up expenses. For example, in certain manufacturing industries, there is often a start-up expense each time a production line is put into use. By having employees work longer hours for fewer days, the overall daily start-up costs are reduced. For employees, compressed workweeks allow workers to enjoy larger blocks of leisure time and reduce transport expenses and overall commuting time because they work fewer days.

Two models have been developed to explain how compressed workweek schedules may affect employee and organizational outcomes. The first model uses a biological perspective focusing on the circadian rhythms of individuals. The hypothesis of this approach is that there are only a few hours each day when employees can perform at optimal levels. The second theoretical model is the job characteristics theory. This model proposes that there are core characteristics of each job (e.g., the amount of job autonomy) that induce positive psychological states, which, in turn, lead to positive effects on work-related outcomes. Using these models, a theoretical argument can be made about how compressed workweek schedules affect the most important organizational outcomes: productivity and performance, absenteeism from work, and job satisfaction or satisfaction with one's work schedule.

The hypothesis of the circadian rhythm approach is that employees can perform at optimal levels for only a few hours each day. Thus, when employees work

longer hours each day (an essential component of compressed workweeks), the amount of time they are working at suboptimal levels should increase. Furthermore, working longer hours should lead to an increase in fatigue, which also could negatively affect performance. Finally, if increased fatigue is associated with increased employee stress, then one would also expect to see a decrease in performance. Theoretically, then, the implementation of a compressed workweek schedule can be expected to lead to lower employee performance and productivity.

With respect to attendance at work, the introduction of a compressed workweek schedule should give employees more discretionary time, which should increase attendance. Employees who enjoy three-day weekends should be better able to balance work and nonwork demands. Being able to respond to work and nonwork conflicts more easily should reduce stress, and decreased employee stress has been linked to decreased absenteeism. Thus, the introduction of a compressed work schedule can be expected to have positive effects on absenteeism from work.

It has been hypothesized that a compressed workweek should increase an employee's level of autonomy. The job characteristics model predicts that higher levels of job autonomy lead to higher job satisfaction. Thus, job satisfaction and satisfaction with one's schedule should be positively affected by the introduction of a compressed workweek schedule.

RESEARCH ON COMPRESSED WORKWEEKS

Narrative summaries of research on compressed workweeks have concluded that the effects of compressed workweek schedules on performance are mixed: Performance either improves or stays the same after the implementation of a compressed workweek schedule. However, some studies have found that performance does decrease, as predicted by the circadian rhythm model. Research that found a decrease in productivity also shows that fatigue does seem to play a role in this decrease. Specifically, as fatigue increased, performance decreased. These same narrative reviews also concluded that absenteeism does decrease following the implementation of a compressed workweek, although the results are mixed (i.e., some studies found no change in absenteeism, whereas others found a reduction). Finally, with

respect to job satisfaction and satisfaction with one's schedule, the narrative reviews concluded that the results are mixed (i.e., sometimes they increase and sometimes they decrease).

A quantitative review of the literature (i.e., a meta-analysis) also found that compressed workweek schedules positively affect supervisor performance ratings, job satisfaction, and satisfaction with one's work schedule but do not affect productivity (a more objective measure of performance). Finally, and perhaps most surprising, the meta-analysis found that absenteeism is not affected by a compressed workweek schedule. In this meta-analysis, the time since the schedule intervention (i.e., how long after the introduction of the compressed workweek outcomes were measured) was also tested as a moderator of the effect of compressed workweek schedules. However, the results suggest that the effects of compressed workweeks do not change over time.

SUMMARY

A recent quantitative review of the literature suggests that compressed workweeks have positive effects on supervisor-rated performance but not on productivity; therefore, an organization's evaluation of these schedules with respect to performance depends on which of these criteria it puts more credence in. However, at the very least, an organization should not expect a decrease in performance with the introduction of a compressed workweek schedule. This, of course, goes against the hypotheses put forth by the circadian rhythm approach and suggests that future research is needed to explain this result. It also appears from the quantitative review that, on average, employees respond positively to compressed workweeks, although great variation is found across companies. Thus, an increase in job satisfaction and satisfaction with one's work schedule should not be assumed. Whether these attitudinal measures increase depends on the makeup of the organization's employees (e.g., older employees seem to dislike compressed workweeks). Finally, although an increase in attendance is an assumed benefit of introducing a compressed workweek, the quantitative review suggests this is not the case. This result goes against popular perceptions of compressed workweek schedules as well as the hypotheses that reduced employee stress resulting from more discretionary time will lead to less absenteeism. Thus, future research is needed to better

understand why compressed workweeks do not seem to reduce absenteeism.

—Boris B. Baltes and Lindsey M. Young

See also Flexible Work Schedules; Shiftwork

FURTHER READING

- Baltes, B. B., Briggs, T. E., Huff, J. W., Wright, J. A., & Neuman, G. A. (1999). Flexible and compressed work-week schedules: A meta-analysis of their effects on work-related criteria. *Journal of Applied Psychology, 84*, 496–513.
- Latack, J. C., & Foster, L. W. (1985). Implementation of compressed work schedules: Participation and job redesign as critical factors for employee acceptance. *Personnel Psychology, 38*, 75–92.
- Pierce, J. L., Newstrom, J. W., Dunham, R. B., & Barber, A. E. (1989). *Alternative work schedules*. Needham Heights, MA: Allyn & Bacon.
- Ronen, S., & Primps, S. B. (1981). The compressed work-week as organizational change: Behaviors and attitudinal outcomes. *Academy of Management Review, 6*, 61–74.
- Thierry, H., & Meijman, T. (1994). Time and behavior at work. In H. C. Triandis, M. D. Dunnette, & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 4, 2nd ed., pp. 341–413). Palo Alto, CA: Consulting Psychologists Press.

COMPUTER ADAPTIVE TESTING

See COMPUTER ASSESSMENT

COMPUTER ASSESSMENT

Computer assessment, Web-based assessment, and computer adaptive testing (CAT) all refer to a classification of personnel instruments that use computer technology for the purposes of selection and assessment. The most general of these terms, computer assessment, refers to any assessment instrument that is presented using a computer interface. Web-based assessment is a specialized form of computer assessment that relies on features of the World Wide Web for the administration of the assessment. Finally, CAT uses the computer technology to administer tests in an

unconventional manner. Essentially, this form of testing adapts to the test taker based on his or her past responses to produce a testing experience that is tailored to a particular individual.

COMPUTER ASSESSMENT

The simplest form of computerized assessment consists of taking a paper-and-pencil instrument and presenting the items on that assessment on a computer. These tests are often referred to as *page-turner tests* because the technology of the computer is used to move test takers from one item to the next, like turning from page to page in a traditional paper-and-pencil assessment. However, more extensive utilization of computer technology can be integrated into an assessment system. For example, computers allow test developers to include multimedia elements such as audio and video files in their assessments. In addition, computer technology affords the opportunity for more interactive assessment than is possible in the paper-and-pencil format—for example, an assessment could include a computerized “in basket” that responds to an individual’s actions or provides information when queried.

WEB-BASED ASSESSMENT

Web-based assessment takes the process of computerized assessment one step further by incorporating the Internet into the assessment process. The capabilities of the Internet allow for enhanced flexibility in the assessment process. The Internet enables assessments to be administered in a wide variety of locations and at different times without the need for specialized software. Web-based assessment permits test takers to complete assessment batteries in the comfort and privacy of their own home at a time that is most convenient for them without needing a proctor to administer the test. Internet technology also creates opportunities for unique assessments that are not possible using computers alone. For example, Web-based interviewing can use videoconferencing technology to conduct interviews that fall somewhere between face-to-face and telephone interviews in terms of interactivity.

COMPUTER ADAPTIVE TESTING

Computer adaptive testing presents a markedly different application of computer technology in assessment.

Conventional tests typically consist of a set number of items that all test takers are exposed to. Because most tests contain a mixture of easy, moderately difficult, and difficult items, some test takers are exposed to items that are inappropriate for their ability. For example, high-ability test takers are required to answer some very easy items, and low-ability examinees are forced to wrestle with some extremely difficult items. Because high performers tend to get all of the easy items correct, these items do not help to differentiate among high-ability examinees. The same is true for low-ability examinees, who have little chance of success on difficult items. Because these inappropriate items do not differentiate among test takers of similar ability, a more efficient solution would be to ask test takers to respond only to items that are appropriate for their ability level. This is where CAT comes into play.

The process of CAT is as follows: An examinee responds to an initial item that is presented. The adaptive test then uses a statistical model called *item response theory* to generate an estimate of the examinee's ability, and based on this estimate, the computer selects an item of appropriate difficulty to be presented next. This procedure continues iteratively after each item has been answered until some criterion for stopping the test is reached, such as answering a pre-specified number of items, reaching a time limit, or achieving a certain level of measurement precision. Because the presentation of items is tailored to examinees, test takers no longer have to answer questions that are extremely easy or exceedingly difficult for them. Because inappropriate items have been eliminated, adaptive testing procedures are much more efficient. In addition, because the items presented are tailored to a particular individual, CAT provides a more precise estimate of a test taker's true score.

This process of tailoring items to a particular examinee creates a testing process that is quite unlike conventional tests. An obvious result of CAT is that all test takers do not receive the same items. Unlike conventional tests, which administer a fixed set of items to all examinees, CAT presents items based on individual response patterns. Thus, two examinees taking the test in the same place and at the same time might receive two completely different sets of questions. Computer adaptive tests also differ in the way an individual's score is calculated. On conventional tests, an individual's test score is determined by the number of

questions he or she answered correctly. However, on an adaptive test, scores are not based solely on the number of items answered correctly but also on *which* items were answered correctly. Test takers are rewarded more for answering difficult questions correctly than for answering easy questions correctly. Unlike traditional paper-and-pencil tests, which allow test takers to skip items and return to them later, review their answers to previous items, and change answers to items already completed, adaptive tests usually do not permit any of these actions. Instead, test takers must advance through adaptive tests linearly, answering each question before moving on to the next one, with no opportunity to go back.

ADVANTAGES

The integration of technology and assessment confers a number of advantages, the most obvious being the potential for new and different types of assessment. Computerized multimedia or interactive assessments have the potential to increase the perceived realism of the assessment, thereby improving face validity and even criterion-related validity. In addition, novel performance indexes can be collected using computer technology, such as response latencies, which may further enhance validity or reduce adverse impact. In the case of CAT, these assessments are considerably more precise and efficient, taking one third to one half the time of a conventional test. Adaptive tests also provide increased test security. Because test takers receive items that are tailored specifically to them, it is virtually impossible to cheat. Similarly, conventional computerized tests may be more secure because there are no test forms that can be compromised.

Another advantage of computerized assessments is their ability to provide instantaneous feedback to test takers regarding their performance. Despite the large up-front costs of technology, computerized assessments can be economically advantageous. Because there are no printing costs, the cost of creating new tests or switching to a different test form is negligible. No manpower is required to score the assessments or compile the data from individuals' responses, making the results less prone to error. In the case of Web-based assessment, the cost of test proctors can be eliminated. Web-based assessment confers additional advantages and cost savings because it can be administered anywhere Internet access is available.

CRITICAL ISSUES

As with any new technology, there are a number of potential pitfalls that must be avoided to make full use of these techniques. One major concern with the use of technologically sophisticated assessments is adverse impact, especially because of the known disparity in access to technology among different groups. Test security must also be managed differently when technology is involved. Computerized assessments can enhance test security because there is no opportunity for test forms or booklets to be compromised. However, test administrators must protect the computerized item banks as well as the computerized records of individuals' responses. Unproctored Web-based assessment creates the additional security dilemma of not knowing exactly who might be taking a particular assessment device or whether the respondent is working alone or getting assistance.

It is important to consider the measurement equivalence of the new procedure. The concept of measurement equivalence is concerned with whether a test administered using a computer will produce a score that is equivalent to the score one would obtain on the paper-and-pencil version of that test. Research shows that tests administered adaptively are equivalent to conventionally administered assessments. Cognitive ability tests also produce similar scores regardless of whether they are administered in paper-and-pencil or computer format. However, the equivalence of scores decreases dramatically on speeded tests (tests that have stringent time limits). Care should be taken when computerizing noncognitive assessments because the measurement equivalence of noncognitive batteries remains relatively unknown.

The problem of measurement equivalence also extends to proctored versus unproctored computerized tests. Web-based procedures afford more opportunities for assessments to be completed in an unproctored setting, but the question remains whether scores obtained without a proctor are equivalent to those that might be obtained in a supervised administration.

Finally, because technologically sophisticated assessment procedures are very different from traditional procedures that applicants are accustomed to, test takers' reactions to the procedures must be taken into account. This is particularly true for testing procedures that use novel item types or for CAT, which uses an unfamiliar testing procedure.

CONCLUSIONS

Computerized assessment, Web-based assessment, and CAT provide a number of advantages over conventionally administered assessments and will likely dominate the selection and assessment landscape in the future. However, care must be taken when implementing these technologically sophisticated assessments to ensure that the reliability and validity of procedures is established and maintained.

—Scott Tonidandel

See also Adverse Impact/Disparate Treatment/Discrimination at Work; Applicant/Test-Taker Reactions; Selection Strategies

FURTHER READING

- Anderson, N. (2003). Applicant and recruiter reactions to new technology in selection: A critical review and agenda for future research. *International Journal of Selection and Assessment, 11*, 121–136.
- Drasgow, F., & Olsen, J. B. (1999). *Innovations in computerized assessment*. Mahwah, NJ: Lawrence Erlbaum.
- Mead, A. D., & Drasgow, F. (1993). Equivalence of computerized and paper-and-pencil cognitive ability tests: A meta-analysis. *Psychological Bulletin, 114*, 449–458.
- Tonidandel, S., Quiñones, M. A., & Adams, A. A. (2002). Computer adaptive testing: The impact of test characteristics on perceived performance and test takers' reactions. *Journal of Applied Psychology, 87*, 320–332.
- Wainer, H. (2000). *Computer adaptive testing: A primer*. Mahwah, NJ: Lawrence Erlbaum.

CONFIDENCE INTERVALS/HYPOTHESIS TESTING/EFFECT SIZES

Inferential statistics play a critical role in assessing whether training, tests, or other organizational interventions have an effect that can be reliably expected based on data collected from samples of organizational members. For example, the score from a selection test administered to a sample of 100 job applicants could be correlated with the test takers' subsequent performance ratings to determine how well the test predicts job performance. If we find that the correlation (r) calculated from the sample's test scores and

ratings is .25, we are left with several questions: How does a sample-derived correlation of .25 compare with the correlation that could be obtained if we had test and ratings data on all cases in the population? How likely is it that we will get the same or approximately the same value for r with another sample of 100 cases? How good is an r of .25? Confidence intervals, significance testing, and effect sizes play pivotal roles in answering these questions.

CONFIDENCE INTERVALS

Using the foregoing example, assume that the correlation (ρ) between the test scores and ratings is .35 in the population. This ρ of .35 is called a *parameter* because it is based on a population, whereas the r of .25 is called a *statistic* because it is based on a sample. If another sample of 100 cases were drawn randomly from the same population with an infinite number of cases, the r calculated using test and ratings data from the new sample would probably differ from both the ρ of .35 and the r of .25 calculated for the first sample. We can continue sampling and calculating r an infinite number of times, and each r s would be an estimate of ρ . Typically, r would be distributed around ρ , with some being smaller than .35 and others being larger. If the mean of all possible r s equals ρ , then each r is said to be an unbiased estimate of ρ . The distribution of r is called the *sampling distribution* of the sample correlation, and its standard deviation is called the standard error (SE). The SE of r can be calculated as

$$SE = \frac{(1 - \rho^2)}{\sqrt{N}} \quad (1)$$

where N is the sample size. Notably, as N increases, SE decreases.

A confidence interval (CI) is the portion of the sampling distribution into which a statistic (e.g., r) will fall a prescribed percentage of the time. For example, a 95% CI means that a statistic will fall between the interval's lower and upper limits 95% of the time. The limits for the 95% CI can be calculated as follows:

$$95\% \text{ CI} = \rho \pm (1.96) SE \quad (2)$$

If a 99% CI were desired, the value 2.58 would be substituted for 1.96. These two levels of CI are those most commonly used in practice.

Let us compute CI using $\rho = .35$, $N = 100$, the common assumption that the distribution of r is normal, and Equation 1, $SE = (1 - .35^2)/\sqrt{100} = .088$. Using Equation 2, the lower limit is $.35 - (1.96)(.088) = .178$, and the upper limit is $.35 + (1.96)(.088) = .472$. This example CI can be interpreted as follows: If an infinite number of random samples of 100 each were drawn from the population of interest, 95% of the r s would fall between .178 and .472, and 5% would fall outside the CI .

HYPOTHESIS TESTING

In the previous example, ρ was known, but this is rarely the case in practice. In such cases, the investigator may use previous research findings as a basis for assuming that ρ is .40. Because we now have the necessary information, we can compute the 95% CI as follows: $SE = (1 - .40^2)/\sqrt{100} = .084$. The CI lower limit is $.40 - 1.96(.084) = .235$, and the CI upper limit is $.40 + 1.96(.084) = .565$. According to the definition of 95% CI , correlations between test scores and ratings, based on samples of 100 randomly drawn from a population with $\rho = .40$, would fall between .235 and .565 95% of the time and outside that range or interval 5% of the time. Because the r of .25 is inside the 95% CI , it is very likely that the sample at hand came from a population in which ρ is .40. That is, we are 95% confident that our sample came from a population with a ρ of .40, but there is a 5% chance that it did not.

In practice, it is not easy to come up with a reasonable hypothesis about a population parameter. Yet a practitioner may want to say something of value about a statistic. In our example of $r = .25$, a practitioner may want to know whether it came from a population with $\rho = .00$. The rationale is that if it can be shown with a certain degree of confidence that the sample with $r = .25$ is unlikely to have come from a population with zero correlation, then that information would have practical utility—that is, the test is very likely to have nonzero validity in the population of interest. This is commonly referred to as *null hypothesis testing*. If $\rho = .00$, then the SE for a sample of 100 cases is $(1 - .00^2)/\sqrt{100} = .100$, and the 95% CI is $(-.196, +.196)$. Our r of .25 falls outside this interval, and therefore there is a 95% chance that our sample did not come from a population with $\rho = .00$. That is, the null hypothesis of $\rho = .00$ is unlikely given that the r is .25; some would say that the null hypothesis is rejected

with 95% confidence. There is, however, a 5% chance that our sample came from a population with $\rho = .00$. Because this probability is small, we may assume that ρ is different from zero and conclude that the test is a valid predictor of performance ratings.

We did not say, however, that the null hypothesis was proved or disproved. According to Sir Ronald Fisher, the eminent statistician who popularized the null hypothesis, the null hypothesis is never proved or established, but it may be disproved as we obtain data from more samples. Although professionals debate whether null hypothesis testing is useful, most researchers agree that *CI*s and effect sizes probably provide more information than null hypothesis testing.

APPLICATION OF CONFIDENCE INTERVALS

The assumption underlying Equation 1 is that we know or are willing to hypothesize the value of ρ . Making an assumption about ρ leads us into hypothesis testing. One way to avoid this is to develop *CI*s by using r as our best estimate of ρ . When we use r as an estimate of ρ , Equation 1 becomes

$$SE = \frac{(1-r^2)}{\sqrt{N-1}} \quad (3)$$

When r and N are known, Equation 3 can be used to compute *SE* and *CI*. Given $r = .25$ and $N = 100$, $SE = (1 - .25^2)/\sqrt{100 - 1} = .094$. The *CI* lower limit is $.25 - (1.96)(.094) = .066$, and the *CI* upper limit is $.25 + (1.96)(.094) = .434$. Therefore, the 95% *CI* is (.066, .434). We cannot say with 95% confidence that the unknown ρ falls within this interval, but we say that ρ is likely contained in this interval without attaching any probability to that statement. Is such a statement of any help? Yes, it is. If an investigator generated an infinite number of random samples from the same population, computed a 95% *CI* each time, and concluded that ρ falls within that *CI*, the investigator would be correct 95% of the time in the sense that 95% of the *CI*s will include ρ . For a given *CI*, either ρ is or is not in it. But if we consider an infinite number of *CI*s, 95% of them will include ρ .

In the preceding sections, we only used correlations to describe and illustrate *CI*s and hypothesis testing. These techniques and interpretations are equally valid for means and other statistics.

EFFECT SIZES

Effect sizes (ESs) play an increasingly important role in the behavioral sciences, especially given their emphasis in meta-analysis. An ES, such as r or the standardized difference (d), reflects the degree to which a predictor measure is related to an outcome measure or the degree of difference between outcome scores for an intervention group and a comparison group.

Consider a situation in which an intervention group of randomly chosen employees received sales training and a comparison group did not. After one year, the trained and comparison groups were selling, on average, 345 units ($M_I = 345$) and 275 units ($M_C = 275$), respectively. The standard deviation (*SD*) of units sold equals 70 for both groups. The difference between the average number of units sold is 70 ($M_E - M_C = 345 - 275 = 70$). This means that the trained group did better than the comparison group. Suppose that the same marketing technique was used with a different product in a different organization in which the trained group sold an average of 15 units and the comparison group sold 12 units. Again, the *SD* of units sold is the same in both groups and equal to 2. The mean difference is 3 ($15 - 12 = 3$).

Even though the trained groups did better than the comparison groups, it is difficult to tell whether the training was more effective for one product than for the other because the difference measures are not comparable. In the first example, the units sold were automobiles, and in the second example, the units sold were mainframe computers. If we were to run a test of the null hypothesis, we would probably find that the two mean differences (70 and 3) were significantly different from zero. This still would not help a practitioner assess whether the training was more effective for one product than another. One currently popular method of doing so is to express the gain in sales in both scenarios on a common metric. A common ES metric is d :

$$SE = \frac{M_E - M_C}{SD} \quad (4)$$

The d metric is like a z -score metric, and it is comparable across scenarios; this is generally not true for mean scores or mean score differences. In the scenario involving automobiles, the ES is 1 ($[345 - 275]/70$), which means that the trained group sold at a level 1

SD above the comparison group. Similarly, in the scenario involving mainframe computers, the *ES* is 1.5 ($[15 - 12]/2$), which indicates that the trained group performed 1.5 *SDs* above the comparison group. Because the *ES* metrics are comparable, we can conclude, all else being equal, that the training is more effective for selling mainframe computers than automobiles. The mean differences alone (70 versus 3) would not allow us to make that statement. Finally, we can calculate a pooled *SD* (the weighted average of the two *SDs*) and use it in Equation 4 when the separate *SDs* are different.

Another *ES* metric is *r*. Because *r* varies between -1 and $+1$, values of *r* can be compared without transforming them to another common metric. Most statistics can be converted into *ESs* using formulas found in the works given in the Further Reading section. These references also provide guidelines for combining *ESs* from many studies into a meta-analysis and determining whether an *ES* is small, medium, or large.

We have only touched on confidence intervals, hypothesis testing, and effect sizes. Readers should consult the references given in Further Reading for additional guidance, especially in light of the current emphasis on confidence intervals and effect sizes and the controversy over null hypothesis testing.

—Nambury S. Raju, John C. Scott, and Jack E. Edwards

FURTHER READING

- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum.
- Harlow, L. L., Mulaik, S. A., & Steiger, J. H. (1997). *What if there were no significant tests?* Mahwah, NJ: Lawrence Erlbaum.
- Howell, D. C. (2002). *Statistical methods for psychology* (5th ed.). Pacific Grove, CA: Duxbury.
- Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings* (2nd ed.). Thousand Oaks, CA: Sage.
- Kirk, R. E. (1995). *Experimental design: Procedures for the behavioral sciences* (3rd ed.). Pacific Grove, CA: Brooks/Cole.
- Rosenthal, R. (1991). *Meta-analytic procedures for social sciences* (Rev. ed.). Newbury Park, CA: Sage.
- Wilkinson, L. (1999). Statistical methods in psychology journals: Guidelines and explanations. *American Psychologist*, 54, 594–604.

CONFIRMATORY FACTOR ANALYSIS

See FACTOR ANALYSIS

CONFLICT AT WORK

The literature on conflict at work is an extensive body that can be divided into two research streams. Some studies focus on the effective management of conflict, whereas others emphasize the emergence of conflict at work. The latter group of studies is pertinent to our understanding of the concept of conflict at work, its antecedents, and its consequences. Overall, studies demonstrate that some personality traits may be important antecedents of conflict. Although conflict can be measured across organizational levels, much of the research has focused on the interpersonal and intragroup levels and suggests that its outcomes affect both organizational effectiveness and personal well-being. Furthermore, conflict is a key construct in the recent work of occupational stress researchers, in which it is regarded as a leading social stressor.

A FRAMEWORK FOR UNDERSTANDING CONFLICT

Conflict has been defined in many ways across many studies, making it difficult to agree on one clear conceptualization of the construct. Nevertheless, researchers agree on certain definitional properties—for example, that at least two parties must be involved in order for conflict to arise. Recent work has advanced our understanding of the definitional components of conflict. Specifically, Henri Barki and Jon Hartwick tested a framework for conflict that consists of behavioral, cognitive, and affective components. In this framework, the behavioral component of conflict is reflected in the interference of one party with the objectives of another. The cognitive component refers to disagreement between the parties and reflects a discrepancy between the parties' interests, needs, or objectives. Finally, the affective component refers to the negative emotional states associated with the experience of conflict at work. This conceptualization of conflict supports a multiple-theme perspective in which all three components must be present in order for the situation to constitute a conflict.

Conflict can be further categorized according to two widely accepted sources: task and relationship conflict. *Task conflict* refers to conflict over policies, distribution of resources, or ways of completing a task. *Relationship conflict* refers to conflict emerging from personality clashes or emotionally charged interactions with others. Researchers such as Karen A. Jehn, Robin L. Pinkley, and Alan C. Amason support this distinction between sources of conflict. Hence, conflict can be conceptualized as comprising three definitional components (interference, disagreement, and negative emotion) and as being one of two types (task or relationship).

METHODOLOGICAL ISSUES IN CONFLICT MEASUREMENT

Because of discrepancies in construct definition, measures of conflict are often created for the purpose of a specific study. Often, these measures lack sound psychometric properties. In fact, even widely used conflict measures that have reliability and validity support suffer from an incomplete conceptualization of the construct. For example, Jehn's intragroup conflict measure differentiates between task and relationship conflict but measures mostly the disagreement component of conflict. M. Afzalur Rahim's measure (ROCI-I), though it assesses the amount of intragroup, intrapersonal, or intergroup conflict, does not differentiate between sources of conflict. To advance our understanding of the impact of conflict on organizational functioning, a comprehensive measure of conflict is needed.

PERSONALITY AND THE EXPERIENCE OF CONFLICT

There is some evidence that individuals who are high in specific dispositional traits are likely to experience—or at least perceive—more conflict at work. For example, individuals who are high in trait anger, which is a tendency to perceive situations as inciting feelings of anger, report experiencing more conflict at work. Similarly, longitudinal research shows that high type A individuals report more conflict. Trait anxiety and negative affectivity have also received some attention in relation to the experience of conflict. Again, results indicate that individuals high in these two traits report experiencing more conflict. Locus of control, or the

general belief that one's actions or external forces control outcomes, is also associated with the experience of conflict. These studies, however, are less conclusive: There is some support for the notion that externals report more conflict, but findings also suggest that internals are more reactive to conflict.

CONFLICT AND ITS OUTCOMES

Studies that do not differentiate between the two sources of conflict (task and relationship) consistently report negative outcomes associated with the experience of interpersonal conflict in the workplace. The same is not true of studies that distinguish between sources of conflict. The latter research supports the notion that positive outcomes are associated with moderate amounts of task conflict. For the purpose of organization, the negative personal and organizational outcomes of conflict at work will be presented first, followed by the positive consequences of conflict.

Conflict and Personal Well-being

Negative consequences to personal well-being have been reported as a result, at least in part, of conflict at work. One consequence that has received considerable support is depression. A consistent positive correlation exists between the frequency of conflicts experienced at work and depressive symptoms. Negative affective reactions, including anger, annoyance, and frustration, have also been repeatedly associated with conflict. These findings may have serious implications given the role that negative emotions play in human immune function and the production of cortisol.

Somatic complaints, or self-reported physical symptoms, have also been associated with interpersonal conflict at work. In these studies, employees who reported more conflict also reported experiencing more somatic symptoms. Furthermore, burnout and life dissatisfaction have been shown to positively correlate with the experience of organizational conflict.

Conflict and Organizational Outcomes

The literature on conflict emergence suggests that conflict can have detrimental consequences on organizational effectiveness. For example, it has been

shown that employees who perceive more conflict are less satisfied with their jobs. These findings were consistent for both relationship and task conflict when satisfaction with the group was the criterion of interest.

Conflict can also affect organizational functioning through turnover and counterproductivity. In fact, turnover intentions are reported to be higher for employees who experience more conflict. Given that turnover intentions are a good indicator of actual turnover, conflict can be said to have bottom-line cost implications for organizations. Counterproductive behaviors, or behaviors aimed at hurting the organization or the individuals who are a part of it, are the focus of much research in the occupational stress literature. Interestingly, self-report and cross-source data support a positive correlation between the frequency of conflict at work and counterproductive work behaviors. It is estimated that the cost of counterproductive behaviors, including theft, lost productivity, and aggression, may be as much as \$200 billion per year.

Performance can also suffer because of conflict in organizations. These findings are particularly true for the occurrence of relationship conflict, and they are more complex when the conflict is task related. As a result, recent literature has classified relationship conflict as detrimental to group performance, whereas task conflict is considered beneficial to organizational functioning.

Conflict and Its Benefits

Although recent meta-analytic work has questioned whether task conflict results in positive outcomes, several studies suggest that it does. This is particularly true for groups with nonroutine tasks in which a moderate amount of task conflict has been shown to improve performance. Decision quality has also received attention in the conflict literature and may be treated as an indicator of group performance. Task conflict relates to better decisions and decision quality. Furthermore, task conflict is associated with the conception of ideas, effective use of resources, and task completion. Nevertheless, maximizing the positive outcomes of conflict is not as simple as increasing task conflict while eliminating relationship conflict because the two are positively correlated. Instead, organizations must develop effective conflict management systems to benefit from task conflict.

CONFLICT AND STRESS

In recent years, occupational stress researchers have turned their attention to less widely studied stressors, such as interpersonal conflict at work. From this body of research, it is possible to conclude that interpersonal conflicts are a leading source of stress for employees across age-groups, cultures, and industries. Furthermore, studies have shown that employees perceive conflict at work to be more vexing than traditionally studied stressors, such as role conflict and ambiguity. Consequently, Paul E. Spector and his colleagues proposed a model of interpersonal conflict (based on an occupational stress perspective) in which conflict is treated as a stressor that may result in a variety of behavioral, physiological, and psychological strains.

CONCLUSION

Given the impact that conflict at work can have on organizational effectiveness and personal well-being, it is not surprising that it remains an important construct in organizational research. Recent work has proposed a comprehensive framework for understanding the definitional components of conflict. This model reinforces the traditionally accepted differentiation between task and relationship conflict while also proposing affective, behavioral, and cognitive elements. Although this construct has been the center of empirical attention for decades, there are still many promising directions for future research.

—Valentina Bruk-Lee

See also Conflict Management

FURTHER READING

- Amason, A. C. (1996). Distinguishing the effects of functional and dysfunctional conflict on strategic decision-making: Resolving a paradox for top management teams. *Academy of Management Journal*, 39, 123–148.
- Barki, H., & Hartwick, J. (2004). Conceptualizing the construct of interpersonal conflict. *International Journal of Conflict Management*, 15(3), 216–244.
- Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative Science Quarterly*, 40, 256–282.
- Pinkley, R. L. (1990). Dimensions of conflict frame: Disputant interpretations of conflict. *Journal of Applied Psychology*, 75, 117–126.

- Spector, P. E., & Bruk-Lee, V. (Forthcoming). Conflict, health and well-being. In C. K. W. De Dreu & M. J. Gelfand (Eds.), *The psychology of conflict and conflict management in organizations*. Mahwah, NJ: Lawrence Erlbaum.
- Wall, J. A., Jr., & Callister, R. R. (1995). Conflict and its management. *Journal of Management*, 21, 515–558.

CONFLICT MANAGEMENT

Conflict in organizations has received considerable attention in the business, psychology, and communication literatures. Nevertheless, a concise definition of conflict is lacking across studies and disciplines. In fact, researchers often provide definitions that differ from one study to another or fail to define conflict as it is measured in their studies. There is some agreement, however, that conflict takes place between two or more parties and constitutes a disagreement, an interference, and a negative emotional reaction. Two widely accepted sources of conflict are task conflict and relationship conflict. Furthermore, conflict can occur at the intrapersonal, interpersonal, intragroup, and intergroup levels.

Research on interpersonal conflict, also known as dyadic conflict, can be classified into one of two streams focusing on the occurrence of the conflict or its management. Conflict emergence studies explore the frequency or amount of conflict that respondents experience and its associated consequences. The second stream concentrates on the styles that employees use to manage interpersonal conflict at work, and this is the focus of this entry.

WHAT IS CONFLICT MANAGEMENT?

Conflict management differs from conflict resolution in that the latter is primarily focused on the termination or reduction of conflict. Resolution strategies such as mediation and arbitration often do not require interventions that result in changes to organizational processes or structures. Conflict management, on the other hand, emphasizes organizational learning to maximize the constructive aspects of conflict while minimizing its detrimental consequences. In fact, recent research in the business field suggests that a moderate amount of task conflict is functional and desirable. These studies also posit that relationship

conflict is deleterious to the work environment. For example, task conflict is associated with enhanced decision quality among top management, whereas relationship conflict is detrimental to decision quality. Therefore, an effective conflict management system is one in which employees adopt a conflict style that is appropriate for the situation while balancing the amount and type of conflict encountered.

Conflict management may be depicted as a process of conflict measurement and intervention development. In other words, a critical first step in conflict management is to assess the amount, source, level, and style of handling conflict. Although limited psychometrically sound measures exist to measure the amount of conflict perceived by employees, more options are available to measure styles of handling conflict situations. A comprehensive diagnosis is needed to formulate an organizational intervention. Such an intervention may require that employees be trained on when and how to use different styles of handling interpersonal conflict. Like any other training program, however, this type of process intervention is dependent on organizational support so that employees are able to apply newly learned skills when managing conflict on the job.

A second type of intervention emphasizes changing characteristics of the organization to help manage conflict. For example, the cause of conflict may be a poorly designed reward system, which results in personal rivalries among colleagues and a high number of relationship conflicts. In this case, a structural intervention would focus on designing a reward system that is perceived to be fair. Other structural interventions may focus on changing organizational procedures that cause conflict or structuring the organizational hierarchy in such a way that parties can appeal to a higher authority when they are unable to reach a decision.

CONFLICT MANAGEMENT STYLES

Individuals differ in their styles of handling conflicts. In fact, employees may resort to different styles of conflict management depending on the situation. The choice of style is influenced by a variety of factors, such as what has worked for the individual in the past, the style of their adversary, and norms surrounding the conflict situation. Several models of conflict styles have been proposed over time. For example, Morton Deutsch proposed a two-style model in which

individuals engage in a competitive or cooperative style. Others have posited a three-style model of conflict management that includes nonconfrontation, solution orientation, and control. Four-style models have also received attention. For example, the model of Dean G. Pruitt proposes four styles of conflict management: yielding, problem solving, inaction, and contending. However, a five-style model has received the most attention and empirical support; therefore, emphasis will be placed on M. Afzalur Rahim's five styles of conflict management.

Five Styles of Conflict Management

The five styles of conflict can be mapped onto a two-dimensional conceptualization that includes concern for self and concern for others. Other researchers, such as Kenneth W. Thomas, Robert R. Blake, and Jane S. Mouton, have also introduced similar conceptualizations. In essence, individuals range in their desire to satisfy their own concerns and those of other people. Based on where a person falls (high or low) on these two dimensions, he or she will use a different style of conflict management. The five styles are as follows:

1. **Avoiding:** An individual using an avoidant style displays low concern for self and others. Such an individual may deny the existence of conflict or be noncommittal in a conflict situation.
2. **Obliging:** An individual using an obliging style displays low concern for self and high concern for others. In essence, the individual chooses to sacrifice his or her concerns to accommodate the interests of others. This style is also known as yielding in other five-style models.
3. **Dominating:** A dominating style is one in which the individual shows a high degree of concern for self and low concern for others. This style may be characterized by assertive, competitive, and forcing behaviors.
4. **Integrating:** An individual who displays high concern for self and others engages in an integrating conflict management style. This style focuses on achieving a solution that maximizes the satisfaction of both parties and emphasizes problem solving. This style is also known as collaborative.
5. **Compromising:** This style represents a moderate degree of concern for self and others. In essence,

this style is likely to produce a solution in which both parties are willing to give up some of their interests.

These five styles can be further mapped onto a distributive or integrative dimension. The distributive dimension refers to gratification experienced by one of the parties, whereas the integrative dimension refers to gratification experienced by both of the parties. The avoidant and integrative styles of conflict management fall into the integrative dimension because neither or both parties are able to satisfy their interests, respectively. The distributive dimension comprises the obliging and dominating styles, in which satisfaction of concern for self is either low or high, respectively, thus allowing only the interests of one of the parties to be fulfilled. Although the compromising style results in some gains and some losses for both parties, Rahim posits that it can be thought of as the intersection of the integrative and distributive dimensions.

The effective use of the five conflict management styles depends on the characteristics of the conflict situation. For example, the integrative style may be most effective in resolving a specific conflict situation at Time 1, but it may not be the best style in a different situation at Time 2. Researchers have suggested guidelines for when each conflict style is most appropriate.

Specifically, the avoidant style is most strategic when there is a risk of violence, when the conflict issue is not important, or when it is unlikely that the conflict can be solved in a way that is self-benefiting. An obliging style is most appropriate when it is unlikely that one's interests will be satisfied. It is also effective when the opposing party has more power or believes that he or she is correct. This style is also appropriate in situations in which the outcome is inconsequential.

A dominating style is best used in situations in which a decision must be made quickly and the opposing party is uncooperative or unable to make a decision. This style is also effective in cases in which the dominating party is not concerned with risking the relationship and when the issue is important enough to impose one party's interests on the other party. However, when it is best to define a solution that is profitable for both parties, an integrating style is most appropriate. Such a style is suited to complex conflict situations in which problem solving requires that both parties engage in finding a solution and time is

available to do so. This style is also the best choice in situations in which one party cannot resolve the conflict alone. Finally, a compromising style is most effective when fulfilling all of a party's interests is not essential. It is also suitable in situations in which neither party is more powerful than the other and when the parties are willing to accept some losses in exchange for some gains. Compromise may be attempted when parties are not willing to engage in an integrating or problem-solving approach and a quick solution is necessary.

Studies have compared the five styles of handling conflict and attempted to make general conclusions about which styles work best. Overall, studies suggest that an integrating style is associated with outcomes of organizational importance such as commitment, performance, and satisfaction. The obliging and compromising styles correlate with positive outcomes, whereas the avoidant and dominating styles are associated with negative organizational outcomes. However, these findings should be interpreted with caution because the specific characteristics of the situation should not be overlooked in choosing a style.

Dispositional Influences on Conflict Management Style

Not only are situational characteristics influential in the selection of a conflict management style; dispositional factors also play an important role in style choice. Different personality dimensions, such as need for affiliation, self-monitoring, and the Big Five, have been investigated in relation to the five styles. These studies report that individuals low on need for affiliation prefer a dominating style, whereas those high on need for affiliation tend to use an obliging style. Compromising and integrating styles are more likely to be used by high self-monitors. Furthermore, an integrating style is correlated with conscientiousness, openness to experience, agreeableness, and extraversion such that participants who are higher in these traits are more likely to use this particular style. Individuals who are high on agreeableness and neuroticism are more likely to use an avoidant style, whereas those who are high on extraversion preferred a dominating style. The evidence thus suggests that individuals may have tendencies to use one style over another. However, whether the style is congruent with situational characteristics determines the success of the conflict management efforts.

CONCLUSION

Conflict is inevitable in organizational life. However, through effective conflict management, organizations can minimize the negative sources of conflict while promoting functional amounts of task conflict. The conflict management process begins with a thorough assessment of the amount of conflict and the styles of handling conflict used by organizational members. This information is necessary in the design of an intervention that targets either the structural characteristics of the organization, the processes that are in place, or both. A critical component of such interventions is teaching employees about the different styles of conflict management that are available to them and the situations in which each is most appropriately used. Although research suggests that some styles of conflict management are more effective than others, it is important to keep in mind that both situational and dispositional factors play a role in their effective use and selection.

—Valentina Bruk-Lee

See also Conflict at Work; Industrial Relations; Negotiation, Mediation, and Arbitration

FURTHER READING

- Blake, R. R., & Mouton, J. S. (1964). *The managerial grid*. Houston, TX: Gulf Publishing.
- Deutsch, M. (1949). A theory of cooperation and competition. *Human Relations, 2*, 129–152.
- Deutsch, M. (1990). Sixty years of conflict. *International Journal of Conflict Management, 1*, 237–263.
- Pruitt, D. G. (1983). Strategic choice in negotiation. *American Behavioral Scientist, 27*, 167–194.
- Rahim, M. A. (2001). *Managing conflict in organizations* (3rd ed.). Westport, CT: Quorum Books.
- Thomas, K. W. (1976). Conflict and conflict management. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 889–935). Chicago: Rand McNally.

CONSTRUCT

A construct, also known as a hypothetical construct or a psychological construct, is a scientific tool used to facilitate understanding of human behavior. All sciences are built on systems of constructs and their

interrelations. The natural sciences use constructs such as gravity, temperature, phylogenetic dominance, tectonic pressure, and global warming. Likewise, the behavioral sciences use constructs such as conscientiousness, intelligence, political power, self-esteem, and group culture.

The simplest way to think about a psychological construct is to consider it a label for a cluster or domain of covarying behaviors. For example, if we observe someone sitting in a classroom before an examination biting his or her nails, fidgeting, lightly perspiring, and looking somewhat alarmed, we might say that he or she is experiencing test anxiety. In this case, test anxiety is a label for the covariation that we attribute to these behavioral observations. Some scientists extend this conceptualization and suggest that test anxiety is an underlying cause of the behaviors that we observed. Used in this way, a construct is a hypothesized cause for the behavioral covariations that we observe.

A construct derives its name from the fact that it is a *mental construction*. In other words, science is built on the general process of (a) observing natural phenomena, (b) inferring the common features of those observations, and (c) constructing a label for the observed commonality or the underlying cause of the commonality. Any given construct derives its scientific value from the shared meaning it represents for different people. That is, if a construct is clearly articulated and the phenomena it encompasses are clearly defined so that different people think similarly about it, then it becomes a useful conceptual tool that facilitates understanding and communication. Once defined, constructs become objects of conceptual scrutiny in their own right. In other words, psychologists hypothesize both (a) whether certain behaviors will covary and (b) whether the clusters of covarying behaviors (i.e., constructs) tend to covary in meaningful ways with other constructs.

Constructs summarize behavioral domains and allow extrapolations to unobserved behaviors. For example, after telling your friend that a classmate had test anxiety, your friend might assume the occurrence of or attribute many more behaviors to the classmate than you actually observed (e.g., skin rash, grinding teeth, sweaty hands, or crying). This extrapolation underlies much of the psychologist's predictive power. If certain behaviors can be observed, then other unobserved behaviors can be predicted to occur in the future. Of course, the accuracy of these

predictions depends largely on the quality of the conceptual and psychometric foundations of the construct in question (i.e., construct validity).

Constructs are hypothetical. They exist as concepts but not as tangible entities. Yet some constructs become so familiar and ingrained in common use that most people assume their manifest existence. To illustrate this, bet someone that he or she cannot show you gravity. The person will probably take you up on the bet, and then he or she might pick up a pencil or some car keys and drop them on the floor and look at you smugly, as if to say, "There, I showed you gravity." You can respond by authoritatively saying that you have been shown a falling pencil or keys but not gravity. Gravity is a label for the hypothetical cause of the falling pencil and keys, but it is not the observable events. The same scenario can be built around any psychological construct—for example, extraversion, quantitative ability, and finger dexterity. We never see extraversion, except in our mind's eye. We see extraverted behaviors, and we summarize these by evoking a construct label and inferring that the person who exhibited those behaviors is extraverted to some degree or another.

Constructs are the building blocks of scientific theories. Psychologists who are interested in studying and understanding human behavior are interested in identifying behavioral regularities and their causes. Constructs help research and applied psychologists to summarize the complex array of observed behaviors, emotions, and thoughts that people produce in their day-to-day activities. Research may focus on identifying and clarifying construct boundaries, or determining which constructs relate to other constructs, as a basis for theorizing functional relationships between systems of constructs. Applied psychologists use constructs to make decisions about how to treat people with certain psychological disorders or whom to select, train, and promote for certain jobs or careers in organizations.

The discussion thus far has focused on psychological constructs as naturally occurring domains of behavior, and this is the most common way to conceptualize constructs. However, organizations also create domains of covarying behaviors. This is how different jobs and tasks are defined. These *performance* domains are constructs, but in a conceptually different sense than we have discussed. Performance domains are conceptually distinct from psychological constructs in that rather than natural covariation,

behavioral covariation is induced by organizational designers and employment specialists collaborating to translate broad organizational objectives into domains of valued behaviors and outcomes. Viewed either way, constructs are useful tools for simplifying our understanding of human behavior.

—John F. Binning

See also Validation Strategies

FURTHER READING

- Binning, J. F., & Barrett, G. V. (1989). Validity of personnel decisions: A conceptual analysis of the inferential and evidential bases. *Journal of Applied Psychology, 74*, 478–494.
- Binning, J. F., LeBreton, J. M., & Adorno, A. J. (2006). *Person-environment fit and performance*. In J. C. Thomas & D. L. Segal (Eds.), *Comprehensive handbook of personality and psychopathology* (Vol. 1, pp. 364–387). New York: Wiley.
- Messick, S. (1981). Constructs and their vicissitudes in educational and psychological measurement. *American Psychologist, 89*, 575–588.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory*. (3rd ed.). New York: McGraw-Hill.

CONTENT CODING

In organizational surveys, also often referred to as employee attitude surveys, data are gathered in two general forms, quantitative and qualitative. Quantitative approaches typically involve a statement (e.g., “Processes and procedures allow me to effectively meet my customers’ needs”) followed by a scale of response options (e.g., “strongly agree . . . strongly disagree”). This can be called a quantitative approach to measuring attitudes because the resulting data will be in the form of numbers.

By contrast, a qualitative approach allows free-form text to be entered by the person taking the survey. These are often referred to as open-ended questions or write-in questions, a term born in the days when surveys were typically conducted using paper and pencil and employees were given an opportunity to provide comments in their own handwriting. Today, many, if not most, surveys are administered using a computer, and comments are actually typed in.

The following are some typical examples of write-in questions:

- Please provide any comments you have on what it feels like to work here at Company X.
- Please provide any suggestions you have about how Company X could better enable you to balance your work and personal/family life.
- Do you have any additional comments or suggestions?

USES

The clarification of issues that are on the minds of employees, in their own words, is a powerful benefit of gathering comments in a survey. Although quantitative data can provide precision, trending, and easy comparisons to benchmarks, write-in comments add richness by bringing abstract issues to life through specific examples, new ideas, and suggestions for improvement.

Gathering comments also allows the researcher to gain insight into a new issue, one in which the important elements are only partially known. For example, a survey may contain a question about the most important characteristics of an employee benefits program. One might have some good hunches about benefits such as flexibility, health coverage, and dependent care. However, an open-ended question asking employees to describe what they would like to see in “the perfect benefits package” would provide a much more complete list of issues. Follow-up questions in later surveys—with a more tested list of issues—could then be used in a quantitative approach to monitor the effectiveness of the benefits programs.

TECHNIQUES

Content coding of open-ended data is a process of reading through a set of comments or a subset of comments and describing themes that tie together many individual comments. These themes are analogous to the principal components of a factor analysis. Common themes in open-ended data depend on the questions being asked, but they will often include elements that are common to a workplace climate survey: compensation, management, jobs, workload, work–life balance, and business performance.

Some researchers ask the employees who are taking the survey to help code their comments while they

are taking the survey. For example, a write-in question could be preceded by a list of topics that employees choose from to describe the theme of their comments. It is also possible to ask specifically whether the comment is generally positive or negative. This can help provide an initial structure to work with in developing themes.

One approach to developing themes is to keep a tally of issues mentioned as comments are read. Because of the ambiguity of the meanings of words and phrases, it is important to take a systematic approach to developing categories and coding comments. One simple approach is to have two raters set up initial categories based on their reading of the same portion of an open-ended data set. Through discussion of any differences in the taxonomies, a more stable and useful set of categories and coding rules can be derived for use in coding the rest of the comments. Reliability can be assessed through agreement among different raters on assigning themes to comments. If agreement between raters is low (e.g., less than 90%), then the researchers should review and refine their category list and coding rules and recode the comments until adequate reliability is achieved.

Because of the large size of some qualitative data sets, the task of reading through open-ended comments can be overwhelming. One approach to handling the volume is to sample a portion of the comments. If there are 2,000 comments, for example, reading through 400 of them (or every fifth comment) will usually give a good feel for the entire set of comments. This is similar to the notion of sampling as it is applied to quantitative results. Although the concept of a margin of sampling error makes little sense when applied to open-ended comments, redundancy will begin to appear after a couple hundred comments. By the time a reader reaches 400, few completely new suggestions or ideas will emerge.

Computer technology continues to evolve, and it offers some intriguing new techniques for deriving themes and understanding open-ended data. Researchers can use content-coding software tools, also called text-mining tools, to uncover themes within their qualitative data set. At a minimum, this provides an initial structure to use when reading through comments.

Content-coding tools require researchers to define certain terms and phrases, which the computer then uses to evaluate similarity across comments. For example, the terms *CEO*, *president*, *chairperson*, and even the proper name of a person, such as *Jane Doe*,

may all have the same meaning in a given organization. Similarly, the terms *compensation*, *pay*, *benefits*, and *money* may be defined as belonging to the same category. With patience and an iterative technique for defining the right terms and phrases in a given survey project, text-mining software can help researchers define themes in an open-ended qualitative database.

This iterative technique also becomes the process whereby the researcher learns about and defines the themes. The results should be reviewed and the dictionary refined multiple times to produce the most useful data set. Elements that prove tricky to define include evaluations of goodness. For example, a comment that reads *not very good* needs to be defined as a negative comment. Sarcasm and irony can prove especially difficult for a computer to classify properly.

Content-coding software produces a kind of map representing the comments. Often this map will be structured visually, with large circles representing themes that contain many comments and smaller circles representing themes that are less commonly mentioned. These thematic circles can be connected by lines indicating their similarity or redundancy in content with other themes. The researcher now has a starting point for reading through the comments.

CAUTIONS AND RECOMMENDATIONS

Exclusive reliance on open-ended comments is not recommended. Although write-in comments provide a richness of perspective that is not available with quantitative data, research has found that comments provide a somewhat more negative view of the state of a workplace climate than quantitative results. This is because people who are dissatisfied tend to use write-in comment opportunities more often than satisfied employees. Similarly, those who are dissatisfied with an issue will often provide more lengthy comments than those who are satisfied. Therefore, it is important to look to both quantitative and qualitative data—in addition to the surrounding context—to paint an accurate representation of a workplace climate.

Some researchers argue that open-ended qualitative data usually overlap and therefore are redundant with quantitative results. This calls into question whether it is worth the effort to include open-ended comment opportunities in an employee survey.

In the end, employees want to speak their minds about the workplace. Employers can gain insight into the workplace climate by using open-ended data

collection. Sampling and content coding tools can help researchers and organizational leaders gain the rich insights provided by open-ended comments without being overwhelmed by them. Another simple method of keeping write-in comments at a manageable level is to restrict the length allowed (for example, to 10 or 20 lines of text).

Regardless of methods used and the questions asked, it is critical for the integrity of the survey process to be clear about whether the survey is anonymous, who will see the results, and how the results will be used. With regard to open-ended comments, it should be clear who will see the comments and whether they will be edited (e.g., to remove proper names or foul language). Transparency about the purpose and methods used in a survey project or program will go a long way toward protecting the validity and utility of employee attitude measurements.

—Joe Colihan

See also Qualitative Research Approach; Quantitative Research Approach; Verbal Protocol Analysis

FURTHER READING

- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2005). *The Sage handbook of qualitative research* (3rd ed.). Thousand Oaks, CA: Sage.
- Fink, A. (2005). *How to conduct surveys: A step-by-step guide* (3rd ed.). Thousand Oaks, CA: Sage.
- Kraut, A. I. (Ed.). (2005, April). Grappling with write-in comments in a web-enabled survey world. Practitioner forum conducted at the 20th Annual Meeting of the Society for Industrial and Organizational Psychology, Los Angeles, CA.
- Rea, L. M., & Parker, R. A. (2005). *Designing and conducting survey research: A comprehensive guide*. San Francisco: Jossey-Bass.

CONTEXTUAL PERFORMANCE/ PROSOCIAL BEHAVIOR/ ORGANIZATIONAL CITIZENSHIP BEHAVIOR

Although the origin of what is called *organizational citizenship behavior*, *contextual performance*, or *prosocial organizational behavior* can be traced back to classic management and organizational science

treatises, serious theoretical and empirical research in the area did not begin until the late 1970s. Researchers Dennis Organ, Walter Borman, Stephen Motowidlo, Phillip Podsakoff, and Scott MacKenzie have been instrumental in the development and popularization of this construct.

The relevance of organizational citizenship behavior rests primarily on the persuasive contention that job performance should encompass not only behavior that contributes to the technical core of the organization, referred to here *task performance*, but also behavior that contributes to organizational performance by shaping the organization's social and psychological environment, known as *organizational citizenship behavior*. The former category includes duties that are listed in the employee's job description (e.g., an industrial truck or tractor operator operates a machine that transports, lifts, stacks, loads, packages, or cuts products), whereas the latter category includes behaviors such as volunteering for tasks that are not required, helping other employees with their work, and praising the organization to outsiders.

Relative to task performance, employees perceive that organizational citizenship behavior is required by the job less frequently, and supervisors and other organizational authorities recognize and reward its expression less frequently. Thus, employees are believed to have more latitude in performing (or not performing) organizational citizenship behavior than they have in task performance. Consequently, Organ proposed a variant of the *happy/productive worker hypothesis*: In his version, job satisfaction is posited to predict organizational citizenship behavior rather than (task) performance. Borman and Motowidlo proposed that organizational citizenship behavior (which they termed *contextual performance*) should be better predicted by personality, whereas task performance should be better predicted by general mental ability (i.e., intelligence).

These predictions are consistent with the idea of *situational strength*. To the extent they are mentally and physically able to do so, individuals will exhibit behavior (i.e., task performance) that is prescribed by the situation. However, the extent to which individuals exhibit behavior (i.e., organizational citizenship behavior) that is not explicitly prescribed by the situation depends on volition.

Later, we will examine the extent to which these early predictions have been borne out by empirical research. First, though, it is necessary to examine organizational citizenship behavior in more detail.

STRUCTURE OF ORGANIZATIONAL CITIZENSHIP BEHAVIOR

Should organizational citizenship behavior be treated as a cohesive entity, or are there different types or facets of citizenship that are important in their own right? According to Organ's taxonomy, there are five facets of citizenship: (a) altruism, helping others; (b) conscientiousness, or engaging in role-required behavior, but doing so beyond minimum required levels; (c) sportsmanship, or refraining from complaining about trivial matters; (d) courtesy, or providing others with advance notice, reminders, and information; and (e) civic virtue, or contributing in a responsible fashion to the corporate governance of the organization. Borman and Motowidlo, in contrast, proposed the following five types of citizenship: (a) persisting with enthusiasm and extra effort as necessary to complete one's own task activities successfully; (b) volunteering to carry out task activities that are not formally part of one's own job; (c) helping and cooperating with others; (d) following organizational rules and procedures; and (e) endorsing, supporting, and defending organizational objectives.

Other taxonomies have been proved moot. Yet the most consistent distinction is between citizenship behavior that is directed toward the organization and behavior that is directed toward other employees in the organization. Behavior that is directed toward the organization includes actions such as displaying loyalty to the organization and following informal rules designed to maintain order, whereas behavior that is directed toward other employees includes being considerate to others and helping them with their work.

In general, theoretical attempts to distinguish between facets or types of organizational citizenship behavior have not been overly convincing. Perhaps more crucially, findings from meta-analyses indicate that the facets are strongly interrelated and that their relationships with a variety of other constructs are relatively similar in strength. In other words, the case for disaggregating organizational citizenship behavior into more specific facets has not yet been made. It is unsurprising, therefore, that many researchers continue to use overall measures rather than facet measures of the construct.

The construct definition of organizational citizenship behavior would be incomplete without a discussion of its relationships with other job-related constructs. Hence, we turn to this issue next.

RELATIONSHIPS WITH OTHER CONSTRUCTS

The relationships of organizational citizenship behavior with other constructs are best assessed by separately considering relationships with (a) constructs concerned with appraisals of and attitudes toward the job; (b) dispositional constructs; and (c) other employee job performance facets, global employee job performance, and organizational performance.

Relationship With Job-Related Appraisals and Attitudes

Social exchange theory, the theory of psychological contracts, and the norm of reciprocity have been used to explain the relationship between organizational citizenship behavior and organizational justice, leader supportiveness, job satisfaction, and organizational commitment. These theories predict that employees respond to satisfying working conditions, supportive leaders, and fair workplace processes, outcomes, and interactions by engaging in organizational citizenship behavior and exhibiting organizational commitment. Thus, organizational justice, leader supportiveness, and job satisfaction are conceptualized as antecedents of organizational citizenship behavior, whereas organizational commitment is conceptualized as neither an antecedent nor a consequence. In contrast, other theoretical formulations conceive of organizational commitment as an antecedent. Because the vast majority of studies have been cross-sectional in design, however, we are unable to clearly ascertain temporal precedence.

Of the predictors just mentioned, the most research attention has focused on job satisfaction and organizational justice. Yet meta-analyses (quantitative reviews of existing research studies) indicate that job satisfaction, organizational justice, leader supportiveness, and organizational commitment are all weak to moderate predictors of organizational citizenship behavior and, consequently, none of them stands out as being a much better predictor than the others.

Relationship With Dispositional Constructs

Appraisals of and attitudes toward the job are largely (though not completely) dependent on conditions and experiences on the job. Thus, their study is consistent with a philosophy in which certain workplace situations are more conducive to organizational

citizenship behavior than others. In contrast, the quest for dispositional antecedents is consistent with a philosophy in which certain types of employees (the “good soldiers”) are more apt to perform organizational citizenship behavior than others. Armed with knowledge of dispositional predictors, researchers could design selection tests to screen out applicants who are less likely to engage in citizenship.

Meta-analyses conclude that employees who are more conscientious—that is, those who exhibit greater industriousness, orderliness, and self-control—engage in more organizational citizenship behavior than those who are unconscientious. Yet conscientiousness is best characterized as a weak to moderate predictor of citizenship. It thus predicts citizenship about as well as the appraisal and attitudinal constructs discussed previously.

Other consistently examined dispositional contenders, such as agreeableness and affectivity (emotionality), appear to be weak predictors of citizenship. Apart from conscientiousness, therefore, the search for dispositional predictors of organizational citizenship behavior has proved disappointing.

Meta-analyses have produced another interesting finding. Recall that organizational citizenship behavior (or contextual performance) was originally touted as a construct that, unlike task performance, is strongly influenced by job satisfaction and personality. Yet the findings indicate that neither appraisals and attitudes nor dispositions predict organizational citizenship behavior to an appreciably greater extent than they predict traditionally conceptualized performance. This may be because some traditional conceptualizations, such as ratings or judgments of employee performance, do not represent only task performance: As we will see, they are also infused with organizational citizenship behavior.

Relationship With Performance Constructs

Organizational citizenship behavior has been differentiated conceptually from task performance, but what is the strength of the empirical relationship between these constructs? Results indicate that employees who are good task performers generally engage in more organizational citizenship behavior. There is one important caveat, however: The relationship appears to be strong only when task performance

and citizenship are both measured using ratings and judgments by the same person. When task performance is measured objectively (e.g., using measures of quantity or quality of work that require no judgment) or when the person who is rating task performance is not the same person who is rating citizenship, the relationship between the two constructs is best construed as moderate.

Apart from task performance and organizational citizenship behavior, another aspect of overall employee job performance is counterproductive work behavior. This refers to intentional employee behavior that is harmful to the legitimate interests of an organization, and it encompasses behavior ranging from lateness, lack of effort, and spreading malicious rumors to more severe actions such as theft, vandalism, and drug and alcohol abuse on the job. In a sense, the definitions of organizational citizenship behavior and counterproductive work behavior set them up to be opposites. But the two constructs have been linked, albeit in opposite directions, to the same set of dispositional and appraisal or attitude constructs. Yet meta-analysis has demonstrated that the (negative) relationship between the constructs is only moderate in strength. In addition, relationships with antecedents are generally stronger, sometimes substantially so, for counterproductive work behavior than for organizational citizenship behavior.

Which of these components of employee job performance is most important to supervisors? Certain studies have assessed how supervisors weigh employees’ task performance and organizational citizenship behavior, and, in general, they conclude that the latter is at least as important as the former in determining judgments and ratings of overall job performance. Only one study has considered counterproductive work behavior as well; intriguingly, its results indicate that supervisors consider citizenship less important than counterproductive work behavior.

Finally, the extent to which organizational citizenship behavior improves the functioning or performance of the organization (as a whole) has been scrutinized. Results are generally supportive, regardless of whether the latter is measured using quantity, quality, financial, or customer service (satisfaction and complaints) indexes. As several researchers have commented, however, theory on the mechanisms by which employee citizenship behavior influences organizational performance is scant.

RECENT DIRECTIONS

Thus far, much attention has been paid to the person who is enacting the organizational citizenship behavior. With regard to predicting interpersonal citizenship behavior (i.e., behavior directed toward other employees rather than toward the organization), however, researchers are awakening to the potential of studying the *relationship* between the actor and the recipient(s) of the behavior. It has been argued that the extent to which person X helps person Y depends on much more than merely person X's predilections and his or her reactions to the work situation. Specifically, it is important to consider relational features such as the positivity or negativity of the relationship between person X and person Y, how often and for how long they have interacted, whether they are linked by more than one type of relationship (e.g., coworker, friend, and neighbor), and the extent to which they share common friends.

At the same time, important advances are being made with regard to the person who is enacting organizational citizenship behavior. To date, most research of a situational bent has employed relatively stable job-related appraisals and attitudes as predictors of citizenship. In other words, reactions to situations—hence organizational citizenship behavior itself—have been treated, in effect, as differences between individuals. Yet is it not possible for a given individual to display levels of organizational citizenship behavior that fluctuate rapidly over time? An influential contemporary theory, *affective events theory*, contends this may be the case. At the risk of oversimplification in the service of brevity, the theory suggests the following:

- Mood and emotions on the job fluctuate rapidly over time and can be distinguished from more stable cognitions or evaluations about the job.
- Whereas other types of work behavior are influenced primarily by job-related cognitions or evaluations, organizational citizenship behavior is influenced primarily by mood and emotions at work.

With regard to organizational citizenship behavior, a growing body of empirical research now supports this theory. Results suggest that a substantial proportion of the variation in organizational citizenship behavior occurs within an individual over time (rather than because of differences between people) and that mood and emotions predict these dynamic aspects of citizenship better than do commonly used dispositional and appraisal or attitudinal predictors.

Finally, several authors—but most notably, Mark Bolino and colleagues—have begun to question key assumptions in the research literature. For example, one common assumption is that employees' motives for engaging in citizenship behavior are not self-serving. This, however, excludes motives such as impression management, making amends for previous or anticipated (future) counterproductive behavior, and avoiding normal responsibilities (i.e., task performance).

It has also been assumed that organizational citizenship behavior improves organizational functioning. This assumption is so centrally held that it is part of the very definition of organizational citizenship behavior. Despite research showing that citizenship behavior tends to lead to better organizational performance, however, we might question whether this is always (or must necessarily be) the case. Organizational performance may not improve—and may even be affected adversely—if organizational citizenship behavior takes place instead of, rather than in addition to, task performance. Additionally, in some instances, the organizational bottom line (and perhaps even employee satisfaction) may be better served by hiring additional employees to reduce the need for existing employees to engage in organizational citizenship behavior.

A third assumption is that citizenship goes beyond behavior that is required and therefore may not be noticed or rewarded to the same extent as task performance. Yet evidence indicates that employees do perceive citizenship as being required to some extent, and supervisory performance evaluations are nontrivially influenced by employees' citizenship behavior. In response to these concerns, Organ recently agreed that the definition of organizational citizenship behavior should sidestep the issue of whether such behavior is required. The question that remains, though, is whether there are situations (or jobs) in which organizational citizenship behavior is perceived to be required as much as, if not more than, task performance.

The directions charted here require new methodological and statistical techniques and, more generally, new ways of thinking about the world. Further redefinition of the construct of citizenship may also be required. These directions are not easy to navigate, yet they present exciting opportunities to build on the solid foundation created by extant research on organizational citizenship behavior.

—Reeshad S. Dalal

See also Counterproductive Work Behaviors; Job Performance Models; Psychological Contract; Social Exchange Theory

FURTHER READING

- Bolino, M. C., Turnley, W. H., & Niehoff, B. P. (2004). The other side of the story: Reexamining prevailing assumptions about organizational citizenship behavior. *Human Resource Management Review, 14*, 229–246.
- Borman, W. C., & Motowidlo, S. J. (1993). Expanding the criterion domain to include elements of contextual performance. In N. Schmitt & W. C. Borman (Eds.), *Personnel selection* (pp. 71–98). San Francisco: Jossey-Bass.
- Dalal, R. S. (2005). A meta-analysis of the relationship between organizational citizenship behavior and counterproductive behavior. *Journal of Applied Psychology, 90*, 1241–1255.
- LePine, J. A., Erez, A., & Johnson, D. E. (2002). The nature and dimensionality of organizational citizenship behavior: A critical review and meta-analysis. *Journal of Applied Psychology, 87*, 52–65.
- Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome*. Lexington, MA: Lexington Books.
- Organ, D. W., & Paine, J. B. (1999). A new kind of performance for industrial and organizational psychology: Recent contributions to the study of organizational citizenship behavior. *International Review of Industrial and Organizational Psychology, 14*, 337–368.
- Podsakoff, P. M., MacKenzie, S. B., Paine, J. B., & Bachrach, D. G. (2000). Organizational citizenship behaviors: A critical review of the theoretical and empirical literature and suggestions for future research. *Journal of Management, 26*, 513–563.
- Rotundo, M., & Sackett, P. R. (2002). The relative importance of task, citizenship, and counterproductive performance to global ratings of job performance: A policy-capturing approach. *Journal of Applied Psychology, 87*, 66–80.

CONTROL THEORY

Careful observers of humans and other organisms noticed long ago that certain variables that should vary as environmental conditions change actually do not vary much within the organism. For example, store shelves remain stocked despite customers buying products. Control theory arose as one explanation for the mechanism that keeps variables stable.

Industrial and organizational psychologists find the explanation provided by control theory very useful for conceptualizing and understanding a great number of work-related phenomena.

The specific mechanism described by control theorists contains three parts:

1. A function that translates the state of some variable (e.g., the state of stock on shelves) into a perception or signal that can be compared with a desired perception or reference signal (e.g., fully stocked) represented within the organism
2. A second function that does the actual comparison, subtracting one signal from the other
3. Positive differences from the second function, called the *error signal*, that are then passed to the last function, which translates the error signal into actions (e.g., restocking shelves) on the variable in question

If the control mechanism is operating properly, the actions bring the variable in line with the desired perception of that variable. That is, the actions reduce the discrepancy (i.e., error) between the perception of the variable and the desired state of the variable. As a result, the variable remains near the desired level despite outside influences, called *disturbances*, on the variable.

Anyone who has studied psychology is likely to be familiar with this mechanism as it applies to physiological variables such as hunger and thirst control. In this context, the term *homeostasis* is generally used to refer to the sameness (*homeo*) in state (*stasis*) of a variable over time. Others might be familiar with the concept through engineering circles. For example, it is the mechanism underlying temperature control systems in your home, as well as the systems that make “smart” appliances work, such as cruise control in automobiles or the popcorn setting on microwave ovens. In this context, one might hear the term *cybernetic*—a term coined by the mathematician Norbert Wiener, who described the mechanism formally with mathematics—or *negative feedback loop* (because the process reduces the error signal). Within the context of industrial and organizational psychology, all of these terms have been used, but the mechanism most often operates within what we call *theories of self-regulation*.

In psychological renditions of control theory, the basic control system (defined by the three functions

described previously) is conceptualized within hierarchies of systems, and it is from this configuration that some of the more interesting phenomena emerge. Specifically, three additional elements are described in these psychological versions:

1. The “actions” of higher-level control systems determine the reference values for lower-level systems, and the perceptions from lower-level control systems feed into higher-level control systems, allowing them to create more abstract and complex perceptions.
2. The reference signals can be diverted back to the sending system as a means of anticipating or estimating the effects of the system’s actions. Usually this is called a feed-forward process; it is control theory’s conceptualization of human thinking.
3. Some control systems monitor the operation of other systems and act on those systems by changing the three kinds of core functions described earlier. This is control theory’s conceptualization of learning.

With these additional elements, control theorists hope to understand a wide range of phenomena in psychology. Likewise, within the field of industrial and organizational psychology, control theory and its variants have been used to address many issues. For example, human factors researchers are interested in the processes by which humans control aspects of their immediate physical environment. Control theory has been used as a significant explanatory tool in that domain. In addition, control theory has been applied to understanding stress and affective processes within work domains. However, control theory’s most prominent presence in industrial and organizational psychology relates to motivation and goal-striving behavior within organizations.

CONTROL THEORY AS A THEORY OF MOTIVATION

To understand control theory’s relevance to motivation, one need only substitute the control theory notion of *internally represented desired state* (i.e., reference signal) with the term *goal*. Thus, control theory provides an explanation of how individuals achieve and maintain their goals, whether individuals bring these goals with them or acquire them from the work

context. Indeed, another situation in which control theories are used is to describe when managers and supervisors are likely to communicate goals and desired behavioral patterns to their subordinate employees.

Elsewhere in this encyclopedia, you can read about the relevance of goals to understanding human motivation and how goals have practical implications for performance and other organizationally relevant outcomes (e.g., absenteeism). The literature on goals—most developed without the benefit of control theory—has demonstrated robust, positive effects on motivation and performance for interventions based on goals and their properties. This has led some researchers to seek explanations for these goal effects (i.e., understand why goals have the effects they do) and to understanding how individuals coordinate the pursuit and maintenance of multiple goals more or less simultaneously. Researchers argue these understandings may provide better or unique applications that have not yet been considered, and control theory is considered a major source for developing these understandings.

Alongside goals, another concept that has received a great deal of attention is *feedback*, a complex concept. In industrial and organizational psychology, feedback generally refers to the information that supervisors or others give employees regarding their performance or actions. This kind of feedback has long been considered important in organizational contexts, and it is believed that interventions that increase feedback boost performance. Yet in this case, the empirical evidence is mixed, though generally positive (i.e., feedback interventions generally improve performance). Control theory has been used here as well as a vehicle for understanding the processes by which feedback has its effects (both positive and negative). Meanwhile, feedback is sometimes actively sought by employees; control theory is used to understand why and when that happens.

Across all applications, the concept that has received the most attention is the notion that information (i.e., feedback) may indicate discrepancies between perceptions and goals. These discrepancies, in turn, drive behaviors and the allocation of resources to reduce the discrepancies. For example, a perception of uncertainty regarding one’s performance is presumably responsible for feedback-seeking behavior among individuals who desire certainty. The information received from that feedback-seeking episode

might, if it creates discrepancies with other work goals, motivate increased work.

However, given the complexity of work contexts, many times behaviors and the allocation process result in conflicts, such that individuals may behave in ways that take them away from or steal resources needed for other goals. Thus, a person's attention might be drawn to one goal in his or her hierarchy, although it is needed in another. If both goals are required for effective performance, it is in the interest of the employee and the employers to figure out how to balance or regulate competing demands for resources. Indeed, at this point, researchers are interested in simply understanding how control systems regulate (i.e., self-regulation). Worrying about how to optimize this regulation for specific outcomes requires a more thorough understanding of the processes involved.

CONTROVERSIES RELATED TO CONTROL THEORY

Although control theory has many adherents and variants within industrial and organizational psychology, it also has some strong opponents. One source of opposition may stem from its success. That is, the multiple uses and phenomena to which control theory has been applied have produced so many variations that critics complain it is difficult to know what control theory is and what it is not. Moreover, these variations often incorporate ideas and concepts used by other theories, leading critics to wonder whether control theory makes any unique contribution to the theoretical landscape. For example, goals were in psychologists' lexicon before control theory was brought to the field; thus, some argue it is not useful to mix psychological constructs with the control theory labels commonly used by engineers. Control theorists counter that the theory's unique contribution is to explain why goals have the effects they do, not necessarily what the effects are.

Recently, control theorists have concerned themselves with the concept of self-efficacy, a central construct in social cognitive theory. Self-efficacy, or the belief in one's capacity to perform or act at a given level, is not a construct that is described within any version of control theory. However, self-efficacy measures capture the results of the feed-forward process described within control theory. Moreover, the results of the feed-forward process, as it is used within

control systems, lead to similar—but not identical—predictions that social cognitive theory describes for self-efficacy. Yet the points of divergence are what theoreticians find most interesting, and they may be practically relevant as well. In this case, social cognitive theory predicts strong positive effects. In contrast, control theory predicts weak negative effects for self-efficacy on motivation and performance during goal striving when goals do not change and when feedback is ambiguous. Recent research supports control theory's predictions, which other researchers are now seeking to verify.

Control theory has also been criticized for its complexity. Control theory is a dynamic theory of processes. Most theories in industrial and organizational psychology describe the relationships between variables, generally across individuals rather than across time. Variables that describe relationships across time do not specify the processes by which the relationships emerge. Dynamic process theories explain why factors covary (or don't when it seems they should) over time. This makes control theory a very different kind of industrial and organizational theory. Indeed, this difference may be one of the main reasons it is appealing to so many researchers (i.e., it can be used to explain phenomena that other theories are not in a position to explain). Yet it is also difficult to reconcile with how one compares, contrasts, and tests typical theories in industrial and organizational psychology. Moreover, evidence has emerged that humans have difficulty predicting dynamic (i.e., changing) phenomena. Thus, trying to mentally simulate (i.e., think through) a dynamic theory's predictions about dynamic phenomena may be difficult—all the more reason for such a theory, say its proponents.

The preceding paragraph implied that the complexity of control theory arises from the limitation of human minds, particularly those without much experience thinking about phenomena dynamically. However, it seems that by most criteria, control theory models become extremely complex as the number of control systems used to explain a particular phenomenon increases. Indeed, control theorists, presumably facile at thinking dynamically, either describe relatively simple models (single or only a few control systems) or render the models mathematically (i.e., computational models) that can be simulated. The latter approach is likely necessary because the control theory explanation is too complex to think through. One needs the computation tools of simulations to

follow the implications of the control systems described. This is what engineers do, and psychologists are just beginning to use this process (especially in human factors research). It remains to be seen how useful the simulation tool will be to researchers examining motivation or to those wishing to apply control theory to specific organizational problems.

Control theory has a long history outside psychology. Many think it can have a long and fruitful history within the field of industrial and organizational psychology as well. How this conflict will play out in the field, only time will tell. If only we had a theory.

—Jeffrey B. Vancouver

See also Engineering Psychology; Feedback Seeking; Goal-Setting Theory; Self-Efficacy; Self-Regulation Theory

FURTHER READING

- Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process, and content. *Psychological Bulletin*, *120*, 338–375.
- Bandura, A., & Locke, E. (2003). Negative self-efficacy and goal effects revisited. *Journal of Applied Psychology*, *88*, 87–99.
- Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. New York: Cambridge University Press.
- Jagacinski, R. J., & Flach, J. M. (2003). *Control theory for humans: Quantitative approaches to modeling performance*. Mahwah, NJ: Lawrence Erlbaum.
- Powers, W. T. (1978). Quantitative analysis of purposive systems: Some spadework at the foundations of scientific psychology. *Psychological Review*, *85*, 417–435.
- Vancouver, J. B. (2005). The depth of history and explanation as benefit and bane for psychological control theories. *Journal of Applied Psychology*, *90*, 38–52.
- Wiener, N. (1948). *Cybernetics; Or, control and communication in the animal and the machine*. Cambridge: MIT Press.

CORE SELF-EVALUATIONS

The term *core self-evaluations* refers to fundamental, global evaluations that individuals make about their worth as individuals, including whether they have the capability to handle the tasks and challenges they face in life and the extent to which they feel in control of

their lives. When faced with a problem or challenge, individuals with high core self-evaluations believe, “I can handle this problem.” Individuals’ tendencies to evaluate themselves negatively or positively may affect their evaluations of others and the world in general.

STRUCTURE AND MEASUREMENT OF CORE SELF-EVALUATIONS

Core self-evaluation is a broad personality trait that includes shared elements of some of the most frequently studied personality traits, including self-esteem, locus of control, and neuroticism. Although researchers have spent decades studying these individual traits (e.g., self-esteem, neuroticism), only recently have researchers begun to recognize the commonalities among them. Recent research indicates that four core traits—neuroticism (reverse scored), locus of control, generalized self-efficacy, and self-esteem—are highly related to one another. Individuals who score high in one of these traits tend to score high on all of them, leading researchers to believe that individual traits may all be linked to a common source or core, labeled core self-evaluations.

Although it is clear that strong associations between these traits exist, research to date is not clear about the nature of this association. It may be that core self-evaluations are the underlying cause of traits such as self-esteem and neuroticism. If this is the case, individuals vary in the extent to which their broad, fundamental evaluations of themselves are positive or negative, and these evaluations, in turn, influence their feelings of worth and value (self-esteem), control (locus of control), confidence (self-efficacy), and general emotional stability (neuroticism). According to this approach, each of the individual traits serves as an indicator of individuals’ core evaluations of themselves, which are not directly observable.

It is also possible, however, that the four core traits are linked to each other in a hierarchical manner. For example, it may be that self-esteem is the cause of the other traits: Individuals who have a low sense of self-worth (self-esteem) may tend to experience more sadness and anxiety (neuroticism) and have less confidence that they are capable of handling the challenges they face (self-efficacy) because they doubt their value.

The nature of the associations among the four core traits and the broader core self-evaluations concept,

especially their causal associations, remains unresolved. Researchers have attempted to sort out the causal associations between evaluative self-reported traits such as self-esteem and neuroticism using factor analyses; however, such approaches are open to multiple interpretations and preclude definitive conclusions. In the future, our understanding of these traits may be aided by the biological, brain, and genetic research that is currently under way in the field of neuroscience.

There are two approaches to the measurement of core self-evaluations. One is to use existing measures of the four traits. In this approach, core self-evaluations can be assessed by either (a) averaging the scores of the four traits, which assumes that the specific elements of each trait represent the underlying core self-evaluation, or (b) using factor analysis to extract the commonalities between the traits, which assumes that only the commonalities between the four core traits represent core self-evaluations. A second approach is to measure individuals' fundamental assessments of themselves and their capabilities directly. To this end, a short, comprehensive measure of core self-evaluations has been developed.

Emerging research suggests that core self-evaluations explain differences between individuals that are not captured by existing broad personality taxonomies, such as the Big Five. Although associations between core self-evaluations and the Big Five traits are to be expected (neuroticism is one of the four core traits), the Big Five traits cannot explain all of the differences between individuals in core self-evaluations. Furthermore, core self-evaluations have been shown to add incremental predictive validity to the Big Five traits in explaining important work and life outcomes, such as job and life satisfaction.

CORE SELF-EVALUATIONS AND WORK

Regardless of how core self-evaluations are measured, it is clear that this trait is linked to important aspects of work. The concept of core self-evaluations was developed to explain individual differences in workers' satisfaction with their jobs; however, it has also been linked to work motivation and job performance.

Early research on core self-evaluations showed that individuals who evaluate themselves positively also tend to be satisfied with their jobs. This appears to be true for several reasons. First, because individuals who are high in core self-evaluations tend to see

others and their work in a positive light, they may simply take a more optimistic view toward their jobs as well. Second, research indicates that employees with high core self-evaluations actually choose and attain better, more enriched jobs. When given a choice, individuals high in core self-evaluations tend to choose jobs that are more complex. They also may attain more enriched jobs over time because they have the confidence to try new things and are more willing to take on challenging assignments. Third, individuals with high core self-evaluations report setting job goals that are important to them. Recent empirical research shows that individuals with high core self-evaluations set goals that are more intrinsically interesting to them and represent their own values; they rate their work goals as more important. Perhaps for this reason, they are also more likely than individuals with low core self-evaluations to achieve their work goals, leading them to be more satisfied with their jobs.

In summary, individuals high in core self-evaluations tend to be happier with their jobs, partly because of their global positive evaluations but also because they attain more challenging and interesting jobs and are more likely to achieve important work goals than individuals low in core self-evaluations.

Core self-evaluations are also positively associated with ratings of job performance. To understand the link between core self-evaluations and job performance, several motivational mechanisms have been considered, including goal setting and expectancy motivation. Individuals with high core self-evaluations report setting goals that are more intrinsically interesting and important to them. They also set higher goals, are more committed to their goals, and engage in more goal-directed activities at work than do individuals with low core self-evaluations. Furthermore, because they evaluate themselves and their competence highly, they may be more likely to persist in the face of failure and attribute failure to external, temporary causes. Thus, they are likely to achieve higher levels of performance by setting high goals and persisting in goal-directed activities in the face of obstacles. In this regard, core self-evaluations may be an ability factor in some jobs, especially those that require confidence, problem solving, and persistence in the face of failure.

Researchers have also suggested that an optimistic approach to life and work leads individuals with high core self-evaluations to have higher expectancy motivation. Specifically, they are more likely to believe

their effort will lead to performance (expectancy) and that their performance will be rewarded (instrumentality), leading them to put more effort into their work. Both lab and field studies have documented links between core self-evaluations and self-reported motivation, as well as objectively assessed effort (time on task). Core self-evaluations may also influence job performance through coping. Under conditions of organizational change, both manager reports and independent reports of colleagues indicate that individuals with high core self-evaluations are better able to cope with change. Perhaps because they are happy on the job, motivated to work hard, and perform well, individuals with high core self-evaluations also tend to earn higher salaries and experience fewer career plateaus, less stress, and greater life satisfaction than do individuals with low core self-evaluations.

—Joyce E. Bono

See also Job Satisfaction; Job Satisfaction Measurement; Self-Efficacy; Self-Esteem

FURTHER READING

- Bono, J. E., & Judge, T. A. (2003). Core self-evaluations: A review of the trait and its role in job satisfaction and job performance. *European Journal of Personality, 17*, 5–18.
- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2002). Do the traits self-esteem, neuroticism, locus of control, and generalized self-efficacy indicate a common core construct? *Journal of Personality and Social Psychology, 83*, 693–710.
- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The Core Self-Evaluations Scale: Development of a measure. *Personnel Psychology, 56*, 303–331.
- Judge, T. A., Locke, E. A., & Durham, C. C. (1997). The dispositional causes of job satisfaction: A core evaluations approach. *Research in Organizational Behavior, 19*, 151–188.

CORPORATE ETHICS

Corporate ethics can be defined in several ways: conceptually, operationally, officially, and actually. Conceptual arguments about the definition of organizational ethics focus on questions of stakeholder status and are defined by two theories, stakeholder theory and social contracts theory. Operational approaches to

increasing ethical behavior in organizations may be more or less proactive and are structured around organizational mission and legal compliance. Official ethical standards articulated by organizational leaders may include ethical codes, but they are arguably less important than actual ethical expectations, which are closely intertwined with organizational culture. Each of these approaches to understanding corporate ethics will be addressed in turn, followed by discussion of cultural differences in values that undergird ethical norms and codes of conduct. Social influences and organizational practices that may affect ethical behavior unintentionally or without reference to formal ethical controls will also be considered.

DISCIPLINARY APPROACHES AND DEFINITIONS

Scholarship in corporate ethics falls into two general disciplines: moral philosophy and social science. Moral philosophers approach corporate ethics by outlining ideals for how corporations and their managers should behave. Prescriptions for moral action and policy are the substance of this approach. That is, moral philosophers try to articulate the principles that organizations should adopt, regardless of the actual effectiveness of one or another approach. The social scientific approach, on the other hand, attempts to describe the social and psychological variables associated with moral action and, to a lesser extent, the effectiveness of ethical actions and policies. Synthesizing the larger, long-standing tensions between prescriptive and descriptive approaches, recent discussion among management scholars has attempted to combine these approaches.

Moral philosophy generally focuses on stakeholder theory, an outgrowth of classical social contracts theory. In its simplest form, social contracts theory argues that membership in work organizations involves tacit consent among parties to accomplish their purposes. Accompanying this basic consent among parties are obligations relating to attitudes and norms of conduct. That is, expectations about how people should approach tasks and how they should behave with one another are the substance of corporate ethics. Corporate ethics in this framework is defined in terms of people meeting obligations and maintaining expected conduct. Importantly, this philosophical definition does not rely on ethical expectations being openly stated or officially acknowledged.

In his critique of integrative social contracts theory, Robert Phillips argues that these unstated bases for social contracts do not adequately describe the content of social obligations. Following from recent political theory, stakeholder theory explores these issues further. First, the conditions that give parties a legitimate stake in organizational decisions—who has stakeholder status?—are a central concern in this theory. For example, do students have a legitimate stake in the decisions made by their professors about what they will teach? Should environmentalists be given a place in making a corporation's decisions about the resources the corporation uses? Second, an explicit norm of fairness is discussed in this theoretical application that answers the question, how are norms of conduct derived? Several approaches have been proposed. Stakeholder theory, therefore, is a derivative of social contracts theory, but it is concerned with these questions of stakeholder legitimacy and the derivation of norms through fair discourse. Using this framework, corporate ethics can be defined not only by obligations and conduct but also by the processes used for arriving at agreement about them.

Unlike moral philosophy, social scientific inquiry into the antecedents, nature, and consequences of ethical conduct in organizations has a short history. In social scientific inquiry, corporate ethics is defined in terms of the formal and informal expectations for organizational stakeholder conduct. The observation of actual corporate value structures and norms of conduct are central to this approach. These value structures are usually defined in terms of organizational culture and climate.

Initial studies describing the deliberate actions taken to effect ethical conduct in organizations uncovered the factors that lead organizations to control ethical behavior and the extent to which these ethical controls are embedded in actual organizational behavior. Beyond this, there is a large body of laboratory research in social psychology that has evaluated the social and individual predictors of factors such as helping behavior, obedience to authority, harassment, and prejudice. However, much less is known about the consequences of ethical controls in organizations, particularly with regard to their effect on organizational effectiveness and dysfunction in actual organizations. Paradoxically, this lack of evidence may result from the ethical difficulties associated with manipulation and control of antecedents of moral behavior in real-world settings.

EVIDENCE

Operationally, it is not clear whether social scientists and moral philosophers have taken different practical approaches to effecting ethical behavior despite their somewhat different conceptual approaches. Surveys show that more than 80% of U.S. corporations have formal ethical controls. These controls commonly include one or more of the following mechanisms: designation of ethics officers, formal codes of conduct, ethics committees and communication systems, training programs, and disciplinary processes. Descriptive research and research on the possible antecedents of ethical control systems strongly suggest that many controls result from compliance and conformity pressures rather than the organization's core values. That is, fears about lawsuits or bad publicity may be the motivating force behind ethical controls rather than attempts to infuse the organization with a broad commitment to ethical conduct. Top management's commitment to ethical controls, however, is predictive of the integration of formal ethical codes into organizational culture.

Still, treating ethics in a broad philosophical sense may have less influence on ethical behavior and outcomes than targeted approaches. In particular, evidence suggests that ethical codes of conduct by themselves have little effect on important outcomes, whereas targeted measures are likely to have some desired effects. Accountabilities in performance appraisals, guidelines for dealing with negotiations, regulations specific to particular types of unethical behaviors (e.g., harassment, discriminatory hiring), and similarly specific measures have been shown to relate to outcomes such as ethical breaches, ethical awareness, willingness to report violations, commitment to ethical conduct, advice seeking, and successful decision making and negotiating. Similarly, practices aimed at reducing particular types of unethical behaviors (e.g., discriminatory hiring, harassment, and stealing) have met with some success.

One way to distinguish among these organizational controls is to think of them in terms of whether they are aimed at *avoiding* ethical breaches through proactive mechanisms, such as awareness, commitment to ethical conduct, and establishing norms for advice seeking, or whether they seek to *manage responses* to breaches through reactive communication systems, reporting of violations to internal management, and so on. Organizations may benefit from

analysis of both proactive and reactive ethics policies and procedures.

In addition to these targeted approaches, the culture of the organization, its norms, and employee perceptions regarding fair treatment may support or hinder the effectiveness of formal codes of conduct. Although the evidence is scarce, it supports the notion that actual norms of conduct, organizational culture, perceptions of the fairness of organizational activities, and organizational climate all relate to the effectiveness of formal ethical codes. Not surprisingly, these actual aspects of corporate ethics have received more attention in the social scientific literature than in moral philosophical discussions.

It remains to be seen whether the differences in behavior associated with approaches to ethical conduct have any effect on organizations as a whole. The question here is whether “nice organizations finish last” or whether “virtue is its own reward.” This is a difficult question to answer given the conceptual and methodological challenges of studying ethics in organizations. Evidence about the fates of whistleblowers suggests that ethical breaches cost both the organizations that commit them and the people who report these breaches. This, in turn, suggests that managing to avoid ethical breaches may be more helpful than managing responses to them. Still, there is no direct evidence about the effects of ethical controls on the effectiveness of organizations, in terms not only of economic performance but also of the actual avoidance of dysfunction.

CULTURE AND ETHICAL CONDUCT

There is a growing awareness that corporate ethics is embedded within the broader cultural environment. It is important for decision makers to consider the reactions that are likely to arise from the blending of organizational codes and norms with the larger cultural environment, as broad cultural norms for what is and is not considered ethical conduct may not be the same as organizational norms and codes. For example, applying an existing corporate ethics code to a new international corporate office might prove problematic if the country hosting the new office has a very different basis for evaluating what is and is not ethical conduct.

SUMMARY

Whether organizations seek to define ethical conduct in a broad philosophical sense, describe current

ethical culture, effect change in specific ethical problems, or maintain an ethical culture and climate, it is sensible to consider all of these issues in both compliance and strategic discussions and practices. In particular, an awareness of actual ethical culture and climate is a useful starting place for enhancing organizational effectiveness.

—Robert G. Jones

See also Cross-Cultural Research Methods and Theory; Organizational Behavior; Organizational Culture; Organizational Justice

FURTHER READING

- Bell, M. P., Quick, J. C., & Cychota, C. S. (2002). Assessment and prevention of sexual harassment of employees: An applied guide to creating healthy organizations. *International Journal of Selection and Assessment, 10*, 160–167.
- Bolman, L. G., & Deal, T. E. (2005). The manager as politician. In *Management skills: A Jossey-Bass reader* (pp. 331–355). San Francisco: Jossey-Bass.
- Donaldson, T. (2003). Editor’s comments: Taking ethics seriously—A mission now more possible. *Academy of Management Review, 28*, 363–366.
- Lefkowitz, J. (2003). *Ethics and values in industrial-organizational psychology*. Mahwah, NJ: Lawrence Erlbaum.
- Phillips, R. (2003). *Stakeholder theory and organizational ethics*. San Francisco: Berrett-Koehler.
- Schein, E. H. (2004). Learning when and how to lie: A neglected aspect of organizational and occupational socialization. *Human Relations, 57*(3), 260–273.
- Trevino, L. K., & Weaver, G. R. (2003). *Managing ethics in business organizations: Social science perspectives*. Stanford, CA: Stanford Business Books.

CORPORATE SOCIAL RESPONSIBILITY

Questions about moral and political philosophy necessarily entail a consideration of political economy, which comprises two fundamental and overlapping concerns: the relationship between government and business and the relationship between business and society. It is the second relationship that has spawned the notion of *corporate social responsibility*—which comprises a firm’s actions in that regard, or its

corporate social performance, and the corporate social orientation of its managers—as well as much scholarship concerned with social issues in management and business and society. With some oversimplification, they can all be distilled into the question, what are the societal responsibilities of businesses?

Although answers to this question tend to fall into one of two strongly contrasting models, Archie B. Carroll's taxonomy of the four domains of economic, legal, ethical, and discretionary or philanthropic responsibility provides a more nuanced approach. According to this approach, a firm's economic duty is to operate efficiently and profitably and to maximize shareholder value. It should do so while complying with the law and avoiding harmful civil litigation, as well as acting in accord with societal, business, and industry moral norms and expectations or formal codes of conduct. It should also act to promote the overall welfare of society and avoid doing harm. (Partly in response to theoretical criticisms, in recent writings, Carroll has eliminated discretionary philanthropy as a separate category and emphasized the overlapping nature of the three remaining domains. Philanthropy is included within both the ethical domain, as it is often ethically motivated, and the economic domain, because it is sometimes strategically motivated.) The two competing views of the proper relationship between business and society are the classical minimalist model of free enterprise capitalism and the revisionist free enterprise framework, in which corporate social responsibility plays a prominent role.

CLASSICAL FREE ENTERPRISE MODEL OF BUSINESS

The minimalist conceptualization of business responsibility originated in the economics of Adam Smith and the political philosophy of John Locke and, more contemporaneously, in the writings of the economist and social theorist Milton Friedman. The intellectual and moral justifications used in the model include *natural rights theory*, *social contract theory*, *utilitarianism*, and *enlightened ethical egoism*. The model views the maximization of shareholder value as the only legitimate responsibility of the corporation—reflecting the social contractual and property rights of shareholders to come together exclusively for that purpose, with as little intrusion as possible from government—as long as it abides by the law and the basic ethical

precept of not infringing on the rights of others. Because maximizing shareholder value is accomplished by efficiently and productively creating goods or services, society benefits overall. Using Carroll's taxonomy, a public corporation is conceptualized as having economic responsibilities but few legal and ethical responsibilities because it is absolutely required by law or custom to accomplish its economic aims. There are no legitimate discretionary or philanthropic responsibilities, an orientation characterized by Tom Donaldson as one of *ethical indifference*. (The owners of privately held companies are, however, free within this perspective to “foolishly” take on whatever social responsibilities they may choose.)

CRITIQUE OF THE CLASSICAL MODEL

Joel Lefkowitz summarized the four major scholarly criticisms of the minimalist model of business: (a) the tenuous justification for and moral deficiency of libertarian natural rights theory, which fails to acknowledge concepts that many believe are integral to the concept of morality—positive obligations and duties, beneficence, and justice; (b) the limited nature of property rights; (c) the unproven assumption that shareholders desire only short-term profit maximization; and (d) flaws in the application of utilitarianism (i.e., maximization of the overall net good for society) as a moral justification for free markets—for example, the absence of any perfect free markets and the restricted economic definition of what is “good.”

REVISIONIST FREE ENTERPRISE MODEL INCLUDING CORPORATE SOCIAL RESPONSIBILITY

According to Adolf A. Berle, Jr., and others, an upheaval took place during the second quarter of the 20th century, during which time corporations grew enormously, stock ownership became more widespread (hence diffuse), and shareholders became more separated from those who ran the firms. Management became more autonomous and powerful, with greater discretionary latitude. Opinion leaders such as U.S. Supreme Court Justice Louis Brandeis and social scientist Talcott Parsons advanced the notion that the occupation of the manager had become professionalized. One of the important distinctions between a profession and an occupation is that a profession has a putative concern for and sense of responsibility not

just to the paying customer or client but also to society at large. This enlightened concern for the well-being of society began to infuse conceptions of the role of manager and provided a basis for construing a sense of duty beyond that of profit maximization on behalf of shareholders—that is, corporate social responsibility.

The general rationale for corporate social responsibility is that, from a moral perspective, the modern corporation's power to do great good or great harm necessitates that it consider all of its direct and indirect effects on society. In addition, corporations are granted certain benefits by the state, such as limited liability for its owners and managers; indeed, as a legal entity, the corporation's very existence is created by the state. Corporations are also granted benefits by the communities in which they reside, such as clean air, police and fire protection, and transportation infrastructure. Therefore, they accrue reciprocal obligations to contribute to overall well-being. The classical business model applied social contract theory from political philosophy to the economic world of business to justify the voluntary association of shareholders to advance their profit motives. The revisionist model extends it further as the moral basis for the corporation's existence and the means of understanding its relationship to society. Two themes are apparent: As major institutions of society, organizations have a responsibility to (a) do good and contribute to the solutions of societal problems; and (b) take into account the interests of their many constituencies—those who are affected directly and indirectly by their actions—that is, their *stakeholders*. In other words, organizations are conceived as “citizens,” and good corporate citizenship may be displayed by implementing constructive corporate social performance and by engaging in proactive activities, such as enlisting in the United Nations Global Compact. The UN Global Compact is a voluntary enterprise that seeks to promote 10 principles of human rights, labor standards, environmental protection, and anticorruption initiatives for businesses (and other organizations) on a global scale.

Multiple Stakeholder Theory

Although it is marked by some definitional and theoretical difficulties, *stakeholder theory* is probably the most well-known version of the corporate social responsibility model. A stakeholder is generally

defined as any person, group, organization, or institution that can influence the focal organization or be affected by it, either directly or indirectly. Some constituencies are stakeholders by virtue of the organization's moral obligation to them, others because their strategic impact on the organization (and hence its other stakeholders) must be considered by the organization's decision makers. Each constituency—employees, customers, shareholders, the public, the media—may have a different stake in the organization, and the basic notion is that ethical and effective management of the organization entails recognizing and working with the legitimate, multiple, and often conflicting interests of different stakeholders. That approach is often referred to as a *strategic stakeholder approach to management*. The explicit concern for the interests and well-being of all stakeholders, including but not limited to the profit-maximizing objectives of shareholders, is what renders stakeholder theory moral in nature. As ethicist Wesley Cragg explained, corporations may be private entities, but they do have responsibilities to the public—they are accountable to multiple constituencies.

It has been observed, most notably by Donaldson and Preston, that there are three different kinds (or levels) of stakeholder theory that require different sorts of justifications. *Descriptive stakeholder theory* is the least controversial. Many, if not most, management scholars accept the empirical evidence supporting the conclusion that managers are sensitive to the interests of multiple constituencies and try to take them into account in decision making. *Strategic* or *instrumental stakeholder theory* concerns functional relationships regarding the consequences of behaving in that manner. It is eminently sensible to believe that managers would be wise to attend to all those who might affect the success of the firm. However, the evidence is insufficient and too equivocal to conclude that long-term organizational survival and effectiveness is significantly enhanced by explicit stakeholder management. *Normative stakeholder theory* holds that such an approach is a moral imperative—that organizations ought to be managed in that fashion. This is the level at which competing moral justifications for exclusive shareholder wealth maximization versus the multiple stakeholder model take place. The multiple stakeholder view is supported by the arguments summarized previously as well as by the meta-ethical principle of *universalism*, which holds that no one's (or no group's) interests take precedence over anyone

else's unless they are reasonably justified. Opponents hold that is precisely the point—that managers have a special fiduciary relationship to shareholders that gives the latter a superordinate moral status over other stakeholders.

CRITIQUES OF CORPORATE SOCIAL RESPONSIBILITY

There are several additional points of contention to consider:

- *Organizations cannot have moral responsibilities.* This view, articulated by business ethicist Manuel Velasquez, is not merely that organizations are not morally responsible or should not be held to have moral responsibilities but that they *cannot* be morally responsible because they lack the prerequisite attributes. Notwithstanding that the law, for some purposes, treats a corporation as an “artificial person” (e.g., it can sue and be sued), it is not a real individual entity with causal powers and intentionality. It is the presence of conscious, unified beliefs, motives, and intentions that permits an entity to be a moral agent. As Velasquez points out, the actions that we impute to a company are brought about by individuals, not by some metaphysical entity; when we attribute goals and intentions to a company, it is merely a metaphorical “as if” intentionality. From the perspective of corporate social responsibility and performance, even if this is true, it may be of no practical significance: Corporate social responsibility can simply be understood as pertaining specifically to the responsibilities and actions of organizational decision makers.

- *Vagueness and lack of clarity.* Both corporate social responsibility and stakeholder theory have been characterized as theoretically imprecise and operationally (i.e., pragmatically) indefinite. For example, there is some disagreement concerning the definition of who is a stakeholder, and distinctions have been made between primary and secondary stakeholders and moral versus derivative stakeholders. Most important for stakeholder theory, very little prescriptive advice or empirical evidence is available to guide the appropriate balance of multiple stakeholder interests. Are all stakeholders' interests to be considered equal? If not, what are the criteria for treating them equitably? What do we even mean by an *appropriate* balance? How should it actually work in practice? Similarly, what actions qualify as being socially

responsible? And how many of them are necessary to demonstrate adequate responsibility?

- *The relationship between corporate social performance and organizational effectiveness.* Because the outcome of the moral debate between the classic shareholder wealth maximization model and the revisionist corporate social responsibility model is largely indeterminate, attention has been paid at the instrumental level to whether the latter might actually contribute to the former (i.e., whether it pays, in terms of corporate financial performance, for an organization to behave in socially responsible ways). A great deal of empirical research has been conducted to address this issue. The good news is that reviews, including meta-analyses, of those studies support the view not only that there is a positive relationship between corporate social responsibility and financial performance but that it is a *causal* relationship from the former to the latter. But if one believes that the most important justification for the corporate social responsibility model is normative (i.e., moral) rather than strategic, then the bad news is that we are running the risk of reducing corporate social responsibility to merely another profit-maximizing strategy.

—Joel Lefkowitz

See also Ethics in Industrial/Organizational Practice; Ethics in Industrial/Organizational Research

FURTHER READING

- Berle, A. A., Jr. (1954). *The 20th century capitalist revolution*. New York: Harcourt, Brace.
- Carroll, A. B. (1999). Corporate social responsibility: Evolution of a definitional construct. *Business and Society*, 38, 268–295.
- Donaldson, T. (1982). *Corporations and morality*. Englewood Cliffs, NJ: Prentice Hall.
- Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, 20, 65–91.
- Friedman, M. (1970, September 13). The social responsibility of business is to increase its profits. *New York Times Magazine*, pp. 32–33, 122, 124, 126.
- Lefkowitz, J. (2003). *Ethics and values in industrial-organizational psychology*. Mahwah, NJ: Lawrence Erlbaum.
- Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate social and financial performance: A meta-analysis. *Organization Studies*, 24(3), 403–441.

Schwartz, M. S., & Carroll, A. B. (2003). Corporate social responsibility: A three-domain approach. *Business Ethics Quarterly*, 13(4), 503–530.

COUNTERPRODUCTIVE WORK BEHAVIORS

The term *counterproductive work behavior* (CWB) refers to a range of volitional acts at work that harm or intend to harm organizations and their stakeholders (clients, coworkers, customers, and supervisors). Such behaviors may be aimed at harming the organization (organizational deviance, or CWB-O), or they may be aimed at harming individual stakeholders inside or outside the organization (interpersonal deviance, or CWB-I). These behaviors range from relatively minor acts, such as purposefully doing work incorrectly or giving a coworker a dirty look, to severe acts, such as stealing expensive company property or physically assaulting a coworker. Other examples include threatening others, sabotaging equipment, committing physical assault, making offensive remarks, overreporting hours worked, isolating an individual so that he or she has difficulty working, stealing from the company, putting forth only minimal effort to avoid being fired, giving someone the “silent treatment,” failing to transmit information, and making obscene gestures.

Because of the importance of this topic to organizations and employees, researchers have devoted considerable attention to understanding the nature of CWB, its antecedents, and its consequences. Indeed, a variety of constructs that capture an array of counterproductive actions at work have been proposed. Here, the reader will be provided with an overview of CWB, including an understanding of the current debates that surround its definition, and a brief review of the antecedents and consequences associated with CWB.

DEFINITIONAL FEATURES AND CONTROVERSIES

There are two common ways in which the term *counterproductive work behaviors* is used: (a) as an umbrella term that summarizes a variety of related constructs and refers to a wide spectrum of negative acts at work; and (b) as a unique construct with definitional features that make it distinct from similar

constructs in the literature. Each of these perspectives will be reviewed in turn.

CWB as an Umbrella Term

Books and special issues of journals have used *counterproductive work behaviors* as an umbrella term to describe most negative actions that employees enact at work, which typically have negative consequences for their targets and for the organization. Other labels that describe the “dark side of the workplace” include workplace aggression, deviance, retaliatory behaviors, revenge, organizational misbehavior, violence, bullying, mobbing, harassment, emotional abuse, social undermining, incivility, abusive supervision, and petty tyranny.

Although there are distinctions among these terms that may warrant treating them as separate constructs, there is also a great deal of conceptual, empirical, and practical overlap. Measures of these constructs are often so highly overlapping that the items are nearly identical across scales. Moreover, a single negative act at work—for example, spreading a rumor about a coworker—may be labeled as an instance of CWB, aggression, deviance, revenge, bullying, incivility, and so forth. There are also cases in which constructs have distinct definitions, yet their measurement does not reflect all definitional characteristics (e.g., not measuring norm violations for deviance, not measuring intent for aggression). Thus, although these acts are conceptually distinct, the measurement of the constructs often makes them empirically identical. For these and other reasons, researchers argue that it is most parsimonious to use umbrella terms (such as CWB) to refer to this class of negative behaviors at work. However, this remains a controversial topic, and at least two other umbrella terms are used frequently in the organizational literature—*workplace aggression* and *workplace deviance*.

CWB as a Specific, Unique Construct

The term *counterproductive work behaviors* is also used to refer to a specific, unique construct that is distinct from similar constructs in the literature. Some scholars argue that CWB should *not* be used as an umbrella term that encompasses all negative acts at work because it does not encompass all of the dimensions on which negative acts at work may vary. These dimensions include the nature of the target

(i.e., individuals/organizations, organizational insiders/outside), the nature of the behavior (i.e., low severity/high severity/full range), the nature of the actor (i.e., organizational members/outside, supervisors/coworkers), the motive for the behavior (i.e., intent to harm/no intent/ambiguous intent, intent to restore justice), the violation of norms (i.e., required/not required, types of norms violated), the duration of the behavior (i.e., episodic/sustained over time), the outcomes of the behavior (i.e., negative outcomes/positive and negative outcomes), and the power differential between the actor and the target (i.e., required/not required, formal/informal bases of power).

As a specific, unique construct that is definitionally distinct from others, CWB refers to the full range (low severity to high severity) of negative actions enacted by organizational members, targeted toward organizational insiders or outsiders, that are either enacted with the intent to harm the target or intentional (nonaccidental). It is not necessary that any organizational or societal norms be violated, the acts need not be sustained across time, and there need not be any power differential between actors and targets. The term CWB implies negative consequences for individuals, the organization, or both, although this is a source of contention among scholars who argue that deviant acts, retaliation, or revenge may be productive and lead to positive outcomes. In summary, CWB may be used as an umbrella term that encompasses most negative acts performed by organizational members, yet it does not reflect all of the features of related constructs, and thus its usage as an overarching construct is still being debated.

ANTECEDENTS AND CONSEQUENCES OF COUNTERPRODUCTIVE WORK BEHAVIORS

Empirical research on CWB and related constructs (i.e., CWB as an umbrella term) has examined two distinct issues: (a) predictors of CWB and (b) outcomes of being the target of CWB-I. Regarding antecedents, CWB has been linked with several situational factors, including job-related stressors, organizational injustice, prior experiences of CWB, and group norms. Individual factors associated with enacting CWB include dispositional hostility, negative emotion, type A personality, impulsiveness, and substance or alcohol abuse. The second stream of research on the outcomes of experiencing CWB-I recognizes that CWBs are stressors for targets, and

stressors have psychological, health, and behavioral outcomes. Psychological outcomes include depression, anxiety, frustration, emotional exhaustion, poor psychological well-being, low life satisfaction, low job satisfaction, low organizational commitment, low job involvement, and perceptions of injustice. Health outcomes include somatic complaints and low health satisfaction. Finally, behavioral outcomes include enacting further CWBs, experiencing work–family conflict, and abusing alcohol or substances. In summary, this research demonstrates that both individual and situational predictors are important in the enactment of CWB and that experiencing CWB-I is associated with a range of negative psychological, health, and behavioral outcomes.

—Jana L. Raver

See also Abusive Supervision; Counterproductive Work Behaviors, Interpersonal Deviance; Counterproductive Work Behaviors, Organizational Deviance; Organizational Retaliatory Behavior; Workplace Incivility

FURTHER READING

- Einarsen, S., Hoel, H., Zapf, D., & Cooper, C. L. (Eds.). (2003). *Bullying and emotional abuse in the workplace: International perspectives in research and practice*. New York: Taylor & Francis.
- Fox, S., & Spector, P. E. (2005). *Counterproductive work behavior: Investigations of actors and targets*. Washington, DC: American Psychological Association.
- Giocalone, R. A., & Greenberg, J. (1996). *Antisocial behavior in organizations*. Thousand Oaks, CA: Sage.
- Kidwell, R. E., Jr., & Martin, C. L. (2005). *Managing organizational deviance*. Thousand Oaks, CA: Sage.
- VandenBos, G. R., & Bulatao, E. Q. (1996). *Violence on the job: Identifying risks and developing solutions*. Washington, DC: American Psychological Association.

COUNTERPRODUCTIVE WORK BEHAVIORS, INTERPERSONAL DEVIANCE

Counterproductive work behavior (CWB) is any behavior that is intended to harm an organization or its members. Common types of CWB include theft, sabotage, aggression toward others, and spreading rumors. Behavior on the part of employees that is

intended to directly harm the organization, such as theft or sabotage, is commonly referred to as *organizational deviance* (CWB-O). On the other hand, behavior by employees that is intended to harm fellow employees, such as spreading rumors, harassment, violence, bullying, favoritism, gossip, blaming, and aggression, is referred to as *interpersonal deviance* (CWB-I). Researchers have used different terms to refer to such behaviors and to CWB in general, including abuse, aggression, bullying, deviance, retaliation, and revenge. On the surface, there are similarities between CWB-I and CWB-O, but empirical research has found that they are different.

WHY STUDY CWB-I

One important reason to study CWB-I is the negative effect it has on employees. The National Institute of Occupational Safety and Health found that approximately 20 employees are murdered and 18,000 are assaulted at work each week in the United States. Although most of these incidents are the result of robberies, some of them, particularly the nonfatal ones, are the result of aggression in the workplace. Incidents of aggression can cost employees money in medical bills and time lost from the job. Furthermore, even employees who are not the direct victims of such attacks may feel unsafe at work. This can have direct implications on job performance and absenteeism. Instances of CWB-I such as bullying, interpersonal violence, and harassment (including sexual harassment) cost organizations millions of dollars each year in lost work time, reduced job effectiveness, and lawsuits.

MEASURING CWB-I

A number of behavioral scales have been developed to measure the prevalence and seriousness of CWB. All are checklists that ask employees to indicate how often they have engaged in certain behaviors at work. One of the most popular scales is Sandra Robinson and Rebecca Bennett's Typology of Deviant Workplace Behavior. This scale divides CWB along two continuums, *organizational/personal* (CWB-O/CWB-I) and *minor/serious*. The organizational/personal continuum refers to the target of the behavior—the organization or other individuals working in the organization. The minor/serious continuum refers to how severe the consequences are. This scale allows us to

classify CWB within four quadrants: minor acts directed toward the organization, serious acts directed toward the organization, minor acts directed toward individuals, and serious acts directed toward individuals. Minor acts directed toward individuals might include showing favoritism, gossiping, blaming coworkers, and competing nonbeneficially. On the other hand, serious acts directed toward individuals might include verbal abuse, stealing from coworkers, and endangering coworkers. This scale and others similar to it allow us to investigate the antecedents of each type of CWB.

ANTECEDENTS OF CWB

Behavior is often considered a product of the person and the environment, and CWB-I is no exception: Employees commit CWB because of a complex web of personal and situational antecedents. Characteristics of the person, such as demographics and personality, and the work environment, such as the nature of work and relationships with others, combine to affect a person's behavior.

Environmental Antecedents of CWB-I

One important model, the *frustration aggression model* of CWB, is based on the classic frustration aggression theory. This model of CWB states that when employees experience frustrating events at work, they have an emotional response to the events. This emotional response often leads employees to behave in a way in which they can vent these emotions. This behavior may take the form of CWB. Thus, affective responses mediate the relationship between frustration and CWB. This model also hypothesizes that certain person characteristics, such as a sense of control, anxiety, and anger, affect this hypothesized relationship. Specifically, individuals who do not believe that they have a great amount of control over their environment and feel a sufficient amount of anger report higher levels of frustration and, in turn, often commit more acts of CWB. Additionally, an employee's perception of the likelihood of punishment is important. Employees who do not expect to be caught and punished are more likely to engage in CWB.

The *job stress model* of CWB builds on the frustration aggression model by focusing on different types of stressors rather than frustrating events. It

hypothesizes that stressful job conditions such as work constraints (things at work that interfere with completing job tasks, such as faulty equipment or insufficient training) or work overload (too much to do at work) lead to an emotional reaction, such as anger or anxiety. These reactions, in turn, lead to job strain, which includes both physiological reactions (e.g., increased blood pressure) and behavior intended to cope with the stressors. Sometimes, these behaviors are attempts to overcome the stressors in a productive way, such as by seeking help from a coworker or supervisor when there is insufficient time to complete a task. Other times, the response is a form of CWB, which may not solve the problem but may make the person feel better by venting his or her anger or other feelings.

Researchers have found support for the idea that negative emotions such as anger, guilt, nervousness, and fear do, in fact, mediate the relationship between stressors (job constraints and interpersonal conflict) and CWB-I. Therefore, individuals who perceive job constraints or have conflicts with others respond to these situations with negative emotions and, in turn, commit more acts of CWB-I. The job stress model also hypothesizes that a number of other variables influence the relationship between stressors and CWB. Specifically, researchers have found that the personality characteristics of trait anger (the tendency to respond to situations with anger) and trait anxiety (the tendency to respond to situations with anxiety) interact with job stressors to predict CWB-I. This means that employees who are high on trait anger and trait anxiety are more likely to respond to job stressors with CWB-I.

Although employees' stress levels and feelings of frustration play an important role in predicting whether they will commit acts of CWB, other researchers have focused on the role of justice. *Justice theories* of CWB state that employees who are not treated fairly are likely to engage in CWB. Researchers have identified two major types of justice, distributive and procedural. *Distributive justice* refers to employees' perceptions of whether rewards and punishments are distributed equitably within the organization. For example, do all individuals in the same position with the same length of tenure receive the same pay? *Procedural justice* refers to whether individual members of an organization view the policies and procedures by which rewards are allocated as fair. Although it seems intuitive that injustice would predict CWB-O—employees who feel they have been

treated unfairly would be likely to strike back at the organization—it has also been found to predict CWB-I. For example, the perceived level of procedural justice within an organization is related to the prevalence of CWB-I. Specifically, employees who perceive low levels of procedural justice within their organization tend to engage in more CWB against their fellow employees. An employee's emotions play a role in this relationship as well. Specifically, negative emotions mediate the relationship between procedural justice and CWB-I. Therefore, when employees perceive that procedures within their organizations are unfair, they tend to respond to this perceived unfairness with negative emotions, committing more acts of CWB-I.

Justice theories and stress or frustration theories are not mutually exclusive. Rather, empirical research has found that there are links between these theories and that both play important roles in predicting CWB-I within organizations.

Personal Antecedents of CWB-I

Researchers have found a number of personal antecedents of CWB in general and of CWB-I in particular. For example, employees who are high in trait anger and trait anxiety, hold strong attitudes toward revenge, are impulsive (have little self-control), and have been exposed to aggressive cultures are more likely to behave aggressively toward others in the workplace. Additionally, self-control moderates the relationship between anger and workplace aggression, such that individuals who experience greater amounts of anger and have less self-control are more likely to commit CWB-I.

Another line of research has examined the targets of CWB-I. One study found that employees who had a history of aggression and consumed alcoholic beverages were more likely to display aggression toward their coworkers. Additionally, the amount of alcohol an employee consumes interacts with his or her perceptions of procedural justice to predict aggression against a coworker or a subordinate. Specifically, employees who perceive low levels of procedural justice and consume alcohol are most likely to commit acts of aggression against their coworkers and subordinates.

WAYS TO REDUCE CWB-I AT WORK

Research has identified a number of antecedents of CWB, and it seems logical that paying careful attention

to these antecedents might reduce to the amount of CWB-I within organizations. One particularly important antecedent is procedural justice. Organizations should pay careful attention to the procedures they use to distribute rewards, such as pay increases, and ensure that policies affecting employees are seen as fair. This does not mean that every employee must receive the same salary or rewards but that, where there are differences, the reasons are based on a process that is considered fair. For example, pay based on sales commissions will typically result in pay differences, but employees often accept such systems as being fair. Maintaining procedural justice can help reduce the prevalence of CWB-I within an organization.

A second area of concern is workplace stressors, which can lead to CWB-I. For example, organizations should take steps to minimize organizational constraints by ensuring that employees have the materials and support they need to complete their jobs. This not only will result in better job performance (because constraints interfere with an employee's ability to do the job effectively) but also may reduce CWB-I. Furthermore, organizations should do what they can to minimize interpersonal conflict among employees. This can be accomplished by implementing policies and procedures concerning appropriate professional conduct at work and by training supervisors to handle and mediate conflicts between and with subordinates.

Although organizations should focus on preventing current employees from engaging in CWB-I, it is also important to consider CWB-I when hiring new employees, as some individuals are more likely to commit CWB-I than others. Specifically, individuals who have a record of poor or violent relationships with other employees and supervisors in the past and have poor self-control are more likely to commit acts of CWB-I. Additionally, empirical research suggests that certain types of screening tools, such as integrity tests, can be useful in predicting whether potential employees are likely to engage in CWB while on the job. Research has found such tests useful for predicting CWB overall, not just CWB-I.

SUMMARY

CWB-I is defined as behavior by an employee that is intended to harm his or her fellow employees. Examples of CWB-I include spreading rumors, harassment, violence, bullying, favoritism, gossip,

blaming, and aggression. It is important to study CWB-I because it negatively affects a large number of employees, as well as organizations, each year. The literature has identified a number of situational antecedents of CWB, including justice and job stressors. Additionally, a number of personal antecedents, such as self-control, trait anger, and trait anxiety, predict CWB-I.

—Stacey R. Kessler and Paul E. Spector

See also Counterproductive Work Behaviors; Counterproductive Work Behaviors, Organizational Deviance

FURTHER READING

- Hogan, J., & Hogan, R. (1989). How to measure employee reliability. *Journal of Applied Psychology, 74*, 273–279.
- Ones, D. S., Viswesvaran, C., & Schmidt, F. L. (1993). Comprehensive meta-analysis of integrity test validities: Findings and implications for personnel selection and theories of job performance. *Journal of Applied Psychology, 78*, 679–703.
- Robinson, S. L., & Bennett, R. J. (1995). A typology of deviant workplace behaviors: A multidimensional scaling study. *Academy of Management Journal, 38*, 555–572.
- Sackett, P. R., & DeVore, C. J. (2001). Counterproductive behaviors at work. In N. Anderson, D. Ones, H. Sinangil, & C. Viswesvaran (Eds.), *Handbook of industrial, work, and organizational psychology: Vol. 1. Personnel psychology* (pp. 145–164). Thousand Oaks, CA: Sage.
- Skarlicki, D. P., & Folger, R. (1997). Retaliation in the workplace: The roles of distributive, procedural, and interactional justice. *Journal of Applied Psychology, 82*, 434–443.
- Spector, P. E., & Fox, S. (2005). A model of counterproductive work behavior. In S. Fox & P. E. Spector (Eds.), *Counterproductive workplace behavior: Investigations of actors and targets* (pp. 151–174). Washington, DC: American Psychological Association.

COUNTERPRODUCTIVE WORK BEHAVIORS, ORGANIZATIONAL DEVIANCE

Counterproductive work behavior (CWB) refers to voluntary work behaviors that hurt or are intended to hurt the organization or its members. It includes acts

with potential harm, such as theft, physical aggression, and sloppy work. These behaviors are voluntary in the sense that they go beyond task performance, and their occurrence, form, and intensity is under the discretion of the individual. Some CWB is directed toward individuals in the organization (interpersonal deviance, or CWB-I); such behavior includes acts such as verbal assault, aggression, and spreading rumors. On the other hand, some CWB is directed toward the organization (organizational deviance, or CWB-O); such behavior includes acts such as theft, sabotage, work slowdowns, and withdrawal.

Like other types of harmful behaviors, CWB-O has drawn considerable attention among academicians and practitioners because it has many negative consequences for organizations and employees. Theft alone costs American organizations \$10 billion to \$200 billion annually. Additional losses are incurred from damage caused by sabotage and lower productivity (taking long breaks, wasting resources), which is difficult to quantify in dollar terms. Furthermore, CWB-O leads to an unsafe and insecure environment, which has adverse effects on the performance and well-being of the employees. Continuous occurrence of CWB-O may create a culture in which CWB-O can be more easily justified and committed more often by far more individuals.

MAIN CATEGORIES OF CWB

In terms of counterproductive work behavior, employees have a repertoire of acts to inflict harm. Although there are many ways to categorize CWB, the most popular taxonomy categorizes behaviors according to their target. Threats and abuse of others target people (e.g., coworkers), whereas work avoidance and sabotage target the organization. Overt acts such as theft may target both.

Sandra Robinson and Rebecca Bennett's Typology of Deviant Workplace Behavior classifies CWB, referred to as deviance, into two dimensions—interpersonal/organizational and minor/serious—producing four types of behaviors. Both interpersonal and organizational deviance may vary according to the severity of the acts. *Production deviance* concerns minor acts of violating organizational norms regarding the quantity and quality of work performed (e.g., being late or putting in little effort). *Property deviance* concerns serious acts of acquiring or damaging property belonging to one's employer (e.g., theft or

sabotage). Behaviors may include active or passive acts. Active behavior is immediately directed at a target (e.g., using a hammer to smash a piece of equipment). However, such overt harmful behaviors are visible and likely to be punished. Therefore, passive and indirect behavior (e.g., avoiding work) is more common.

ANTECEDENTS OF CWB

Like any human behavior, CWB is an outcome of the interaction between the environment and the characteristics of the individual. Both environmental and personal factors contribute to the occurrence and type of CWB. In most voluntary work behavior theories, an undesirable condition or event is present in the environment (e.g., injustice). People engage in cognitive appraisal and evaluate the situation. Then, they decide how to respond and may commit some type of CWB (e.g., theft or doing the work incorrectly). Personality plays a role in the way people perceive the environment and how they react. Therefore, the combination of certain environmental conditions and certain personality characteristics increases the likelihood of CWB.

Environmental Antecedents of CWB-O

The workplace environment consists of both the physical environment and the social or organizational context. In general, negative and stressful experiences, such as abusive supervision, problematic leadership, or incivility, lead to CWB-O.

One important antecedent of CWB-O is organizational constraints, or conditions that inhibit task performance (e.g., insufficient information or insufficient tools). When employees perceive constraints and cannot perform their jobs, they sometimes react by engaging in minor forms of CWB-O, sabotage, and withdrawal.

Negative situations may arise from the roles that employees play within the organization. *Role conflict* involves simultaneous demands that interfere with one another and make it difficult to carry out the job. *Role ambiguity* refers to the extent to which an individual is uncertain about what is expected from him or her. Both role stressors are related to tension and anxiety and increase the likelihood of CWB-O (e.g., sabotage and theft).

Justice, or the perceived fairness in the organization, is one of the most important antecedents of

CWB-O. Employees pay attention to how fairly rewards and punishments are distributed (distributive justice), how fair the policies and procedures are (procedural justice), and how well they are treated by their supervisors and management (interactional justice). When employees feel that they are being treated unfairly by the organization, they engage in more CWB-O. Moreover, the failure to explain a perceived injustice leads to an increase in theft and withdrawal.

Disagreements that employees have with other individuals in the organization are also associated with CWB-O. Employees may experience interpersonal conflict with their supervisors or with their coworkers. Although conflict seems to be interpersonal in nature, research has shown that conflict leads consistently to CWB against the organization.

Control is an important factor influencing CWB-O because it is related to one's ability to cope with threats and demands from the environment. When people perceive control over situations, they are less likely to engage in destructive acts and behave constructively. *Autonomy* refers to the control one has over decisions regarding work methods and scheduling. Employees who have more autonomy perceive more control and engage in fewer organizational forms of CWB.

When choosing their acts (e.g., CWB-O), employees also consider the psychological contract, which is the employee's belief that certain commitments and obligations exist between him or her and the employer. Such a contract concerns what is expected of the employee (e.g., attendance) and what the employee receives in return (e.g., salary). Any violation of the psychological contract by the organization is detrimental to the relationship between the employee and the organization and increases the likelihood of CWB-O.

Personal Antecedents of CWB-O

Individual characteristics affect the way employees behave in the workplace. In general, personal factors that increase or fail to diminish the effects of negative experiences may lead to CWB-O. The relevant personality characteristics are linked to experiencing emotions or to control of the environment or the self.

One important antecedent of CWB-O is trait anger, which refers to the dispositional tendency to perceive a wide range of situations as anger provoking. Employees who are high in trait anger react to undesirable situations more impulsively and with a greater

degree of anger. As a result, they are more likely to commit destructive acts and CWB-O.

Some individuals have a tendency to experience negative emotions across time and situations (negative affectivity). To the extent that employees perceive situations in the workplace in negative terms, they are more likely to engage in CWB-O. Additionally, individuals who are high in trait anxiety tend to perceive stressful situations as dangerous and threatening, so they have more frequent and intense negative emotional responses. Therefore, trait anxiety is associated with high levels of CWB-O.

Organization deviance may result from personality dispositions related to the lack or insufficiency of control. Self-control is the propensity to avoid acts whose long-term costs exceed momentary gains. People who have self-control are more successful in dealing with negative events in their environment. They can fine-tune their responses and avoid impulsive harmful behaviors. Therefore, the lack of self-control leads to CWB-O.

Another antecedent of CWB-O is locus of control, which refers to the tendency to attribute the causes of outcomes to either internal factors (the person) or external factors (the environment). People who believe that events happen because of factors that are outside their control are more likely to blame others (e.g., the organization) and commit CWB-O.

CWB MODELS AND THEORIES

In the CWB literature, there are different explanations and models explaining why people engage in CWB-O. At the core of most models, emotions and cognitions play important roles. In other words, the likelihood, the extent, and the form of CWB-O are influenced by how people feel and what people think. There are some overlaps between models, but each taps into different aspects of human nature and the environment.

According to the *emotion-centered stress model*, employees have to deal with many workplace stressors, which involve stressful events or situations (constraints on performance, role stressors, conflict, and injustice). When employees face stressors, they experience negative emotions (e.g., anxiety or hostility) and are more likely to engage in harmful behaviors, including CWB-O. The central role of emotions is to mediate the effects of environmental conditions on behavior. Job stressors (e.g., unfair treatment by the

organization) lead to negative emotions (e.g., anger), which then result in some type of CWB.

The *frustration-aggression model* holds that in the workplace, certain undesirable events (e.g., constraints) interfere with employees' goal attainment and therefore lead to frustration. When employees are frustrated, they try to overcome their negative feelings by committing some form of aggression, which may be directed toward people (CWB-I), inanimate objects, or the organization (CWB-O). When the frustration is caused by some organizational factor, people are likely to direct their CWB toward the organization. Moreover, frustration leads to more harmful behaviors when people believe punishment is unlikely.

Deviance in the organizational setting refers to violations of organizational norms, which exist for the well-being of the organization and are prescribed by formal and informal organizational policies and rules. According to Sandra Robinson and Rebecca Bennett's *deviant behavior model*, deviant employees either lack the motivation to conform to the expectations of the social context or become motivated to violate those expectations. Thus, CWB-O is considered a form of organizational deviance, which involves the violation of norms regarding the relationship between the employee and the organization. Production deviance involves the violation of corporate norms related to the creation of a product or provision of a service (e.g., putting in low effort), whereas property deviance violates norms related to maintaining and protecting property (e.g., sabotage or theft).

People perceive fairness when there is a balance between their contributions and the rewards they receive. According to Daniel Skarlicki and Robert Folger's *organizational justice theory*, people commit CWB to retaliate for an injustice by the organization. An employee who attributes responsibility for the injustice to the organization may engage in harmful behaviors to compensate for the wrongdoing and to "even the score." Although employees may retaliate when they perceive themselves as victims of unfair treatment by the organization, they also may react when they perceive others are being unfairly treated. In either case, the employee who sees injustice may experience anger and engage in CWB-O to retaliate against the organization.

PREVENTION AND CONTROL OF CWB-O

Our knowledge of the antecedents of CWB-O has led some researchers to develop practical solutions to

reduce it. Integrity tests, personnel screening, and preemployment testing can be used to identify applicants who are less prone to CWB, more conscientious, and self-controlled and therefore are less likely to engage in CWB. Organizations can avoid hiring applicants who have a history of aggression and show a personality pattern that is vulnerable to deviant behavior (high trait anger, negative affectivity, external locus of control, and lack of self-control).

Because injustice is one of the key antecedents of CWB-O, an organizational climate based on fair treatment is crucial. Employees should be treated with trust, respect, and dignity. In addition to providing adequate compensation, organizations should attempt to create and implement fair policies, rules, and procedures. Support for employees, employee assistance programs, and training in conflict management skills are also helpful. Furthermore, the organization should take steps to reduce job stress. Conditions and events (e.g., organizational change or salary cuts) that lead to negative cognitive and emotional responses should be taken into account in managerial actions. Moreover, such actions should be communicated to employees properly so that they understand the rationale and reasons for them. Other ways of reducing CWB-O include setting an example for employees, presenting role models, communicating a policy concerning counterproductive behavior, and consistently and fairly punishing unacceptable behavior (e.g., theft).

SUMMARY

Counterproductive work behaviors against the organization are voluntary acts that hurt the organization, such as theft, sabotage, or doing a job incorrectly. The presence of CWB-O has negative consequences for organizations (e.g., financial loss from theft) and for employees (e.g., poor well-being). Most research has focused on determining who is likely to engage in CWB and under which conditions. Such behavior is believed to result from a combination of personality factors (e.g., trait anger, trait anxiety, and low self-control) and environmental factors (e.g., constraints, injustice, and conflict).

—Ozgun B. Rodopman and Paul E. Spector

See also Counterproductive Work Behaviors; Counterproductive Work Behaviors, Interpersonal Deviance

FURTHER READING

- Fox, S., & Spector, P. E. (2005). *Counterproductive work behavior: Investigations of actors and targets*. Washington, DC: American Psychological Association.
- Fox, S., Spector, P. E., & Miles, D. (2001). Counterproductive work behavior (CWB) in response to job stressors and organizational justice: Some mediator and moderator tests for autonomy and emotions. *Journal of Vocational Behavior, 59*, 291–309.
- Giacalone, R. A., & Greenberg, J. (1997). *Antisocial behavior in organizations*. Thousand Oaks, CA: Sage.
- Neuman, J. H., & Baron, R. A. (1998). Workplace violence and workplace aggression: Evidence concerning specific forms, potential causes, and preferred targets. *Journal of Management, 24*, 391–419.
- Ones, D. S., Viswesvaran, C., & Schmidt, F. L. (1993). Comprehensive meta-analysis of integrity test validities: Findings and implications for personnel selection and theories of job performance. *Journal of Applied Psychology, 78*, 679–703.
- Robinson, S. L., & Bennett, R. J. (1995). A typology of deviant workplace behaviors: A multidimensional scaling study. *Academy of Management Journal, 38*, 555–572.
- Sackett, P. R., & DeVore, C. J. (2001). Counterproductive behaviors at work. In N. Anderson, D. S. Ones, H. K. Sinangil, & C. Viswesvaran (Eds.), *Handbook of industrial, work, and organizational psychology* (Vol. 1, pp. 145–164). Thousand Oaks, CA: Sage.
- Skarlicki, D. P., & Folger, R. (1997). Retaliation in the workplace: The roles of distributive, procedural, and interactional justice. *Journal of Applied Psychology, 82*, 434–443.

CREATIVITY AT WORK

Current definitions of creativity focus on the outcome, that is, an idea or product that is original as well as useful. However, early work in the area of creativity focused on the creative individual and creativity in the domains of art and science. Research during this early period was directed primarily at understanding major breakthroughs and paradigm shifts (also known as *big C creativity*). Current conceptualizations include minor creative acts involving incremental change and adaptation (known as *little c creativity*), suggesting that creativity can occur in almost any job. Models of creativity in organizations focus on individual antecedents of creativity, organizational or contextual

factors that hinder or facilitate individual creativity, and the interaction within and between the two.

INDIVIDUAL CREATIVITY

Early models of creativity focused on individual characteristics that facilitate creativity. Though different models may emphasize one element or set of elements, most agree on the key components that facilitate individual creativity: (a) cognitive processes, (b) domain-relevant knowledge and skills, (c) personality variables, and (d) motivational variables.

Cognitive Processes

Michael Mumford and his colleagues have identified several core cognitive processes that contribute to creative problem solving. *Problem construction*, or problem identification, is the first step in the creative problem-solving effort. Because problems that allow for creative solutions are ill defined, the problem-construction step is particularly important. Ill-defined problems, which are common in organizational settings, are those in which multiple goals and means of solving the problem are possible and multiple solutions exist that are possible and acceptable. This ambiguity facilitates creativity but also necessitates problem construction. The problem solver must first identify the important goals and information required to solve the problem, as well as any restrictions on the solution. Research on problem construction suggests that it is an effortful and time-consuming process and that engaging more actively in the problem-construction process results in more creative solutions.

After the problem has been defined, the problem solver must search for the *information* needed to solve the problem. This information may already be available to the problem solver, or it may need to be obtained from external sources. Once obtained, the problem solver must combine this information in new ways before a creative solution results. Research findings again indicate that the cognitive processes required for this step necessitate a large commitment of time and effort. In addition, the quantity and diversity of information available to the problem solver from this step may facilitate creativity, up to a point. Too much information, especially irrelevant information, will hinder creative performance.

A third core process that is necessary for creativity—and one of the most-researched cognitive

processes—is *idea generation*, which is typically measured using divergent-thinking tests. In organizations, idea generation is often called *brainstorming*. Much of the empirical work on divergent thinking and brainstorming has focused on fluency, or the number of ideas, as the main way to evaluate idea generation. However, it is clear that just having a large quantity of ideas is not necessarily related to having good or creative ideas. Research has shown that providing instructions on the goals of the idea generation focuses the attention of the problem solver on that goal, resulting in different outcomes based on the instructions. Instructions to be creative, flexible, or original increase the creativity, flexibility, and originality of the ideas generated, respectively. Instructions to focus on one goal at a time lead to more solutions but ones that only solve for that goal, whereas instructions to solve for two conflicting goals result in fewer solutions but more complex ones that attempt to solve both issues presented. Instructions seem to provide a way to evaluate ideas and therefore determine whether the ideas generated match what is needed. However, very little research has explored the idea-evaluation process specifically.

Finally, later phases of creative problem solving necessitate cognitive processes that facilitate *implementation planning* and *monitoring*. This includes the generation of contingency plans for the implementation of the idea and the monitoring of the actual implementation to make changes as necessary. Although both implementation planning and monitoring are cognitive in nature, the actual implementation and carrying out the changes needed because of monitoring involves more social processes, and therefore they are typically viewed as innovation (the implementation of a creative idea).

Domain-Relevant Skills and Knowledge

Creativity cannot occur in a vacuum. Studies have shown that domain-relevant knowledge is required for the generation of novel and useful ideas. An individual must have a foundation on which to develop a creative idea. However, it has been suggested that a high degree of expertise may lead to habitual performance, thereby hindering creativity. In addition, diverse information may be beneficial for creativity because it helps to break the rigidity of thinking that can result from too much knowledge in any given area.

Therefore, the ideal level of knowledge required for creativity is believed to fall somewhere between the novice and expert levels.

Personality

Research in this area has investigated the relationship between personality variables and creative performance. Openness to experience, a component of the five-factor model, has been most consistently linked to creative performance across domains. Creative individuals are often described as independent, persistent, introverted, curious, self-confident, driven, impulsive, and tolerant of ambiguity. In addition, several personality variables have been linked to creative performance in one domain but not another. For example, a meta-analysis reviewing studies on personality and creativity revealed that creative scientists tend to be more conscientious and closed-minded relative to noncreative scientists and creative artists, whereas creative artists tend to be more emotionally unstable and reject groups norms relative to both creative and noncreative scientists.

Attitudinal variables have received limited attention in creativity research; however, research that does exist suggests that they are important. Studies have shown that individuals who have a preference for ideation, value new ideas, and delay premature closure are able to generate more creative ideas. Attitudes toward creativity may provide the motivational force to apply the cognitive processes needed for creative performance.

Motivation

Theresa Amabile's seminal work on the effect of motivation on creativity suggests that intrinsic motivation is critical for creative performance. Providing rewards may hinder creativity by creating an extrinsic as opposed to an intrinsic motivation. However, current research suggests that not all external rewards have a negative impact. External rewards may provide informational or controlling cues. Informational cues let the individual know what is important and improve performance, and therefore they increase intrinsic motivation. Controlling cues focus the attention of the individual on the external reward and evaluation, thereby contributing to extrinsic motivation.

ORGANIZATIONAL CREATIVITY

Job and Team Characteristics

An important factor that distinguishes the study of creativity at work from other forms of creativity is the focus on context. Studies focusing on organizational factors suggest that complex jobs characterized by high levels of autonomy allow for more creativity. In addition, organizational creativity has more social and financial constraints than other environments in which creativity is studied. Because of the social and collaborative nature of creativity in organizations, group and leader effects have been the focus of research on creativity in this area.

Most teams in organizations comprise members with different expertise (i.e., cross-functional teams), which can both facilitate and hinder creativity. Research has suggested that teams that have a diversity of knowledge and skills but still share common goals are more creative. In addition, because information must be shared and the problem facing the team is ill defined (that is, there is no right or wrong solution), open communication that allows for disagreement and collaboration among group members is important. These factors point to the importance of team climate in facilitating creative performance. Teams and organizational climates that facilitate trust, open communication, risk taking, and support for creativity have been found to facilitate creative performance.

Leadership

Organizational leaders play an important role in creating the climate of the work group and the organization. Numerous studies have found that leaders who are supportive, provide informational (nonjudgmental) feedback, and involve employees tend to facilitate creativity. Transformational leaders have been found to facilitate creativity more than transactional leaders. In addition, leaders, as boundary spanners and gatekeepers, provide resources and remove obstacles. Leaders may facilitate creativity by providing team members with the time and financial resources necessary for creative performance. Leaders may also facilitate smooth information exchange with other organizational units. Another important role provided by leaders (although not exclusively) is that of role modeling. Research suggests that observing a creative role model may allow an observer to learn creativity-relevant skills and strategies and model how they

should be implemented. Finally, leaders may serve in the role of champion, supporting the efforts of both team members and other members of the organization.

OUTCOMES

Only limited empirical work has been conducted on the outcomes of creativity. Creativity and innovation typically serve as criteria of interest, not as predictors. Creativity has been linked to the implementation of innovative ideas and patents, to increased organizational flexibility and adaptability, and to organizational growth and increased profit. However, models of organizational creativity stress that much of the impact of creativity may not be realized in the short term and may actually hurt short-term performance. Specifically, factors that contribute to creativity may hurt day-to-day productivity. Not only do employees need to invest time and resources in the creative process, taking away from time and resources invested in current operations, but also the same factors that facilitate performance in routine tasks, such as structure, attention to detail, and conformity, can hinder creative performance.

FOSTERING CREATIVITY

Understanding what contributes to creativity allows us to determine what organizational policies and practices to enact to foster it. Much of the empirical work on enhancing and fostering creativity has focused on training. How training is structured and what content is taught is based, in part, on the framework used to understand creativity. Creativity training that focuses on cognitive processes—most notably, divergent thinking and brainstorming—has been found to be successful. In addition, creativity training directed at the attitudinal and motivational aspects that contribute to creative performance or the social interaction patterns that facilitate creativity has shown promising results. A meta-analysis of more than 70 studies of creativity training found that creativity training as a whole is effective, and training focusing on cognitive processes produces the best and most consistent results.

Surveys of organizational practices indicate that companies are using selection systems to identify creative talent prior to hiring; however, research on the efficacy of such practices is lagging. Other recommendations include redesigning organizations and

jobs to create more complex jobs in which employees have more autonomy and opportunity to show creative performance. Again, very little research has been conducted in this area. The use of rewards, either monetary or through performance appraisal, has also been suggested as a way to enhance creative performance. Rewards must be perceived as informational and not controlling in order to have the desired effect; however, the factors that contribute to the perception of rewards or performance appraisals as informational are not well delineated.

Organizational interventions designed to enhance creativity include improving the organizational culture and climate. Specifically, creating an environment that supports creativity by allowing for risk taking and openness and providing the resources necessary will foster creativity. Other organizational interventions include creating diverse, cross-functional teams and facilitating knowledge and information sharing through technologies such as knowledge management software. Virtual teams have been suggested as one way to facilitate creative performance because they may allow for greater diversity and acceptance of individuals from different backgrounds. Finally, leaders are viewed as an important facilitator of creativity at work. Finding or training an individual who can lead creative employees successfully will facilitate the creative performance of individuals and teams.

—Roni Reiter-Palmon and Jody J. Illies

See also Innovation

FURTHER READING

- Amabile, T. M. (1996). *Creativity in context: Update to the social psychology of creativity*. Boulder, CO: Westview Press.
- Basadur, M. (1997). Organizational development interventions for enhancing creativity in the workplace. *Journal of Creative Behavior, 31*, 59–72.
- Feist, G. J. (1998). A meta-analysis of personality in scientific and artistic creativity. *Personality and Social Psychology Review, 2*, 290–309.
- Ford, C. M., & Gioia, D. A. (2000). Factors influencing creativity in the domain of managerial decision making. *Journal of Management, 26*, 705–732.
- Jung, D. I. (2001). Transformational and transactional leadership and their effects on creativity in groups. *Creativity Research Journal, 13*, 185–195.
- Mumford, M. D., Mobley, M. I., Uhlman, C. E., Reiter-Palmon, R., & Doares, L. M. (1991). Process analytic models of creative capacities. *Creativity Research Journal, 4*, 91–122.
- Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal, 39*, 607–634.
- Paulus, P. B., & Yang, H. C. (2000). Idea generation in groups: A basis for creativity in organizations. *Organizational Behavior and Human Decision Processes, 82*, 76–87.
- Shalley, C. E., Zhou, J., & Oldham, G. R. (2004). The effects of personal and contextual characteristics on creativity: Where should we go from here? *Journal of Management, 30*, 933–958.

CREDENTIALING

Credentialing is a process for granting a designation, such as a certificate or license, by measuring an individual's competence in a specific knowledge, skill, or performance area. The purpose of credentialing is to assure the public that an individual meets the minimum requirements within an area of competence, typically an occupation or profession. There are three principal types of credentialing. *Licensure*, the most restrictive type, refers to the mandatory government requirement needed to practice an occupation or profession. The second type, *certification*, is a voluntary process that is traditionally established by nongovernmental agencies. The final type of credentialing, *registration*, is the least restrictive and typically requires individuals to apply for a credential through a governmental or private agency.

Although registration credentials are usually a mandatory process, individuals are not required to demonstrate a level of achievement beyond the application for a title. Licensure and certification, on the other hand, require an individual to successfully complete an educational program or demonstrate relevant job experience, as well as complete a test or assessment. Despite the distinctions between licensure and certification, the development process for these two types of credentials is similar.

IDENTIFYING CREDENTIALING EXAM CONTENT

The first step in developing a credentialing exam involves gathering information to demonstrate that the exam content is directly linked to the occupation of

interest. This is known as *content validity*. The most common approach for content validating a credentialing test is using an occupational analysis (also known as a practice analysis). An occupational analysis differs from a job analysis in that it focuses on an entire profession rather than a specific job. One of the most critical decisions during the occupational analysis for a credentialing exam is defining the targeted level of expertise to be tested. If the examination is designed to credential practitioners who possess the minimum level of required competence in an occupation, the analysis should focus only on entry-level requirements. However, if the examination targets intermediate or expert practitioners, particular attention should be given to identifying the level of competence to be targeted by the examination. Although a variety of techniques exist for gathering occupational analysis information, all occupational analyses should rely on input from individuals who are deeply knowledgeable about the profession.

Regardless of the occupational analysis technique employed, the results should be used to develop the credentialing exam's content outline (also known as a test blueprint). The content outline is used to convey the organization of the exam by describing the content domains covered on the exam, as well as the amount of emphasis given to each content domain. Most credentialing exams contain many content domains, which are traditionally organized by similar tasks, knowledge areas, or skills. The amount of emphasis given to each content domain should reflect the findings of the occupational analysis—that is, the domains identified as most important in the occupational analysis should receive the most emphasis on the exam, whereas domains of lesser importance should receive a smaller amount of weight. A well-developed content outline should not only guide the development of the test questions but also facilitate candidates' preparation for an exam.

DEVELOPING THE CREDENTIALING EXAM

Many different question formats can be used on credentialing exams. Test developers traditionally use the results of the occupational analysis to identify the most appropriate format(s) for an exam. Multiple-choice questions are the most commonly used format for credentialing exams, particularly for exams that focus on measuring knowledge domains. An extensive amount of research supports the

effectiveness of this type of question for credentialing exams.

However, for many credentialing programs, the multiple-choice format may not be the most effective way to gauge an examinee's proficiency. Other viable formats include performance-based assessments and simulations. Performance-based assessments are intended to elicit responses with more than one correct answer and with multiple dimensions. For example, a physician's credentialing exam might include questions that require an examinee to identify multiple ways to diagnose and treat an illness. Because of the open-ended nature of these questions, the grading is often done by subject-matter experts (SMEs). Simulations present an occupational-related scenario that is measured under standard conditions. For example, a flight simulation might offer an effective test format for some content areas on a pilot certification exam. Simulations are often scored using a standardized checklist or rating process to ensure that all raters are properly calibrated.

Regardless of the format, the process for developing a credentialing exam remains the same. The first step is to assemble SMEs to write test questions or to inform the structure of a performance assessment or simulation. The SMEs should represent the specialty areas within the occupation and have expertise in the content domains measured on the exam. The SMEs should then be provided with training on how to write test questions. The training should review the relevant components of the exam specifications, acceptable question formats, and techniques for developing effective questions. Because effective question writing is an iterative process, each question typically goes through an extensive review by the SMEs. Once the questions have been reviewed, a different group of SMEs content-validates the questions. This process involves reviewing each question to ensure the accuracy, importance, and suitability of the content in relation to the target areas on the exam outline. Questions that are deemed acceptable are pilot tested to obtain preliminary data, and questions with acceptable pilot test data are then used to construct an exam that conforms to the test specifications. Each of these steps depends heavily on the involvement of SMEs to ensure accurate representation of the content areas in the exam, as well as an industrial psychologist, psychometrician, or similarly trained measurement professional to oversee the process and conduct many of the more technical tasks.

SETTING PERFORMANCE STANDARDS

Once an exam is developed, defining the passing point on the exam becomes of primary importance. There are two broad categories of standard-setting techniques. The first category involves the use of *normative standards*. With this technique, pass/fail decisions are made by comparing a candidate's performance to the performance of other candidates. This technique is common in many personnel selection situations, in which the goal is to select the best from many candidates who may be qualified; however, it is rarely used for credentialing because it guarantees that some examinees will fail regardless of whether candidates demonstrate an acceptable level of competence. Because of this issue, nearly all credentialing programs rely on the second category of techniques that use absolute standards.

In their simplest form, *absolute standards* offer a policy statement about what constitutes acceptable performance on an exam (e.g., all candidates with a score above 70% will pass). However, this technique fails to account for the actual level of performance required for competent practice, the difficulty of the exam, or the characteristics of the candidate population (e.g., it is possible that all candidates sitting for an exam are competent). Typically, a more appropriate method for setting an absolute performance standard is to include a strategy for linking decisions about examination performance to criteria for acceptable practice of the profession. This involves the use of a criterion-referenced approach, which sets performance standards by evaluating the test content and making judgments about the expected or observed candidate performance. The most commonly used method for accomplishing this is the Angoff method, although several variants and alternative methods exist. These methods ensure that candidate test performance is directly linked to a minimum performance standard of the profession.

TRENDS IN CREDENTIALING

Cultural pressures are placing greater demands on individuals and organizations to be accountable for their competence, performance, and results. These pressures have prompted an increase in the use of testing and assessment to gauge educational outcomes and have now extended into the realm of occupational certification. There are signs that the certification of

competence is of increasing importance in business organizations. Software developers have long been able to take credentialing exams to demonstrate competence in specific computer languages. Hiring organizations may then factor these measures into their selection requirements. Some companies even use a form of credentialing in their career management systems—for example, by requiring a passing score on a competence assessment before applying for promotion. By using properly constructed examination processes to establish competence, organizations are better able to make fair and accurate workplace decisions about individuals.

—Doug Reynolds and Brian Katz

See also Job Analysis; Selection Strategies

FURTHER READING

- Angoff, W. H. (1971). Scales, norms, and equivalent scores. In R. L. Thorndike (Ed.), *Educational measurement* (pp. 508–600). Washington, DC: American Council on Education.
- Browning, A. H., Bugbee, A. C., & Mullins, M. (Eds.). (1996). *Certification: A NOCA handbook*. Washington, DC: National Organization for Competency Assurance.
- Dehut, X., & Hambleton, R. K. (2004). Impact of test design, item quality, and item bank size on the psychometric properties of computer-based credentialing examinations. *Educational and Psychological Measurement, 64*, 5–22.
- Impara, J. C. (Ed.). (1995). *Licensure testing: Purposes, procedures, and practices*. Lincoln, NE: Buros Institute of Mental Measurements.
- Mancall, E. L., Bashook, P. G., & Dockery, J. L. (Eds.). (1994). *Establishing standards for board certification*. Evanston, IL: American Board of Medical Specialties.
- National Commission for Certifying Agencies. (2003). *Standards for the accreditation of certification programs*. Washington, DC: National Organization for Competency Assurance.

CRITERION THEORY

A core interest of personnel psychology is whether some intervention in selection, training, or motivation relates to some criterion. A *criterion* is an evaluative standard that is used as a yardstick for measuring employees' success or failure on the job. In many instances, the criterion of interest will be job

performance, but a criterion could also be a particular attitude, ability, or motivation that reflects an operational statement of goals or desired outcomes of the organization. Implicit in this definition is that the criterion is a social construct defined by organization leaders who are responsible for formulating and translating valued organizational outcomes.

THE ULTIMATE CRITERION

Eventually, we are interested in predicting the *ultimate criterion*, that is, the full domain of employees' performance, including everything that ultimately defines success on the job. Given the totality of this definition, the ultimate criterion remains a strictly conceptual construct that cannot be measured or observed. To approach it, however, and to describe the connection between the outcomes valued by the organization and the employee behaviors that lead to these outcomes, J. F. Binning and G. V. Barrett introduced the concept of *behavior–outcome links*. In practice, these links should be based on a thorough job analysis, in the form of either a job description that analyzes the actual job demands or a job specification that reveals the constructs required for good performance.

THE OPERATIONAL CRITERION

The conceptual nature of the ultimate criterion requires practitioners to deduct and develop the criterion measure or *operational criterion*, an empirical measure that reflects the conceptual criterion as well as possible. Using this operational criterion as a proxy for the conceptual criterion of interest, the usual approach in personnel psychology is to establish a link between performance on a predictor and performance on the operational criterion as an indication of the predictor's criterion-related validity. Operational criteria might include the following:

- Objective output measures (e.g., number of items sold)
 - Quality measures (e.g., number of complaints, number of errors)
 - Employees' lost time (e.g., occasions absent or late)
 - Trainability and promotability (e.g., time to reach a performance standard or promotion)
 - Subjective ratings of performance (e.g., ratings of knowledge, skills, abilities, personal traits or characteristics, performance in work samples, or behavioral expectations)
- Indications of counterproductive behaviors (e.g., disciplinary transgressions, personal aggression, substance abuse, or voluntary property damage)
- In practice, operational criteria should satisfy at least three independent requirements.
1. Operational criteria must be relevant to the organization's prime objectives. Although this may sound obvious in theory, in practice, criterion choices are often based on convenience (e.g., using data from performance records that are "lying around anyway"), habit, or copying what others have used. Though recorded output data such as sales volume might be easily accessible, they may represent a more suitable criterion measure for some organizations (e.g., car dealers striving for high momentary sales figures) than for others (e.g., car dealers living on good word-of-mouth propaganda resulting from superior customer service).
 2. Operational criteria must be sensitive in discriminating between effective and ineffective employees. This requires (a) a linkage between performance on the operational criterion and the employee's actual performance on the job (i.e., the link between the operational and the conceptual criterion) and (b) variance among employees. Speed of production, for example, may be an unsuitable criterion in cases in which speed is restrained by the tempo of an assembly line; likewise, the number of radioactive accidents is likely to be low across all nuclear power plant engineers, making this theoretically relevant criterion practically useless.
 3. Operational criteria need to be practicable, as the best-designed evaluation system will fail if management is confronted with extensive data recording and reporting without seeing an evenly large return for their extra efforts.

THE CRITERION PROBLEM

The *criterion problem* describes the difficulties involved in conceptualizing and measuring how the conceptual criterion of interest, a construct that is multidimensional and dynamic, can best be captured by an operational criterion. This problem, according to Binning and Barrett, is even bigger if the job analysis on which the criterion is based is of poor quality and if the link between the operational and the conceptual criteria has been weakly rationalized.

CRITERION DEFICIENCY AND CONTAMINATION

Any operational criterion will suffer from at least one of two difficulties: First, criterion deficiency is a formidable and pervasive problem because operational criterion measures usually fail to assess all of the truly relevant aspects of employees' success or failure on the job. Second, operational criteria may be contaminated because many of the measures are additionally influenced by other external factors beyond the individual's control. One of the most persistent reasons a measured criterion is deficient is the multidimensionality of the ultimate criterion, which combines static, dynamic, and individual dimensionality. Two other reasons for both contamination and deficiency are the unreliability of performance and performance observation. Finally, reasons associated primarily with criterion contamination are stable biases influencing criterion evaluations.

Static dimensionality implies that the same individual may be high on one facet of performance but simultaneously low on another. Thus, although an employee may do terrific work in terms of classical task performance (i.e., activities that transform raw materials into the goods and services produced by the organization or that help with this process), the same employee may show relatively poor contextual or organizational citizenship behaviors (i.e., behaviors that contribute to the organization's effectiveness by providing a good environment in which task performance can occur, such as volunteering, helping, cooperating with others, or endorsing and defending the organization to outsiders). Even more, the same individual might engage in counterproductive behaviors or workplace deviance (i.e., voluntary behaviors that violate organizational norms and threaten the well-being of the organization and its members, such as stealing, avoiding work, or spreading rumors about the organization).

Another aspect of static dimensionality addresses whether performance is observed under typical performance conditions (i.e., day-in, day-out, when employees are not aware of any unusual performance evaluation and when they are not encouraged to perform their very best) or under maximum performance conditions (i.e., short-term evaluative situations during which the instruction to maximize efforts is plainly obvious, such as work samples). The distinction is

important because performance on the exact same task can differ dramatically between situations, not only in absolute terms but also in terms of employee ranking of performance. A likely reason is that typical versus maximum performance situations influence the relative impact of motivation and ability on performance.

Temporal or dynamic dimensionality implies that criteria change over time. This change may take any of three forms. First, the average of the criterion may change because performers, as a group, may grow better or worse with time on the job. Second, the rank order of scores on the criterion may change as some performers remain relatively stable in their performance while others highly increase or decrease their performance over time. Third, the validity of any predictor of performance may change over time because of changing tasks or changing subjects. The changing task model assumes that because of technological developments, the different criteria for effective performance may change in importance while individuals' relative abilities remain stable (e.g., a pub starts accepting a new billing method and expects employees to know how to handle it). Alternatively, the changing subjects model assumes that it is not the requirements of the task but each individual's level of ability that change over time (e.g., because of increased experience and job knowledge or decreasing physical fitness).

Individual dimensionality implies that individuals performing the same job may be considered equally good, but the nature of their contributions to the organization may be quite different. For example, two very different individuals working in the same bar may end up with the same overall performance evaluation if, for example, one of them does a great job making customers feel at home while the other one does a better job at keeping the books in order and the bills paid.

Criterion reliability, the consistency or stability with which the criterion can be measured over time, is a fundamental consideration in human resource interventions. However, such reliability is not always given. More precisely, there are two major sources of unreliability. Intrinsic unreliability results from personal inconsistency in performance, whereas extrinsic unreliability results from variability that is external to job demands or the individual, such as machine downtimes, the weather (e.g., in construction work), or delays in supplies, assemblies, or information (in the case of interdependent work) that may contaminate

ratings at some times but not necessarily at others. Practically, there is little remedy for criterion unreliability except to search for its causes and sample and aggregate multiple observations over the time and over the domain to which one wants to generalize.

Besides lack of reliability in the criterion itself, *lack of reliability in the observation* is another cause of discrepancy between the conceptual and the operationalized criterion—that is, the criterion measurement may result in very different results depending on how it is rated and by whom. Thus, objective data and ratings by supervisors, peers, direct reports, customers, or the employee may greatly diverge in their evaluations of an employee's performance for diverse reasons. Although an employee's direct supervisor may seem to be the best person available to judge performance against the organization's goals, he or she may actually observe the employee only rarely and thus lack the basis to make accurate judgments. Such direct observation is more frequent among peers, yet relationships (e.g., friendships, coalitions, in-groups versus out-groups) among peers are likely to contaminate ratings. Direct reports, in contrast, primarily observe the evaluated individual in a hierarchical situation that may not be representative of the evaluated individual's overall working situation, and, if they fear for their anonymity, they, too, may present biased ratings. For jobs with a high amount of client interaction, clients may have a sufficiently large observational basis for evaluations, yet they may lack the insight into the organization's goals needed to evaluate the degree to which employees meet these goals.

Operational criteria can be contaminated because of diverse errors and *biases*. Error, or random variation in the measurement, lowers the criterion reliability and is best addressed through repeated collection of criterion data. Biases, however, represent a systematic deviation of an observed criterion score from the same individual's true score. Because they are likely to persist across measures, biases may even increase statistical indications of the operational criterion's reliability. If the same biases are equally related to the measure used to predict the criterion (e.g., performance in a specific personnel selection procedure), they may also increase the predictor's statistical criterion-related validity, even though this validity is not based on the actual criterion of interest but on the bias persisting across measurements.

Among the diverse possible biases, biases resulting from knowledge of predictor information or group membership and biases in ratings are particularly prominent. If, for example, a supervisor has been involved in the selection of a candidate, his or her impression during the selection process is likely to influence the evaluation of this candidate's later fit or performance on the job. Group membership may incur bias if the organization provides support to some groups but not others (e.g., management training for women only) or if different standards are established for different groups (e.g., quota promotions). Finally, biases in criterion ratings may result from personal biases or prejudices on the part of the rater, from rating tendencies (leniency, central tendency, or severity), or from the rater's inability to distinguish among different dimensions of the criterion (halo). These effects will become more severe as employees' opportunities to demonstrate their proficiency become more unequal and as the rater's observation becomes more inaccurate.

—Ute-Christine Klehe

See also Counterproductive Work Behaviors; Employee Selection; Job Performance Models; Training Methods

FURTHER READING

- Binning, J. F., & Barrett, G. V. (1989). Validity of personnel decisions: A conceptual analysis of the inferential and evidential bases. *Journal of Applied Psychology, 74*, 478–494.
- Cascio, W. F. (1998). *Applied psychology in human resource management* (5th ed.). Upper Saddle River, NJ: Prentice Hall.
- Guion, R. M. (1998). *Assessment, measurement, and prediction for personnel decisions*. Mahwah, NJ: Lawrence Erlbaum.

CRITICAL INCIDENT TECHNIQUE

The critical incident technique is a research process that invites respondents to identify events (incidents) they deem significant (critical) for a particular purpose, typically associated with job performance within an occupation. Researchers use data from participants' accounts to form categories of behaviors that contribute to the success or failure of a given purpose.

HISTORY OF THE METHOD

John C. Flanagan is credited with developing the critical incident technique, originally in connection with studies of World War II aviators (part of the Aviation Psychology Program, out of which emerged the American Institute for Research). Flanagan and his colleagues were interested in why pilots in training fail their programs, how pilots respond when they become disoriented, and what leads to failed bombing missions. His research technique permitted him to efficiently gather multiple instances of the behaviors in question and analyze those incidents for patterns. The research technique has since been applied to a wide variety of occupations, activities, and perspectives.

CRITICAL INCIDENT TECHNIQUE FIVE-STAGE PROCESS

Most researchers using the critical incident technique employ some version of the five stages of the process that Flanagan articulated. In brief, the researcher (a) establishes the general aims of a particular activity; (b) specifies the precise conditions to be observed (or recalled); (c) collects data in the form of interviews or questionnaires that elicit relevant incidents; (d) analyzes the data; and (e) interprets and reports the findings.

An example may help to clarify the stages of the critical incident technique: Suppose that an executive in charge of a chain of movie theaters is interested in the best way to train managers. A common problem that such businesses face arises when unruly crowds of younger patrons create disruptions as they reach a critical mass. To better understand how managers might address this, a researcher asks theater managers to recount incidents in which they were effective or ineffective in minimizing such disruptions.

Stage 1: Establish Aims

In the first stage, the researcher defines the aims of the activity. This step lays the groundwork for determining what constitutes a critical incident. In general, an incident consists of an account, either from the direct experience or the observations of the participant, that relates closely to the aim of the activity.

Although a theater manager may have many aims (e.g., drawing in more young adolescents, efficiently moving crowds between showings, increasing concession sales, training employees), the aim in question focuses directly on one particular challenge: preventing or stopping young people from disrupting the theater experience of other patrons. The behavior that is critical in succeeding in this aim is not the same behavior that is critical for enticing more young adolescents to patronize a given theater. Flanagan indicated that it is often helpful at this stage to involve experts in defining the aim, particularly for activities that do not involve supervisors or when stakeholders define the aim differently.

Stage 2: Specify Plans and Conditions

The second stage in the process involves clearly specifying the conditions that address the general aim and the plans for collecting incidents. The researcher defines the situation to be observed, who is being observed, and who will make the observation. In our example, the young patrons are in the theater as opposed to waiting in line to purchase tickets; the theater has a mixed audience, not one composed exclusively of young adolescents; the behavior of one group of patrons is potentially disruptive to another; and the manager is the one who takes action. These conditions allow judgments to be made about the relevance of the behavior described.

In addition to the conditions, the researcher must determine who is best qualified to provide incidents. Generally, this requires familiarity with the conditions and behaviors. For the sample study, theater managers are uniquely qualified because they make choices about their behaviors in the context described. However, potential observers might also include patrons or other employees.

Stage 3: Collecting Critical Incidents

Next, the researcher must collect critical incidents. Many researchers prefer to gather oral accounts through the critical incident interview, but written accounts may also be collected. A sample protocol might include the following questions: "Think of a time when one of your theaters had an audience with a concentration of young adolescents whose behavior

threatened or disrupted the viewing enjoyment of other patrons. Could you please describe the situation? What did you do (or what did you observe a manager do) to minimize the disruptions? Why was this particularly effective (or ineffective)?” The researcher continues this line of questioning, probing the interviewee for specific details. One interview may elicit numerous incidents because a manager may have encountered this particular situation often.

A key consideration in this technique is the number of incidents that must be collected. Generally, more complex activities require a greater number of incidents. The range of incidents in published studies is quite large (from fewer than 20 to more than 4,000). Flanagan indicated that one should continue collecting incidents until new incidents provide few or no additional critical behaviors.

Stage 4: Analyzing the Data

Data analysis occurs in conjunction with collecting incidents (because the final count of incidents is affected by the emerging analysis). Researchers create categories of behavior that are relevant to the purpose of the study or the way the data will be used. In the sample study, the researcher would develop categories of behavior that assist or impede the management of the problem in the theater situation. The analysis is intended to help design training programs for managers (or possibly selection criteria). A different aim would require a different frame of reference for the analysis. Given this general frame of reference, analysis then moves to the formation of categories and subcategories of similar behaviors, a step that Flanagan acknowledged as subjective. Coding (categorizing) of data is an inductive process of comparing statements and grouping by patterns.

Stage 5: Interpreting and Reporting Findings

In the final stage, the researcher interprets and reports findings. Again, much of this report depends on the targeted use of the study. The report should clearly indicate the aim that has been studied, particularly if competing aims are present. Reports commonly include both the weight of the categories (i.e., percentage of comments) and the language used by respondents.

APPLICATIONS

The critical incident technique has been usefully employed to analyze behaviors, techniques, traits and characteristics, interactions, and even thought processes in a tremendous variety of occupations. The technique can form the basis for selection criteria, evaluation tools, and professional development, either as the foundation of training programs or as the actual mechanism for training if employees participate in the creation and analysis of critical incidents.

—Daniel L. Kain

See also Job Analysis Methods; Qualitative Research Approach

FURTHER READING

- Anderson, L., & Wilson, S. (1997). Critical incident technique. In D. L. Whetzel & G. R. Wheaton (Eds.), *Applied measurement methods in industrial psychology* (pp. 89–112). Palo Alto, CA: Davies-Black.
- Andersson, B., & Nilsson, S. (1964). Studies in the reliability and validity of the critical incident technique. *Journal of Applied Psychology, 48*(6), 398–403.
- Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin, 51*(4), 327–358.
- Kain, D. L. (2004). Owning significance: The critical incident technique in research. In K. deMarrais & S. D. Lapan (Eds.), *Foundations for research: Methods of inquiry in education and the social sciences* (pp. 69–85). Mahwah, NJ: Lawrence Erlbaum.
- Woolsey, L. K. (1986). The critical incident technique: An innovative qualitative method of research. *Canadian Journal of Counselling, 20*(1), 242–254.

CROSS-CULTURAL RESEARCH METHODS AND THEORY

Research in industrial and organizational (I/O) psychology is increasingly being conducted across cultural boundaries to test the generalizability of Western findings and to train managers to be more effective in multicultural contexts. Although cross-cultural research involves many of the same methods that are used in typical I/O research, many unique issues arise in the cross-cultural research process—from the level of theory to the sampling of people, constructs, and

methods to the analysis and interpretation of data—each of which will be discussed here.

DEVELOPING CROSS-CULTURAL RESEARCH QUESTIONS: LEVELS OF ANALYSIS

Cross-cultural research is inherently multileveled, and the first step in any cross-cultural research project is to decide on the level of analysis that is inherent in the research question. By way of illustration, Figure 1 shows the levels of analysis that might be involved in studies of societal culture. Societal culture reflects variation across societies in values, norms, beliefs, and assumptions, among other elements (see Table 1 for descriptions of how societal cultures vary). Linkages A and B in Figure 1 represent *single-level* models, which examine the macro antecedents and consequences of national culture. Linkages C through E represent *cross-level direct effect* models, which examine the direct effect of societal culture on organizations and individuals. Linkages

F through I represent *cross-level moderator effect* models, which examine how societal culture moderates relationships at the organizational and individual levels. Later, we will give illustrations of cross-cultural research questions that span these multiple levels of analysis. (Note: The dashed arrows in the figure are not discussed for reasons of space.)

Macro Antecedents and Consequences of Societal Culture

Linkages A and B represent research on the antecedents and consequences of societal culture at the macro level. Cross-cultural psychologists have long argued that societal cultures develop through adaptations to the ecological, historical, and sociopolitical context. Accordingly, one might examine how factors such as temperature, natural resources, population density, economic structure, or a history of conflict between nations affect societal values, norms, or beliefs. Research may also focus on culture’s

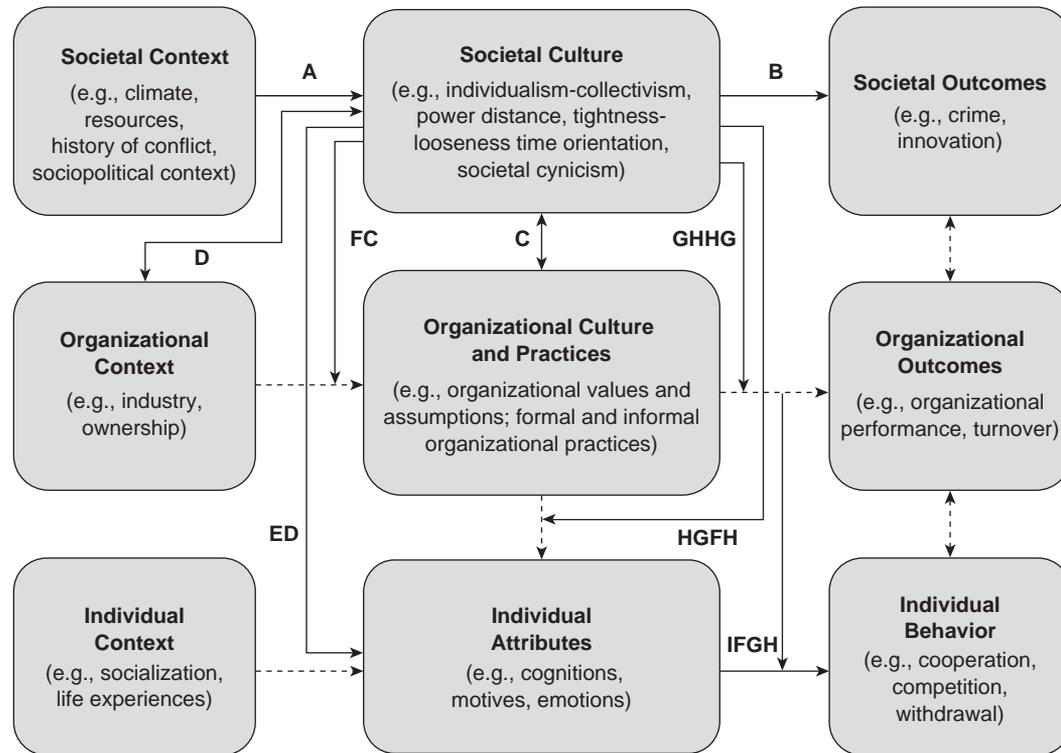


Figure 1 Levels of Analysis in Cross-Cultural Research

Table 1 A Sample of Dimensions That Differentiate National Cultures

<i>Societal Dimension</i>	<i>Authors</i>	<i>Description</i>
Beliefs/assumptions	Bond, Leung, et al. (2005)	Societal cynicism: General mistrust of social systems and other people Dynamic externality: Proaction in the face of external constraints
Values	Hofstede (1980)	Individualism: Degree to which people in societies maintain loose ties and look after themselves rather than exist within strong, cohesive in-groups Power distance: Degree to which people in societies expect and accept an unequal distribution of power Uncertainty avoidance: Degree to which people in societies feel threatened by uncertain and ambiguous events Masculinity/femininity: Degree to which gender roles are distinct and emphasize material success over quality of life
	Schwartz (1994)	Conservation versus autonomy: Emphasis of group embeddedness over autonomy Autonomy can be further subdivided into intellectual autonomy (pursuit of intellectual freedom) versus affective autonomy (pursuit of positive emotional experiences) Hierarchy versus egalitarianism: Mechanisms for coordination, either through hierarchical social roles that ensure responsible behavior or through voluntary, commitment-based moral obligations Mastery versus harmony: Striving toward mastery and control over the social and physical world versus acceptance and subjugation to preserve the social order
	Kluckhohn and Strodtbeck (1961)	Human nature: Are people evil, good, or mixed? Man–nature relationship: Should people subordinate, harmonize, or dominate nature? Time: Are people past, present, or future oriented? Activity: What is the best mode of activity—being, becoming, or doing? Social relations: What is the best form of social organization—hierarchical, collateral, or individual?
	Ingelhart (1997)	Traditional versus secular-rational orientations toward authority Survival versus self-expression values
	Chinese Culture Connection (1987)	Confucian work dynamism: Discipline, thrift, and persistent work (also referred to as long-term versus short-term orientation)

Table 1 (Continued)

<i>Societal Dimension</i>	<i>Authors</i>	<i>Description</i>
	Smith, Dugan, and Trompenaars (1996)	Particularistic relations based on ascribed status versus universalistic relations based on achievement Loyal involvement (toward family) versus utilitarian involvement (individual responsibility)
Norms	Pelto (1968), Berry (1967), Triandis (1989), Gelfand, Nishii, and Raver (in press)	Tightness/looseness: Degree to which norms are clearly defined and reliably imposed
Language/communication	Hall (1959, 1976)	High- versus low-context communication: Degree to which the meaning of communications is direct and explicit (e.g., contained in the message) versus indirect and implicit (e.g., read through the context, such as through silence, body posture, and facial expressions) Proxemics (communication of space) and paralinguistic communication (eye behavior, gestures) Polychronic versus monochronic use of time in communication (processing multiple tasks or few tasks simultaneously)

consequences at the societal level, for example, examining how societal values, norms, or beliefs affect societal crime rates, conformity, or innovation.

Cross-Level Direct Effects of Societal Culture

Research questions may be concerned with the cross-level direct effects of societal culture on organizations and individuals. Scholars in I/O psychology recognize that organizations are open systems that reflect and adapt to the larger societal context. This is reflected in Linkage C, or cross-level research that examines the influence of societal culture on organizational culture. Other research at this level of analysis might examine how societal culture affects the human resource practices—such as selection and job analysis techniques, performance appraisal methods, and training methods—that are implemented in organizations. Research might also examine the indirect effect of societal culture on organizational outcomes as mediated by cross-cultural differences in organizational culture and practices. Finally, Linkage D in

Figure 1 represents research that examines how societal culture directly affects the institutional context of organizations. For example, research might examine whether the prevalence of certain industries or ownership structures (e.g., private versus public) varies across societies.

Although Linkages C and D represent societal cross-level effects on organizations, Linkage E represents research that examines how societal culture affects individual-level phenomena, such as cognitions, motives, or emotions. Research in I/O psychology, for example, has examined how societal culture affects employees' achievement motivation, self-efficacy, job attitudes, and perceptions of effective leadership. Alternatively, one might be interested in the indirect effect of societal culture on individual behavior as mediated by individual perceptions, motives, or emotions. For example, research might examine whether there are cross-cultural differences in cooperative behavior in negotiations, teams, or organizations (e.g., organizational citizenship behaviors) as mediated by cross-cultural differences in individuals' perceptions, attitudes, or motives.

Cross-Level Moderator Effects of Societal Culture

Cross-cultural research questions focus on how societal culture moderates relationships at lower levels of analysis. Linkage F represents cross-level research that examines how societal culture interacts with features of the organizational context (e.g., industry, technology) to predict organizational culture and practices. For example, one might be interested in whether organizational cultures are more similar across societies within some industries (e.g., manufacturing) as compared with others (e.g., services). Linkage G illustrates that the relationship between organizational culture and practices and organizational outcomes can be moderated by societal culture. Research might examine whether the success of implementing different practices (e.g., innovation versus quality control) varies across societies. Alternatively, research might address whether diversity in organizations is beneficial for organizational performance and how this relationship varies across societies.

Figure 1 illustrates the moderating effect of societal culture on relationships at lower levels. For example, Linkage H represents research on the way societal culture moderates the impact of organizational practices on individual cognitions, motives, or emotions. Research might address, for example, whether giving voice (an organizational justice practice) has similar effects on satisfaction in different societal cultures or whether working in teams similarly affects motivation across cultures. Finally, Linkage I illustrates that societal culture moderates the relationship between psychological states and behavior. For example, research might examine whether societal culture moderates the strength of attitudes as a predictor of behavior or whether needs (e.g., the need for closure) differentially affect behavior across cultures.

Figure 1 illustrates the complexity of levels of analysis in cross-cultural research. Accordingly, before conducting cross-cultural research, it is important to specify the level at which the theory is operating and implement a design and analysis strategy that matches the level of theory. Figure 1 need not represent all possible multilevel linkages that pertain to societal culture. For example, research might focus on how societal culture affects variance at multiple levels of analysis rather than just mean differences. Figure 1 also does not include indigenous research questions,

which are interested in examining emic (culture-specific) phenomena that may not be applicable beyond a certain cultural context.

Sampling Participants

After deciding on a research question and determining the appropriate level of theory, the next step is to determine which cultures, organizations, or individuals to include in the research. As in unicultural research, these decisions should ideally be guided by theory. For example, if the researcher is testing a theory that relates one or more dimensions of culture to organizational phenomena, cultures should be sampled so that there is wide variation along those dimensions. Quantitative and qualitative data sets on cross-cultural differences abound and can be consulted when making sampling decisions. Conducting cross-cultural organizational research is further complicated by the need to consider the similarity of organizations and individuals within organizations across cultures. If a sample contains individuals from industry A in one culture but individuals from industry B in a second culture, culture is confounded with industry, thus creating an alternative explanation for observed cultural differences. Matching industry, as well as individual characteristics such as job level or other demographics, across cultures can reduce alternative explanations for observed cross-cultural variation.

Assessing the Constructs of Interest

After deciding on a sampling strategy, researchers need to consider how they will assess the constructs of interest. Typically, researchers rely on what J. W. Berry calls *imposed etic constructs*, or constructs that are developed in one culture and simply applied to another culture. Ideally, researchers should consider whether there is *construct contamination* and *construct deficiency* to avoid comparing apples to oranges in cross-cultural studies. Consider a construct that is developed in culture A and then applied to culture B. It is possible that the construct will be contaminated with aspects of culture A that are not meaningful in culture B. To assess the possibility of construct contamination, researchers might use factor analytic techniques to determine whether the factor structures are invariant across cultures. Even if the construct is not contaminated, however, it may possess construct deficiency in culture B if there are culture-specific (emic)

aspects of culture B that are not encompassed by the etic construct. Pilot studies and feedback from local collaborators are critical to identifying missing elements of constructs. An alternative approach is to develop an emic instrument without regard to other cultures and then compare results using the local instrument with results using instruments developed elsewhere.

Sampling Methods

A wide range of methods are available for cross-cultural research, and each has particular advantages and disadvantages.

- Laboratory experiments provide a controlled research environment and facilitate tests of causal assumptions. Laboratory research is also beneficial because it enables the researcher to assess implicit attitudes in addition to explicit self-reported attitudes. Yet it is critical to ensure that laboratory tasks and procedures are equally understood and motivating to individuals across different cultures. Extensive pilot testing, coupled with detailed feedback from local collaborators, can help to ensure that the laboratory situation is equivalent across cultures.
- Questionnaires may be less intrusive than laboratory experiments, and they provide the ability to collect data on a wide range of questions at any one time. Cross-cultural challenges to surveys abound, however, including potential differences in motivation, understanding of instructions, validity, reliability, and response sets. Pilot testing, discussions with local collaborators, and statistical controls are critical to ensuring equivalence.
- Interviews and focus groups enable researchers to gain depth in a research question and afford more of an understanding of emic perspectives that are especially useful in the early stages of cross-cultural research. Difficulties may arise, however, in standardizing interviews across cultures, and there may be differential reactions to the interviewer across cultures (e.g., women interviewing men may be viewed as inappropriate in some cultures) that can threaten the validity of the results. Interviewers should possess characteristics similar to those of the participants, and cross-validating interview findings with additional methods is critical for gaining confidence about the results.
- Cultural documents such as newspapers, proverbs, or speeches provide useful and unobtrusive cross-cultural data that can be content analyzed. Researchers should involve local collaborators to

identify documents that are most relevant to the research question, to ensure the comparability of documents across cultures, and to develop detailed coding schemes that are reliable and valid across cultures.

- Observations of behavior can provide an unobtrusive method for collecting cross-cultural data. Researchers, however, should confer with local collaborators to ensure that the observed situation has equivalent meaning across cultures. Furthermore, as with cultural documents, detailed coding schemes and hypothesis-blind coders are necessary to produce reliable data.
- Large archival databases provide another unobtrusive source of cross-cultural data. Examples include ethnographies, which provide in-depth information about a given culture, and cross-cultural databases on ecological, sociological, economic, or political variables. Preexisting databases, however, may only be available for a limited number of countries or variables. Furthermore, at times, the researcher may not be sure of the extent to which the data set is characterized by errors or biases, making the use of multiple sources critical to establishing validity.

In sum, many methods for cross-cultural research exist, and all have distinct advantages and disadvantages. Moreover, each method varies in terms of how appropriate or ethical it is in a particular cultural context, how much depth it affords, and ultimately, its validity and reliability across cultures. In light of these complexities, feedback from local collaborators, as well as the triangulating across multiple methods, is critical in cross-cultural research.

Translations

The most commonly employed cross-cultural research methodologies often require translating materials into other languages. Translation, however, may result in variations in meaning across cultures. The translation-backtranslation technique is often used in cross-cultural research to examine problems with translations. In this method, an individual translates materials from the original language to a second language. A second individual then retranslates the material back into the original language, and the two versions are compared to reveal any meaning that was lost in translation. Although frequently used, the translation-backtranslation methodology may result in awkward translations. Another option is to use the “decentering”

approach. In decentering, changes are made simultaneously to the original and the translated version to improve the quality of the materials in both languages.

Assessing Rival Hypotheses

When conducting research across cultures, extraneous variables that may influence the results should be measured and controlled. R. S. Malpass referred to these variables as *rival hypotheses* and noted that they are often unaccounted for in cross-cultural research. For example, asking people about their own opinions may be more commonplace in some societies than others, or people may be differentially motivated to please experimenters across societies. Cultural differences in perceptions of the method, task, or instructions can also affect results. In his studies of Kpelle farmers in Liberia, Joseph Glick showed that participants were able to sort objects in the “Western intelligent” way (i.e., by taxonomic category) compared to the “superficial” way (i.e., by color), but only when they were told to sort the objects in the “stupid” way! Pilot tests and discussion with local collaborators are critical to identifying which rival hypotheses need to be measured or controlled.

Analyses and Interpretations

Unique issues arise in the analysis and interpretation phases of cross-cultural research. Fons Van de Vijver and Kwok Leung addressed such issues by establishing equivalence and dealing with response sets. Cultural response sets, or systematic tendencies in the use of response scales, can pose a rival hypothesis for substantive results. In some societies, individuals may avoid the extremes of the scales, whereas in others, individuals may be more likely to show agreement. Additionally, people in different societies may be thinking of different reference groups when answering questions. Van de Vijver and Leung, as well as Kaiping Peng and colleagues, discuss a number of techniques to deal with such issues, including the use of different response formats, standardization techniques, or structural equation modeling to correct for response biases. Finally, when testing hypotheses, it is critical to align the level of theory with the level of data analysis and to avoid making ecological fallacies, wherein a phenomenon at a higher level of analysis is attributed to a lower level.

SUMMARY

Cross-cultural research adds a number of complexities to the research process that require additional informed judgment calls at all research stages. Although the task appears formidable, using multiple methods, extensive piloting, and feedback from collaborators can greatly increase confidence in the findings.

—Michele Gelfand, Lisa Leslie, and Gary Shteynberg

See also Factor Analysis; Qualitative Research Approach; Quantitative Research Approach

FURTHER READING

- Berry, J. W. (1969). On cross-cultural compatibility. *International Journal of Psychology, 4*, 119–128.
- Brett, J. M., Tinsley, C. H., Janssens, J., Barsness, Z. I., & Lytle, A. L. (1997). New approaches to the study of culture in industrial/organizational psychology. In P. C. Earley & M. Erez (Eds.), *New perspectives on international industrial/organizational psychology* (pp. 75–125). San Francisco: New Lexington Press.
- Gelfand, M. G., Raver, J. L., & Ehrhart, K. H. (2002). Methodological issues in cross-cultural organizational research. In S. G. Rogelberg, *Handbook of research methods in industrial and organizational psychology* (pp. 216–246). Malden, MA: Blackwell.
- Glick, J. (1970, November 19). *Concept formation: Kpelle and American style*. Paper delivered at the Annual Meeting of the American Anthropological Association, San Diego, CA.
- Hofstede, G. H. (1980). *Culture's consequences: International differences in work-related values*. Beverly Hills, CA: Sage.
- Malpass, R. S. (1977). Theory and method in cross-cultural psychology. *American Psychologist, 32*, 1069–1079.
- Peng, K., Nisbett, R., & Wong, N. (1997). Validity problems comparing values across cultures and possible solutions. *Psychological Methods, 2*, 329–344.
- Schwartz, S. H. (1994). Beyond individualism/collectivism: New cultural dimensions of values. In U. Kim, H. C. Triandis, C. Kagitcibasi, S. C. Choi, & G. Yoon (Eds.), *Individualism and collectivism: Theory, method, and applications* (pp. 85–122). Thousand Oaks, CA: Sage.
- Sinha, D. (1997). Indigenizing psychology. In J. W. Berry, Y. H. Poortinga, & J. Pandey (Eds.), *Handbook of cross-cultural psychology: Vol. 1. Theory and method* (2nd ed., pp. 129–169), Needham Heights, MA: Allyn & Bacon.

- Triandis, H. C., & Berry, J. W. (Eds.). (1980). *Handbook of cross-cultural psychology*. Boston: Allyn & Bacon.
- Van de Vijver, F., & Leung, K. (1997b). *Methods and data analysis for cross-cultural research*. Thousand Oaks, CA: Sage.

CUSTOMER SATISFACTION WITH SERVICES

This entry provides an overview of some of the key scholarly developments in the area of customer satisfaction with services over the last 25 years. The service sector now dominates employment and gross domestic product figures for the United States and, more broadly, the economically developed world. However, this overview applies beyond the service sector, as some have argued that all firms are service businesses because manufactured goods are typically augmented by related services. Furthermore, increasing numbers of high-profile manufacturers, such as General Electric and ABB, aspire to increase their percentage of revenues from services.

SERVICES AS AN AREA OF STUDY: A MULTIDISCIPLINARY EVOLUTION

Contemporary academic interest in services—conceptualizing services and related theory building, as well as how to measure customer satisfaction with services—blossomed during the late 1970s (as opposed to much earlier definitions and commentary on service in organizational sociology and economics). The emergent interest focused on how goods differed from services and grew out of a multidisciplinary perspective comprising marketing, organizational behavior, industrial and organizational psychology, and operations management. This multidisciplinary approach underscores how all functions in an organization must work together to satisfy a customer.

The three disciplines contributed to a specification of how the prototypical “pure” service (such as education in the classroom) differs from the prototypical “pure” good (such as a television set) in both production, consumption, and consumer evaluation processes. Compared with goods, services are typically described as possessing relative intangibility, heterogeneity, perishability, inseparability of production and

consumption, and customer participation in coproducing the services consumed. Each discipline has addressed how the nature of services should influence both theory and practice in their field.

Marketing

The academic field of marketing not only helped to pioneer the specification of how services differ from goods; it also drove the assessment of service quality and customer satisfaction from a technical approach to what has been labeled a user-based approach. The technical approach bases quality assessment on conformance to objective and readily measured standards set for the attributes of the output, and thus it is best suited to measuring the quality of mass-produced standardized goods.

The user-based approach assumes that quality is more subjective and therefore more appropriately measured from the perspective of the user or customer. This better fits the intangible, experiential nature of many services. Specifically, goods and services vary in their search, experience, and credence qualities. Prototypical services possess few easily observed search qualities (e.g., color and hardness) but instead are characterized more by experience qualities (e.g., taste) and difficult-to-evaluate credence qualities (e.g., characteristics that customers may need to accept on faith, such as the adequacy of a will). In turn, experience-based intangibility provides limited objective reference points for assessing the value of services, makes it difficult to quantitatively measure output and service quality, and makes it difficult to set specific, clear goals for employees.

The earliest model—and arguably the most visible measure of quality from the user’s perspective—SERVQUAL, was developed by three pioneering services marketing researchers, A. Parasuraman, Valarie Zeithaml, and Leonard Berry. This model and survey of service quality assesses five dimensions—reliability, empathy, assurance, responsiveness, and tangibles—using a gap model that measures both expectations of how the service should occur and perceptions of what actually happened. These same five dimensions have not always emerged in studies done by other researchers; indeed, the original authors themselves stated that SERVQUAL and its factors may not be unconditionally applicable for all types of service situations.

Service Quality, Customer Satisfaction, and Customer Loyalty

The marketing literature conceptualizes service quality and customer satisfaction as different but interrelated constructs. The consensus is that service quality is a judgment about a service's overall excellence (more descriptively and factually assessed), whereas satisfaction is a summary assessment of how the service emotionally affected the customer (more evaluative). There has been debate about the causality between the two; the consensus view is that service quality is an antecedent of satisfaction.

Measurement issues have blurred the distinction between the two constructs because SERVQUAL uses the unmet expectations gap model that originated in the customer satisfaction literature. There is also debate about which expectations standard is most appropriate; the predictive standard of "most likely to happen" tends to be used for satisfaction, and the excellence standard tends to be used for service quality. Finally, the measurement issues associated with difference scores (e.g., poor reliability, weak discriminant validity, and restricted variance) are relevant to measures of both constructs because both use the gap model.

Customer satisfaction with services appears to have only weak to modest relationships with other business outcomes of interest, such as customer retention and profitability. It appears, for example, that satisfied customers may defect anyway. This has led researchers—and practitioners in particular—to focus on the conceptualization and measurement of customer loyalty as the construct that relates most strongly to profitability. However, the strength of the relationship between loyalty and profits has also been questioned. Finally, for a brief period, service researchers attempted to specify more emotional and needs-based assessments of service using the construct of customer delight, which was of keen interest to practitioners for a while, as well as customer outrage. Overall, more research on the relationship among dependent variables in services is needed.

Organizational Behavior and Industrial/Organizational Psychology

A principal contribution to the area of services and customer satisfaction is the construct *climate for service*, which evolved from Benjamin Schneider's study

of the organizational climate in banks some 30 years ago. Climate for service is the shared perception of policies, practices, procedures, and the behaviors that get rewarded, supported, and expected with regard to customer service and customer service quality. Service climate represents the degree to which the internal functioning of an organization is experienced as one that is focused on service quality.

The climate for service "shows" to both service employees and customers, given the commonplace physical and psychological closeness between the two. Early research on this phenomenon found strong, significant relationships between employee experiences of service climate and customer perceptions of service quality. This was a departure from previous management thought and practice, which had divorced internal climate from customer experiences. In contrast, these results demonstrated that customer perceptions could be another criterion for validating employee perceptions of the workplace. One example of an application of this is the use of customer data (e.g., customer perceptions of service quality or customer satisfaction) to determine which human resource management practices (e.g., training, hiring, or compensation), as evaluated by employees, correlate most strongly with customer outcomes or dimensions of the climate for service (as perceived by customers). These findings were advanced further by the development of the *service profit chain* by researchers at the Harvard Business School. This work documented the relationships between employee satisfaction with internal service and those employees' productivity in creating service value for customers, customer satisfaction and loyalty, and firm profitability and growth.

This work on shared employee and customer climate-based perceptions has continued in a program of research termed *linkage research*, which has benefited from ongoing contributions from Schneider and his colleagues and others. A common focus in linkage research is the boundary conditions that moderate the strength of relationships between employee and customer outcomes (i.e., determining when linkages between employee and customer outcomes are strongest). For example, the frequency of contact between employees and customers and the length of employee or customer tenure with the organization are variables that might be positively associated with strong employee–customer linkages.

Linkage researchers have also had to resolve methodological and data analytical issues. Because

the unit of analysis is typically an organizational subunit rather than the individual, it is necessary to appropriately match employees and customers by unit and then apply the appropriate aggregation statistics (see Schneider and White, 2004, for a review of alternatives).

Finally, there is the issue of causality between employee and customer outcomes. Early conceptualizations tended to assume that causality flows from the employee to the customer—that is, employee attitudes are formed in the workplace in response to the perceived climate for service and spill over to customers. However, it also seems possible that customer attitudes could shape employee attitudes. For example, a popular adage holds that it is more enjoyable to serve a satisfied customer than a dissatisfied customer. The causality question has received little attention, though one study that specifically tested for this using a cross-lagged panel analysis found support for a reciprocal relationship between employee climate perceptions and customer perceptions of service quality.

Operations Management

Operations management, in theory and in practice, contends with how organizations make choices in the apparent trade-off between marketing effectiveness (meeting customer demands in ways that meet customer expectations of responsiveness and empathy and also influence customer perceptions of service quality and customer satisfaction) and operations efficiency (meeting demand in a cost-effective way that provides customers with the prices they expect and the margins the firm needs).

Ironically, it is customer contact with the service operation—customer presence in the service facility and customer participation in coproducing the services they receive—that is a principal source of tension surrounding these choices. Customer contact enhances the firm's ability to leverage marketing opportunities, but on the other hand, customer contact can also introduce input uncertainty and variance into the operations of the core technology.

This trade-off can be resolved in a win-win manner (marketing effectiveness *and* operational efficiency) if customer participation can be managed in a way that customers perform their coproduction roles as expected. This challenge can be met if service firms enhance the same individual-level variables in coproducing customers that influence the

performance of employees: role clarity, motivation, and ability. In other words, coproducing customers must understand what tasks they are expected to perform in service production and be willing and able to do so. Finally, it also appears that when customers perform their roles well, their overall satisfaction level is higher.

LOOKING AHEAD

Many advances have been made in the area of service in the last 25 years, but today, the scholars who led those advances are calling for a new paradigm to guide future theory building and research. Much of the work to date has been stimulated by a specification of the unique characteristics of service and their implications for theory and practice, and it has relied on certain models and methods such as the gap model of service quality and linkage research. One concern is that the alleged differences between goods and services seem overstated, and consequently, the associated implications overdrawn or tired.

This new services paradigm remains unstated or at least unsettled. The possibilities are most visible in the marketing discipline, in which recent research has argued that it is time for the discipline to embrace a service-dominant foundation. In the fields of organizational behavior and industrial and organizational psychology, there seems to be less visible and focused effort to set a new paradigm for services and customer satisfaction, and thus there are ample opportunities for researchers in this area to join and direct future services research.

—David E. Bowen

FURTHER READING

- Bowen, D. E., & Hallowell, R. (2002). Suppose we took service seriously? An introduction to the special issue. *Academy of Management Executive*, 16(4), 69–72.
- Bowen, J., & Ford, R. C. (2002). Managing service organizations: Does having a “thing” make a difference? *Journal of Management*, 28(3), 447–469.
- Fisk, R. P., Grove, S. J., & John, J. (Eds.). (2000). *Services marketing self-portraits: Introspections, reflections, and glimpses from the experts*. Chicago: American Marketing Association.
- Lusch, R. F., & Vargo, S. L. (Eds.). (2006). *The service-dominant logic of marketing: Dialog, debate, and directions*. Armonk, NY: M. E. Sharpe.

- Schneider, B. (1973). The perception of organizational climate: The customer's view. *Journal of Applied Psychology, 57*, 248–256.
- Schneider, B., & Bowen, D. E. (1995). *Winning the service game*. Boston: Harvard Business School Press.
- Schneider, B., & Bowen, D. E. (1999). Understanding customer delight and outrage. *Sloan Management Review, 41*, 35–46.
- Schneider, B., & White, S. S. (2004). *Service quality: Research perspectives*. Thousand Oaks, CA: Sage.
- Zeithaml, V., Parasuraman, A., & Berry, L. (1990). *Delivering service quality*. New York: Free Press.

CYBERLOAFING AT WORK

The term *cyberloafing* refers to employees' use of Internet and e-mail services provided by their employer for nonwork purposes during working hours. In other words, it is a high-tech method for employees to shirk their job duties while appearing to be working. Cyberloafing may include e-mailing jokes to friends, online shopping or game playing, downloading music, instant messaging, posting to newsgroups, or surfing non-work-related Internet sites. These behaviors, also called *cyberslacking* or *cyberslouching*, are even encouraged by some Web sites (e.g., www.ishouldbe.com). Cyberloafing is an important issue facing organizations as more employers are providing employees with Internet and e-mail access at work.

PREVALENCE OF CYBERLOAFING

One third of the time that individuals spend on the Internet takes place at work, and over half of that time is not work related. A survey by Vault.com indicated that almost 88% of employees surf non-work-related Web sites during working hours, and 66% surf between 10 minutes and one hour. Likewise, 82% of employees send non-work-related e-mails during work hours and nearly 87% receive them. The most commonly accessed Web sites at work involve game playing, investment or stock trading, shopping, adult activities, sports, job hunting, and gambling.

PROBLEMS ASSOCIATED WITH CYBERLOAFING

Although the Internet and e-mail have changed the way organizations do business by offering rapid communication and enhanced information access

and distribution, cyberloafing can create problems for companies. Employees can flood computing resources with their personal use, leading to clogged bandwidth and degraded system performance. Furthermore, cyberloafing reduces productivity, creates security issues, and increases the risk of computer viruses. It also exposes companies to legal liability in the form of harassment (e.g., employees e-mailing sexist or racist jokes to coworkers), copyright infringement (e.g., employees using clip art found on the Internet without permission), defamation (e.g., disgruntled workers posting rumors about a manager in a chat room), and negligent hiring (e.g., an employee cyberstalking a customer).

REASONS FOR CYBERLOAFING

Few research studies have explored reasons why employees cyberloaf, but in general, they indicate that it is a response to mistreatment in the workplace. For example, a study by Vivien Lim, Thompson Teo, and Geok Leng Loo found that Singaporean employees agreed that cyberloafing is justified when they put in extra effort to attain the information or resources they need to perform their jobs, work overtime without compensation, are asked to do excessive amounts of work, or are exposed to conflicting demands. Likewise, a study by Lim using the same Singaporean employees discovered they were more likely to cyberloaf when they perceived unfair treatment by their employer (e.g., unfair work outcomes, policies, or interpersonal interactions).

More recently, Christine Henle and Anita Blanchard demonstrated that employees engage in cyberloafing more often when they perceive their jobs as stressful. Thus, cyberloafing helps employees cope with stressors in the workplace. Importantly, employees are less likely to use cyberloafing as a way of coping with stress when they perceive organizational sanctions against it (e.g., discipline). Unfortunately, research on cyberloafing has not explored whether certain types of people are more likely to cyberloaf (e.g., impulsive individuals, procrastinators). However, Henle and Blanchard did find that males were more likely than females to cyberloaf.

MANAGING CYBERLOAFING

Organizations can manage the occurrence of cyberloafing through three methods: acceptable use policies, monitoring and filtering software, and

organizational sanctions. First, acceptable use policies for Internet and e-mail can be established. These policies should outline who can access the Internet and use e-mail, acceptable uses (e.g., business-related purposes), and sanctions for violations. Companies should also include a statement reserving the right to monitor Internet and e-mail use, which will remove employee expectations of privacy and, in turn, reduce lawsuits alleging invasion of privacy. This policy should be clearly communicated and explained to supervisors and employees, and employees should sign an acknowledgment that they have received, read, and understand the policy. Employers may want to consider allowing some personal use (e.g., before or after work, during breaks) because limited Internet and e-mail use for nonwork purposes may foster learning or creative problem solving, provide a break from stressful or boring work, and help employees balance work and their personal lives.

Next, monitoring and filtering software may be used to track and deter cyberloafing. Monitoring software compiles a report of each Web site visited by an employee, and filtering software blocks access to particular Web pages by keeping a list of inappropriate sites or content. Employers should tell employees why, when, and how they will be monitored. In addition, companies should share Internet usage reports produced by software programs to give feedback on policy compliance and inappropriate Web sites.

Finally, those violating usage policies should be disciplined in a consistent manner. Companies can choose from many different sanctions, including verbal or written warnings, documentation in performance reviews, removal of Internet and e-mail privileges, suspension, termination, or legal action. Some companies take a different approach by providing rehabilitation or counseling services to employees who may have an Internet addiction problem. Several surveys have offered insight into how companies respond to cyberloafing. First, a survey of human resource directors by David Greenfield and Richard Davis indicated that almost 83% have Internet usage policies and about 64% have disciplined and 30% have terminated employees for inappropriate Internet use. Second, the American Management Association found that 60% of surveyed organizations do some form of e-mail

monitoring and 25% have fired employees for e-mail misuse.

SUMMARY

The Internet has changed the way businesses operate by enhancing global communication and information dissemination. Unfortunately, it also offers employees a convenient way of avoiding their job responsibilities. Employers need to recognize that this is a prevalent workplace behavior that can reduce productivity, divert valuable computing resources, and increase security risks and legal liability. The limited research on cyberloafing suggests that employees are more likely to cyberloaf when they perceive mistreatment in the workplace. Companies can reduce the occurrence of cyberloafing through considerate employee relations, acceptable use policies, software, and sanctions. However, organizations should keep in mind that some amount of cyberloafing may be beneficial.

—Christine A. Henle

See also Counterproductive Work Behaviors; Integrity at Work; Organizational Retaliatory Behavior

FURTHER READING

- American Management Association. (2004). *2004 workplace e-mail and instant messaging survey*. New York: Author.
- Greenfield, D. N., & Davis, R. A. (2002). Lost in cyberspace: The Web @ work. *CyberPsychology & Behavior*, 5, 347–353.
- Henle, C. A., & Blanchard, A. (2006). *Cyberloafing as a coping method: Relationship between work stressors, company sanctions, and cyberloafing*. Manuscript in preparation.
- Lim, V. K. G. (2002). The IT way of loafing on the job: Cyberloafing, neutralizing and organizational justice. *Journal of Organizational Behavior*, 23, 675–694.
- Lim, V. K. G., Teo, T. S. H., & Loo, G. L. (2002). How do I loaf here? Let me count the ways. *Communications of the ACM*, 45, 66–70.
- Vault.com. (2000). *Vault survey of Internet use in the workplace*. Retrieved March 1, 2006, from <http://www.vault.com/surveys/internetuse2000/index2000.jsp>

D

DATA SAMPLING

See SAMPLING TECHNIQUES

DESCRIPTIVE STATISTICS

Measurement provides a means for quantifying important phenomena of interest. In many measurement contexts, researchers are interested solely in efficiently describing the data. Descriptive statistics are the indexes through which such data summarization may be accomplished. Unlike contexts in which the researcher is interested in drawing generalizations from data, descriptive statistics are not used to draw inferences to a larger population.

For example, consider a situation in which a teacher has recently administered an examination. Fundamentally, the teacher has constructed the test in the hope that those with more knowledge of the course material will perform better (receive higher scores) than those with less knowledge of the course material. After scoring the examinations, the teacher records each student's grade in the instructor's grade book, which is organized alphabetically. Although these data can be easily used to identify the performance of any individual student, the alphabetic organization does not provide for easy interpretation of scores as a whole.

One way to use descriptive statistics to make sense of these data would be to construct a frequency table in which scores are rank ordered from largest to smallest along with the number of individuals receiving

each score. This information can also be presented graphically in the form of a frequency distribution in which test score is plotted along the x -axis and frequency is plotted along the y -axis. An examination of such representations of these data can quickly reveal the general shape (e.g., normal, bimodal, skewed) of the distribution of observed scores.

Although graphic representations of data are useful, interpretation of such representations is largely qualitative. Thus, quantitative descriptions are often used to understand the characteristics of a set of data. Frequency distributions are typically quantitatively described along two dimensions: central tendency and variability. *Central tendency* refers to the one score that best captures the center of the observed distribution of scores and can be described by three alternative indexes: mode, median, and mean. Importantly, these values will be identical only when the observed data are normally distributed. As a result, choice of which statistic to interpret should be made based on the scale of measurement and the ultimate use of the data.

Similar to central tendency, variability may be assessed through several statistics, including the range, variance, and standard deviation. The *range* of a set of scores represents the difference between the highest and lowest scores. The *variance* quantifies the magnitude of differences between scores through squared deviations, and the *standard deviation* is computed as the square root of the variance and can be interpreted as an index of variability of individual scores from the mean.

Other descriptive statistics that can be used to describe a set of data quantitatively are skew and kurtosis. *Skew* indicates the extent to which observed

scores occur more frequently at the extreme of the distribution. Positively skewed data are those in which most scores fall at the lower end of the test score scale, and negatively skewed data are characterized by high scores occurring more frequently. *Kurtosis* essentially describes the length of the tails of a frequency distribution. Platykurtic data are those for which the tails are shorter than what would be expected had the data been normal, and leptokurtic data are those for which the tails are longer than would be expected with normally distributed data.

Descriptive data are not confined to use with univariate data. In many cases, for example, there is interest in the extent to which variability associated with one measure is associated with variability in a second measure. As with univariate data, descriptive statistics can be used to both graphically and quantitatively evaluate this question. Graphically, this relationship can be depicted in a joint distribution table or through a scatterplot in which scores for both variables are plotted in two-dimensional space. Because interpretation of these graphic depictions is largely subjective, the correlation coefficient is typically computed as an index that quantifies the observed relationship.

—Ronald S. Landis

See also Inferential Statistics; Qualitative Research Approach; Quantitative Research Approach; Statistical Power

FURTHER READING

Gelman, A., & Nolan, D. (2002). *Teaching statistics: A bag of tricks*. Oxford, UK: Oxford University Press.

Kranzler, G., & Moursund, J. (1999). *Statistics for the terrified* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

DICTIONARY OF OCCUPATIONAL TITLES

The *Dictionary of Occupational Titles*, or *DOT*, is a comprehensive listing of job titles with accompanying job descriptions, available in a paper format, published by the U.S. Department of Labor. Since its inception in 1939, the DOT has served as an invaluable resource for human resource practitioners in developing job analyses and job descriptions. The latest and final version of

the DOT was published in 1991; the more flexible Occupational Information Network (O*NET) online system is intended to replace the DOT.

HISTORY

In response to the Great Depression, the DOT was first published in 1939 to serve as a resource for business and government to link labor supply with industry needs and thus stimulate the flagging economy. Since that time, the DOT has grown to more than 10,000 entries in its latest (fourth) edition, published in 1991. In recent years, however, there has been a growing recognition that the DOT suffers from a number of drawbacks. First, it cannot be updated quickly in response to changes taking place in today's work organizations. Moreover, its primary focus is on tasks, with relatively little attention paid to what characteristics a worker needs to perform those tasks, and it lacks a common set of descriptors to allow for making comparisons across jobs. Finally, the DOT is not easily accessible because of its paper format. For this reason, the DOT is being replaced by the online O*NET system.

DESCRIPTION OF DOT SUBHEADINGS

Although a range of approaches have been used to develop the DOT listings, the process has typically involved job analysts from the Department of Labor using functional job analysis. Specifically, analysts interview and observe workers and subsequently develop job task descriptions and provide job ratings.

Each DOT listing contains seven components. First, the nine-digit *occupational code number* provides a unique code for each job, classifying the job in terms of occupational category (e.g., professional, technical, or managerial; clerical and sales) and worker functions in terms of data, people, and things. The *occupational title* gives the title of the job in question. The *industry designation* indicates the industry within which the job functions. The *alternate title* provides additional names that can be used for the job in question. The *body* of the listing contains a *lead statement*, which gives a broad description of the job and the activities it comprises; the *task element statements*, which provide a more specific description of the tasks that make up the job; and the list of *may items*, which includes tasks that may or may not be part of this job in different work organizations. The *undefined related titles* are a listing of alternate titles

that may be used in different contexts. Finally, the *definition trailer* designates, via a code, the interest areas involved in the job and the work group and subgroup to which the job belongs; the strength required to do the job; the education needed to do the job; vocational training required; and date of last update.

USE OF THE DOT IN JOB ANALYSIS

The DOT listings are useful for getting a quick thumbnail look at what a job typically involves. In addition, the listings can form an excellent basis for conducting job analyses to be used for selection, training, performance appraisals, and job classification. However, the DOT listings do not provide sufficient detail to serve as job analyses in themselves; their format is too generic and not adapted to specific jobs within individual organizations. Moreover, many of the DOT job analyses are based on the analysis of three or fewer jobs. However, the DOT is best considered a starting point for a job analysis, or one of many sources of job analysis information. It can serve as an invaluable resource for human resource professionals, vocational guidance counselors, curriculum developers, and researchers in academic and organizational contexts.

—Donald Martin Truxillo

See also Occupational Information Network (O*NET)

FURTHER READING

- Brannick, M. T., & Levine, E. L. (2001). *Job analysis: Methods, research, and applications for human resource management in the new millennium*. Thousand Oaks, CA: Sage.
- Gatewood, R. D., & Feild, H. S. (2001). *Human resource selection* (5th ed.). Orlando, FL: Harcourt.
- Peterson, N. G., Mumford, M. D., Borman, W. C., Jeanneret, P. R., Fleishman, E. A., Levin, K. Y., et al. (2001). Understanding work using the occupational information network (O*NET): Implications for practice and research. *Personnel Psychology*, 54, 451–492.

DIFFERENTIAL ITEM FUNCTIONING

Differential item functioning (DIF) is the preferred psychometric term for what is otherwise known as *item bias*. An item displays DIF when test takers

possessing the same amount of an ability or trait, but belonging to different subgroups, do not share the same likelihood of correctly answering the item. Thus, differentially functioning items elicit different responses from test takers of the same ability level. Because subgroups of test takers are often defined in terms of demographic membership (e.g., sex, race, socioeconomic status), items displaying DIF are sometimes considered “biased” against a particular subgroup. Consider, for example, the items on a standardized test of verbal ability. If the content of one item is sports related, then boys of a particular ability level may have an unfair advantage over girls of that same general verbal ability level. Thus, the item favors boys because it measures a trait other than (or in addition to) verbal ability (in this case, sports knowledge).

It is important to note, however, that the mere presence of item score differences among subgroups does not necessarily indicate the presence of DIF. To return to the example of standardized tests, we would expect 12th-grade examinees to perform better on a verbal ability test than 9th-grade examinees taking the same test. Score differences between these groups would not result because the test is biased against ninth graders, but because of true overall differences in verbal ability. A true between-group difference in ability is referred to as *impact*, which is conceptually distinct from DIF. Complex statistical procedures exist for distinguishing when differences stem from inherent group differences or item bias.

LEVELS OF ANALYSIS

Differential item functioning is a statistical phenomenon that can occur in any item of a test. As DIF accumulates in several items, it can produce differential functioning in clusters of items called *bundles*. The items constituting a bundle may refer to a common reading passage, assess a common skill, share the same grammatical structure, or be of the same item type. This summative effect of DIF is called *DIF amplification*, which allows item-level effects to impact examinee scores at multiple levels of analysis. For instance, prior research on DIF amplification has demonstrated that single items on a history test favoring females yielded a substantially greater advantage when examined together as a bundle. Subgroup differences on such bundles indicate the presence of *differential bundle functioning* (DBF).

In addition, the effects of item-level effects can be examined in all test items simultaneously. *Differential test functioning* (DTF) occurs when test takers of the same ability do not receive the same overall test score. Because modern researchers and practitioners of applied psychology are most often interested in a bottom-line verdict (e.g., does it make sense to compare the results of this employee opinion survey across male and female workers?), greater emphasis is placed on test-level analyses that allow items favoring one group to cancel the DIF of items favoring another group.

DETECTING DIFFERENTIAL ITEM FUNCTIONING

Early approaches to DIF detection relied on analysis of variance (ANOVA) models that treated DIF as an item-by-group interaction and focused on the percentage of examinees responding correctly to each item (p -values). This approach has been criticized as simply an omnibus test of p -value differences, which confound DIF with impact. At present, many DIF detection techniques exist that more effectively operationalize DIF. These techniques can be grouped into those that operate directly on the raw item responses of test takers (nonparametric methods) and those that evaluate the estimated parameters of item-response theory models (parametric methods). Among the more popular nonparametric techniques are the Mantel-Haenszel method, logistic regression procedures, and the simultaneous item bias test (SIBTEST). Popular parametric techniques include Lord's chi-square statistic, the likelihood ratio technique, and the differential functioning of items and tests (DFIT) framework.

—Steven S. Russell and Michael J. Zickar

See also Item Response Theory

FURTHER READING

- Camilli, G., & Shepard, L. A. (1994). *Methods for identifying biased items*. Thousand Oaks, CA: Sage.
- Raju, N. S., & Ellis, B. B. (2002). Differential item and test functioning. In F. Drasgow & N. Schmitt (Eds.), *Measuring and analyzing behavior in organizations: Advances in measurement and data analysis* (pp. 156–188). San Francisco: Jossey-Bass.

DIRTY WORK

Everett Hughes invoked the term *dirty work* in reference to jobs and tasks that are often seen as degrading, disgusting, or debasing. Dirty work is often seen as a necessary evil in society—*someone* needs to clean the streets, save lives in an emergency room, or guard inmates in a prison. Yet, although society acknowledges a need for this dirty work, it stigmatizes the workers who perform it. And because individuals generally define themselves (and are defined by others) at least partly by what they do, those who engage in dirty work are often cast by society and themselves as dirty workers.

DIRTY WORK AS A FORM OF STIGMA

Dirty work is typically thought of as a subset of the larger notion of stigma, which also includes nonwork aspects of an individual or group that reflect some type of taint. Stigma results in a wide variety of psychological predicaments that individuals react to with a diverse set of cognitive, affective, and behavioral coping strategies. Stigma may be experienced at multiple levels, including individual, group, occupational, and organizational. Researchers on stigma often focus on individual differences that bring on stigma, such as physical impairment, unethical behavior, or homosexuality. Occupational research tends to focus on how individuals and groups cope with the stigma brought on by work in specific jobs. Unlike many other sources of stigma, an individual's occupation is seen as controllable. Therefore, society often casts doubt on those who hold dirty work jobs, despite many of the jobs being deemed necessary.

CLASSIFICATIONS OF DIRTY WORK

Multiple classifications of dirty work are found in the literature, including classifying the *sources* of the stigma, documenting the *degree and breadth* of the stigma, and distinguishing between *high and low prestige* types of stigmatized occupations.

Three Sources of Stigma

Early work on occupational stigma by sociologists Erving Goffman and Everett Hughes outlined three

ways that an occupation could be labeled as stigmatized: through physical, social, or moral taint. Although neither Goffman nor Hughes offered exact definitions of these types of stigma, organizational scholars Blake Ashforth and Glen Kreiner gave more specific examples and parameters for each of them. *Physical taint* refers to occupations connected to tangibly offensive things such as dirt, garbage, or death (e.g., embalmers, trash collectors, janitors) or performed under highly noxious or dangerous conditions (e.g., miners, soldiers). *Social taint* refers to occupations involving frequent interaction with stigmatized groups (such as a probation officer's or lawyer's association with criminals) or with markedly servile relationships accepted by society (e.g., taxi driver, butler). *Moral taint* refers to occupations that are regarded by a significant segment of society to be sinful or of dubious virtue (such as exotic dancers, casino workers) or in which deceptive or intrusive methods are commonly employed (e.g., telemarketers, internal affairs officers).

Breadth and Depth of Stigma

Not all dirty work research focuses on extremely tainted jobs. Rather, it has been argued that stigma exists in many jobs, but to varying degrees. Indeed, some degree of stigma can be found in virtually all occupations. One dimension on which dirty work can vary is *breadth of taint*. This depends on (a) the proportion of work that is dirty and/or (b) the centrality of the dirt to the occupational identity. The second dimension on which dirty work can vary is the *depth of taint*. This refers to (a) the intensity of dirtiness and (b) the extent to which a job incumbent is directly involved in the dirt.

Prestige Level of Occupation

As with all occupations, dirty work jobs can be distinguished between relatively low and relatively high prestige. Prestige is generally acknowledged to be a function of variables including status, power, education, and income. Prestige can provide a status shield that protects job incumbents from some of the stigma encountered in lower-prestige occupations. For example, although lawyers, police officers, and prison guards each deal with criminals, their prestige level varies, thus altering the degree to which a social

stigma might stick to them. High prestige offers a fallback cognitive position in the face of pervasive taint from other dimensions of the job.

COPING WITH DIRTY WORK

Ashforth and Kreiner outlined a multipart model that detailed several aspects of coping with the ill effects of dirty work. Each aspect is detailed below.

1. *Strength of occupational culture*. Because of the pervasive influence of societal stigma, and the need to counter its negative effects, dirty work members tend to form work-group or occupational subcultures. Job titles, public visibility, interpersonal interactions, and so forth make the occupation salient. Yet, society is reluctant to confirm positive attributes to dirty work incumbents. So, those in dirty work occupations often create strong subcultures that create an us-versus-them mentality and reinforce positive evaluations of themselves. These strong subcultures then collectively create, reinforce, and provide mechanisms for coping to individuals, as described below.
2. *Social weighting*. Outsiders to a dirty work occupation often are seen as a threat to personal and occupational identity, as they are likely to reinforce the negative stereotypes about the dirty work job. Therefore, those in dirty work jobs often invoke tactics to change the importance of various social groups' perceptions of them.
 - a. *Condemning condemners*. This tactic involves devaluing the perceptions and opinions of those who look down on the dirty workers. By pointing out flaws or shortcomings of those who criticize them, the dirty worker lessens the impact of the criticism. This tactic seeks to decrease the legitimacy of certain outside groups.
 - b. *Supporting supporters*. Similarly, this tactic involves giving additional credence and attention to those individuals and groups who are friendly to the dirty workers (such as friends, family, or workers in similarly stigmatized occupations). By placing greater weight on friendly audiences, the dirty worker can reinforce the positive elements of the appraisal. Note that this tactic increases the legitimacy of certain outside groups.
 - c. *Selective social comparisons*. Social comparison theory is based on the notion that at least part of our self-esteem derives from comparisons we make with other individuals and groups. Highly creative social comparisons have been found in many occupations, and particularly in dirty work

jobs. Social comparisons can occur *within* broad occupational classifications (e.g., a call girl looking down on a streetwalker because of more prestige in her relative position) or *between* occupational classifications (e.g., an exotic dancer feeling superior to her businessmen clients).

3. *Occupational ideology tactics.* Coupled with social weighting techniques are ideological tactics that offer comparatively rosier interpretations of reality. Ideological tactics invoke systems of beliefs that help make sense of the social world and do so in a way that typically benefits the group or individual invoking them.
 - a. *Reframing.* This tactic involves changing the meaning associated with a dirty work job. One way to do this is through *infusing*, which injects positive values into the occupation. This can be done through occupational missions, which describe the purported reason for the occupation's existence. Another way to reframe aspects of an occupation is through *neutralizing*, which deflects or decreases the negative aspects of the occupation.
 - b. *Recalibrating.* This tactic adjusts the criteria that are used to evaluate the dirty work job by either increasing the importance of something others might see as small (e.g., trash collectors saying that society could not function without proper waste removal) or decreasing the importance of something others might see as large (e.g., abortion providers casting abortion as merely one of many women's health services offered by their clinic).
 - c. *Refocusing.* This tactic shifts the attention from the stigmatized aspects of the job to the nonstigmatized aspects. Whereas the other two ideological tactics involve changing the perception of the stigma, refocusing ignores it. This is like the proverbial shell game, in which focus is purposefully diverted from one thing to another. For example, dirty workers could focus on good pay, benefits, flexible hours, or other traditional job design features that are desirable. Key to this tactic, though, is that these positive features (rather than the stigmatized ones) are cast as the *central* components of the job.
4. *Normalization.* The process of normalization takes extraordinary things (events, stimuli, etc.) and transforms them into seemingly ordinary things. The taint of dirty work can be normalized over time through various means, thereby relieving workers of the omnipresent effects of stigma. These means can be employed idiosyncratically by individuals, or become institutionalized over time by organizations

or occupations, and include diffusing, adaptation, and ritualism.

- a. *Diffusing* attempts to dissipate unwanted emotions or to weaken their impact. For example, fear of various dirty stimuli (e.g., insects, heights, blood, dead bodies) can be diffused through humor or shared war stories.
- b. *Adaptation* refers to the process through which reactions to negative stimuli are reduced. This can be achieved through habituation (meaning the stimulus stays the same but a person grows numb to it) or through desensitization (meaning the stimulus is gradually increased to slowly ease the person into change).
- c. *Ritualism* refers to standardized behaviors and techniques that are used to manage anxieties toward negative stimuli. By engaging in ritual, individuals gain a sense of control over otherwise negative situations. Also, rituals create a *momentum of means* that carries individuals through dirty work procedures; this occurs because rituals allow cognitive functions to become routinized such that the negative features of a process are not dealt with at a level of noticeable consciousness.

IMPLICATIONS FOR INDUSTRIAL/ ORGANIZATIONAL PSYCHOLOGY

Key to understanding the management of dirty work is that each of the aforementioned tactics can be invoked purposefully by individuals (workers, supervisors, managers) or by collectives (workgroups, subcultures, occupations, organizations). That is, these processes can be *managed* idiosyncratically, institutionally, or both. Hence, dirty workers have available to them a wide variety of individual and collective tactics to alleviate or change the negative consequences of social stigma. Yet, because of the pervasiveness of stigma, dirty workers face a dilemma of personal identity that is not always solved in either the short or long term.

—Glen E. Kreiner

See also Emotions; Job Satisfaction; Organizational Image; Self-Esteem; Stress, Coping and Management; Theory of Work Adjustment

FURTHER READING

Ashforth, B. E., & Kreiner, G. E. (1999). "How can you do it?" Dirty work and the challenge of constructing a positive identity. *Academy of Management Review*, 24, 413–434.

- Ashforth, B. E., & Kreiner, G. E. (2002). Normalizing emotion in organizations: Making the extraordinary seem ordinary. *Human Resource Management Review, 12*, 215–235.
- Crocker, J., Major, B., & Steele, C. (1998). Social stigma. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (Vol. 2, pp. 504–553). Boston: McGraw-Hill.
- Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity*. New York: Simon & Schuster.
- Heatherton, T. F., Kleck, R. E., Hebl, M. R., & Hull, J. G. (Eds.). (2000). *The social psychology of stigma*. New York: Guilford.
- Hughes, E. C. (1962). Good people and dirty work. *Social Problems, 10*, 3–11.

DISTANCE LEARNING

Distance learning is a method of offsite training in which individuals acquire knowledge and skills via computer. Off-site training methods are those in which the trainee is learning how to perform a job at a place that is removed from the actual job site. Also commonly referred to as *computer-based training*, *computer-assisted instruction*, or *web-based instruction*, distance learning is the most recently developed training method and has experienced significant growth since the advent of the personal computer and the World Wide Web. This growth is projected to continue in the next 10 to 20 years, as people continue to become more comfortable and experienced with the use of computers at home and at work.

DISTANCE LEARNING: SCOPE

Distance learning is a broad topic, and it varies widely on a number of important dimensions. These may include, but are not limited to, the following:

- *Content.* Distance learning has been used to impart a wide variety of material, such as the orientation of new workers, job-specific skills training, personal and career development, management and leadership development, and skills updating and retraining. For example, a leading consumer electronics retailer uses distance learning approaches to teach its regional managers how to give effective feedback to employees and to update its sales representatives on changes to product features.

- *Sophistication.* Distance learning approaches can range from the very simple, such as downloadable learning modules that are text intensive, to the very complex and sophisticated, such as programs in the field of telemedicine, in which users can perform a virtual physical exam on a patient. For example, using a mouse, a medical student could point to an area on a patient's abdomen and then receive immediate feedback on what conditions were discovered.
- *Fidelity.* An effective training environment has high psychological fidelity, in that it closely mirrors the environment in which the trainee will have to perform the actual tasks for which he or she is being trained. For example, a leading worker's compensation insurance company uses distance learning to help its clients' managers to identify and correct unsafe workplace behaviors. Via computer, managers are shown videos of workers engaged in various tasks, such as a package delivery driver lifting a box, and are asked to select the safe and unsafe behaviors that the driver is engaging in. The managers receive feedback on their choices in real time and are offered the opportunity to ask questions and to change their selections.
- *Connection with needs assessment and training evaluation.* The advent of a new training technique such as distance learning does not by itself guarantee a successful training experience. To be maximally effective, a training program has to be guided by a careful needs assessment (and the resultant instructional objectives) and must be thoroughly evaluated on a number of dimensions, such as the amount of behavior change engendered and the eventual impact on the business unit's financial performance. Like more traditional training techniques, distance learning implementations can vary widely with respect to their connection to needs assessment and training evaluation.

DISTANCE LEARNING: ADVANTAGES

Distance learning has many potential benefits both for individual employees and for organizations. Some of these benefits include the following:

- *Individualized instruction.* A well-established benefit of distance learning is that it can provide individualized, personalized guidance to learners, so that learners can often proceed through material at their own pace. Sophisticated systems can adjust the order, speed, and difficulty with which material is presented, and learners can often go back to previously presented material to truly master it.

- *More convenience.* Learners can often interact with the material whenever and wherever is convenient for them, as opposed to having to begin and end a session at predetermined times or places.
- *Lower cost.* Although distance learning approaches often require a sizable initial financial investment, the per-learner cost drops over time as more and more people are enrolled in a program. The result is that most distance learning approaches eventually prove more economical than traditional training methods. Travel expenses associated with training are also substantially reduced.
- *Reduced training time.* Recent studies suggest that distance learning approaches reduce the time expenditure required by training. One study suggests that in contrast to more traditional classroom approaches, distance learning resulted in reductions in training time ranging from 20% to 80%, with 40% to 60% being the most common.
- *Immediate feedback.* Research consistently demonstrates that feedback is most effective when it is immediate, frequent, and specific. Distance learning approaches are especially well suited to delivering feedback of this nature.
- *Improved performance tracking.* Distance learning approaches often have the capability to provide very detailed information about a learner's experience, including the amount of training completed by the learner, the time and speed with which the learner interacted with the material, and the number and type of errors that the learner committed. Although listed here as an advantage, given the contemporary concern with employee privacy and data security issues, the large amount of individually identifiable data that distance learning programs can generate should be handled in accordance with established safeguards.
- *Standardization of training content and delivery.* The majority of distance learning approaches ensure that the same topics are covered in the same way, thereby reducing the possible inconsistencies associated with other training techniques, such as classroom delivery methods.

DISTANCE LEARNING: POTENTIAL ISSUES

Although distance learning has many advantages, it is not without issues to consider. These issues may include the following:

- *Reliance on technology.* Although this is becoming less of an issue because of advances in computer network technology, the success of distance learning programs still depends on the reliability of the technological infrastructure that supports the program.

For example, if a trainee is taking an online posttest to determine the extent to which he or she has learned a segment of material, and the computer freezes or the network connection is dropped, the training experience will be compromised.

- *Individual learner self-efficacy.* People who are uncomfortable with computer technology may be discouraged from enrolling in distance learning programs. This may especially be the case if they have had negative prior experiences with distance learning. As the use of computers becomes more pervasive, issues of comfort and self-efficacy should become less problematic.
- *Lack of adequate research.* In comparison with more traditional training methods, such as on-the-job (OTJ), simulation, classroom, and job rotation, empirical research on the efficacy of distance learning is still in its infancy. Given the increasing popularity of distance learning, there is ample evidence that this paucity of rigorous research is beginning to change, but it still may take time for scholarly consensus to emerge on issues such as Web program development, usability, and the overall efficacy of distance learning programs.
- *Loss of interpersonal contact.* Some participants in distance learning programs report disappointment with the absence of social contact from instructors and colleagues/classmates. Note that the inability to see the trainees may also be problematic from the instructor's perspective. Many organizations attempt to ameliorate this concern by using blended training models, which feature a combination of distance learning and more traditional training approaches. Several organizations and researchers have argued that in comparison to methods that are exclusively distance learning based or that are solely traditional (i.e., conducted in a classroom), these blended models provide superior learning outcomes. Some training practitioners have found it useful to administer a distance learning self-assessment to potential trainees prior to the beginning of a distance learning program. These self-assessments help trainees to decide whether a distance learning format would be a good match for their competencies, needs, and learning style. For example, if an individual reports a low level of comfort with computers, as well as a strong need for interpersonal contact, he or she may not be a strong candidate for distance learning.
- *Distracting environments.* Perhaps the principal advantage of distance learning, its time and geographic flexibility, can also potentially be a pitfall. Classrooms and other set times for training create a physical and psychological separation between training and nontraining time and help to set the

expectation that the trainee is there to focus on the material and to learn. If a trainee is logging on at home, that physical and psychological separation is lost, and the person may be distracted by a variety of home and family demands.

—Todd C. Harris

See also Computer Assessment; Training; Training Evaluation; Training Methods; Training Needs Assessment and Analysis; Transfer of Training

FURTHER READING

- Baskin, C. (2001). Using Kirkpatrick's four level evaluation model to explore the effectiveness of collaborative online group work. In G. Kennedy, M. Keppell, C. McNaught, & T. Petrovic (Eds.), *Meeting at the crossroads: Proceedings of the 18th annual conference of the Australian Society for Computers in Learning in Tertiary Education* (pp. 37–44). Melbourne, Australia: Biomedical Multimedia Unit, the University of Melbourne.
- Craiger, J. P., & Weiss, R. J. (1997). Traveling in cyberspace: Web-based instruction. *The Industrial-Organizational Psychologist*, 35, 11–17.
- Hall, B. (1995). Multimedia training is return on investment. *Workforce Training News*, July/August, 15.
- Johnson, S. D., Aragon, S. R., Shaik, N., & Palma-Rivas, N. (2000). Comparative analysis of learner satisfaction and learning outcomes in online and face-to-face learning environments. *Journal of Interactive Learning Research*, 11(1), 29–49.
- Khan, B. H. (Ed.). (1997). *Web-based instruction*. Englewood Cliffs, NJ: Educational Technology.
- Weiss, R. J., & Craiger, J. P. (1997, April). Traveling in cyberspace: Computer-based training. *The Industrial-Organizational Psychologist*, 34, 70–75.
- Zenger, J., & Unhlein, C. (2001). Why blended will win. *American Society for Training and Development*, 55, 54–60.

DIVERSITY IN THE WORKPLACE

The term *diversity* refers to all human characteristics that make people different from one another. These differences may be represented by visible characteristics, such as gender, race, ethnic background, and age. However, these differences may also be represented by nonvisible characteristics, such as education,

functional background, organizational tenure, socio-economic background, and personality.

Diversity as a workplace issue was triggered by reports published in the late 1980s indicating that the representation of women and ethnic minorities in the workforce would experience accelerated growth rates in the years ahead. Such changes in the demography of U.S. workforces implied that organizations would be required to change the ways in which people were managed. For example, as the White male demographic decreased in relative size, organizations desiring to attract and retain the highest-quality talent would have to recruit from all demographic categories. Further, because such workforce changes were emerging in an increasingly global economy and marketplace, organizations desiring to remain competitive would have to create strategies for addressing the needs and demands of potential customers from a variety of cultural backgrounds. Organizations also would have to contend with various legal and ethical issues that come with employing more diverse workforces.

Consistent with predictions, the 21st-century workforce is typified by more women and employees with diverse ethnic backgrounds, varied lifestyles, and intergenerational differences than in the past. Such trends are projected to continue, as forecasts show that people entering the workforce in the next 20 years will be more diverse than in the current workforce. Current census projections for the year 2050 are that ethnic minorities will account for almost half of the U.S. population and will soon constitute the majority of new net entrants in the U.S. workforce, particularly because of continued high levels of immigration into the United States. In addition, experts predict that the representation of women and people with disabilities in the workforce as well as the average age of the workforce will increase.

THE CONSEQUENCES OF DIVERSITY

With the increasing focus on diversity in the workplace, there is a growing need for organizations to understand the effects of such diversity. Research generally suggests that diversity can influence employees' attitudes, behavior, and career outcomes, as well as their abilities to interact with others and function effectively in work groups. However, these effects may be both positive and negative.

Diversity brings about differences in people's backgrounds and experiences and, therefore, differences in

perspectives on key issues or problems. Because diverse groups have a broader and richer base of experiences from which to approach a problem, they tend to produce a wider variety of ideas, alternatives, and solutions. In addition, the expression of alternative views in diverse groups may raise the quality of decision making by increasing the group's attention to its decision-making processes. Diversity also increases the cognitive and informational resources available to the group, which enhances critical analysis in decision groups. Because of these different perspectives, diversity tends to result in more creative and higher-quality decisions. In addition, diversity lessens the likelihood of *groupthink*, or the absence of critical thinking caused in part by a group's desire to maintain cohesiveness.

Although diverse groups tend to demonstrate better problem solving, the same diversity that provides for different perspectives may also result in process losses that can limit a group's performance potential. Research shows that whereas similarity on demographic variables increases interpersonal attraction and liking, diversity lessens attraction and open communication between members. Because of lower social integration, members may be less attracted to, and feel less comfortable and satisfied with, the group. Further, diverse groups may be less cohesive and may have higher rates of absenteeism and turnover. Given the increased likelihood of misunderstandings and miscommunication among members of diverse groups, research also demonstrates that diversity is associated with higher levels of conflict. Groups composed of individuals with diverse types of skills, knowledge, abilities, and perspectives tend to experience greater task conflict, or disagreement about the content of the tasks being performed. In addition, differences in members' level of attraction to, and identification with, the group may produce affective conflict, or interpersonal disagreements characterized by anger, distrust, frustration, or other negative attitudes.

Research has also highlighted certain conditions under which diversity is more likely to result in positive than in negative consequences. For example, groups are most likely to reap the benefits of diversity when they are engaged in complex tasks or in problem-solving and decision-making tasks. In addition, the benefits of diversity are likely to occur only after a diverse group has been together for a while. As members learn how to interact effectively with one another, the process losses suffered by heterogeneous

groups diminish. Thus, members of diverse groups must successfully deal with the difficulties arising from diversity before they can reap the benefits. Alternatively, there may be some moderate level of diversity in groups at which barriers to communication and conflict have not fully surfaced and do not supersede the creativity and problem-solving benefits of diversity. The consequences of diversity also may be influenced by the type of diversity that exists in a group, as nonobservable characteristics produce very different effects on group process and performance than do observable attributes. For example, informational diversity, which is likely to arise as a function of differences in education, functional area, or tenure among group members, may stimulate task conflict, which facilitates more thorough analyses and improved decision making.

Diversity in the workplace can be both a liability and an asset. Although the negative effects of diversity may combine to make decision-making more difficult and time-consuming, diverse characteristics and backgrounds may foster higher-quality problem solving, decision making, and performance. Thus, the challenge for organizations is to manage in such a way as to maximize the potential benefits of diversity while minimizing the potential disadvantages.

MANAGING DIVERSITY

The concept of managing diversity refers to efforts by organizations to actively recruit, motivate, retain, and facilitate working relationships among individuals who are demographically different and from a variety of backgrounds. Managing diversity means establishing a heterogeneous workforce to perform to its potential in an equitable work environment where no member or group of members has an advantage or disadvantage. As such, managing diversity differs from affirmative action, which refers to actions taken to overcome the effects of past or present practices, policies, or other barriers to equal employment opportunity. Affirmative action gives managers the opportunity to correct imbalances, injustices, and past mistakes. However, after such inequities are corrected, the long-term challenge becomes to create a work environment that respects and includes differences, recognizing the unique contributions that individuals with many types of differences can make, and that maximizes the potential of all employees and allows them to compete for organizational rewards based on merit.

Diversity Paradigms

Organizations differ in their approaches to diversity management. Some manage diversity with a focus on equal opportunity and fair treatment. Based on an assumption that prejudice has kept members of certain demographic groups out of organizations, this approach is intended to restructure the composition of an organizational workforce to let it more closely reflect the composition of society. Focusing on members of historically disadvantaged groups, this approach concentrates on compliance with federal mandates stemming from equal employment opportunity legislation and affirmative action policies. In addition, organizations following this approach often institute programs to increase the representation of women and ethnic minorities in their workforces and to retain members of these groups in the organization.

Some organizations manage diversity with a focus on access to, and legitimacy in, diverse markets. Under this paradigm, workforce diversity is viewed as a business opportunity. Differences are accepted and valued because they generate a broader range of multicultural competencies and multilingual skills that allow organizations to better understand and serve the needs of customers. As markets become more diverse and minority groups gain purchasing power, organizations also attempt to match the demographics of the workforce with those of customer or constituent groups to gain credibility with such groups. Because differences are believed to enhance an organization's ability to understand and serve its customers, organizations following this approach will institute initiatives to promote and value diversity in the interest of serving niche markets and increasing their market share.

Rather than focus on diversifying workforce composition, some organizations attempt to incorporate employees' perspectives into business processes to leverage the benefits of diversity for organizational effectiveness. This approach incorporates elements of the fairness approach, in that legal compliance is monitored, although methods of compliance beyond those mandated by law are undertaken. This approach also focuses on gaining access to, and legitimacy among, diverse customer groups, although an understanding of such groups is viewed as a learning rather than business opportunity. A learning approach differs from the other approaches in that similarities and differences among employees are seen as meaningful

dimensions of diversity that create both potential advantages and disadvantages and have both short-term and long-term consequences. Diversity provides opportunities for employee perspectives to be incorporated in organizational strategy and processes, with the goal of achieving various strategic objectives, such as efficiency, innovation, social responsibility, or customer satisfaction. Thus, organizations following this approach attempt to link diversity to organizational growth and effectiveness.

Diversity Practices

In response to the changing demographics of the workforce, as well as increased competition, organizations have instituted a variety of programs and practices designed to capitalize on the positive consequences of diversity while minimizing its negative consequences. Many organizations use training and education initiatives to meet the needs and challenges of a more diverse and changing workforce. Such initiatives are considered important for generating sensitivity and awareness for differences in the workplace, imparting an organization's value for diversity to its members, and providing employees with skills and competencies for operating in multicultural environments. Because diversity training is typically used as one of the first measures to introduce the concept of diversity within the organization, it has traditionally been viewed as the key diversity initiative.

The changing demographics of new entrants to the workforce now demand that organizations reconsider their recruitment strategies to understand how to best compete for and attract potential employees. To recruit and retain a more diverse labor force into critical roles, organizations have focused on the image they project to potential job seekers as well as the ways in which they interact with job applicants. Organizations are attempting to diversify their recruitment staffs, as recruiter diversity has been shown to enhance an organization's image as an equal opportunity employer that is committed to diversifying its workforce. Recruitment advertisements are also an important tool in recruiting for diversity, especially given that minority job seekers are more likely to use formal sources of job information and recruitment than are nonminority job seekers. Diverse advertisements are increasingly appearing in mainstream media outlets as well as outlets targeted to specific groups and on the Internet.

Because prejudices and biases that exist outside organizations spill over into workplaces and interfere with the ability of diverse employees to form developmental relationships, organizations have focused on strategies for ensuring that all employees have an equal opportunity to develop their careers. Further, given barriers to the representation of minorities at all levels of organizations and to their participation in social networks, many organizations have also instituted programs to help these individuals to gain both the instrumental and social support resources needed for career success. For example, organizations have instituted mentoring programs to bring together employees at different levels for the purpose of establishing relationships between junior employees and more senior employees, to develop the junior employees' careers. Organizations have also established affinity or network groups, which are groups of similar employees established to facilitate the social and professional support and development of a specific group.

Valuing diversity requires making accommodations for the needs, values, beliefs, and lifestyles that characterize more diverse workforces. Many such accommodations may be required by law to ensure that individuals with disabilities have the opportunity to perform at the level of a comparable person without a disability. However, other key areas of accommodation are currently being made by organizations. Organizations have developed work-life policies and programs to address a broad spectrum of work and personal issues among employees and to help employees balance these responsibilities. For example, family-friendly initiatives, such as family leave and dependent care, are used to ease conflicts between employees' commitments inside and outside of work. Similarly, flexible work arrangements, such as compressed workweeks, flextime, telecommuting, and job sharing, are used to meet employee needs for flexibility. Organizations also provide other types of resources and services to address employees' diverse work and personal issues and to attract and retain a diverse workforce.

—Quinetta M. Roberson

See also Affirmative Action; Diversity Training; Group Decision-Making Quality and Performance; Group Dynamics and Processes; Stereotyping; Work-Life Balance

FURTHER READING

- Cox, T. H., Jr. (1993). *Cultural diversity in organizations: Theory, research and practice*. San Francisco: Berrett-Koehler.
- Cox, T. H., Jr., & Blake, S. (1991). Managing cultural diversity: Implications for organizational competitiveness. *Academy of Management Executive*, 5, 45–56.
- Judy, R., & D'Amico, C. (1997). *Workforce 2020: Work and workers in the 21st century*. Indianapolis, IN: The Hudson Institute.
- Robinson, G., & Dechant, K. (1997). Building a business case for diversity. *Academy of Management Executive*, 11, 21–31.
- Thomas, D. A., & Ely, R. J. (1996). Making differences matter: A new paradigm for managing diversity. *Harvard Business Review*, 74, 79–90.
- Thomas, K. M. (2005). *Diversity dynamics in the workplace*. Toronto, Ontario, Canada: Wadsworth.
- Williams, K., & O'Reilly, C. (1998). The complexity of diversity: A review of forty years of research. In D. Gruenfeld & M. Neale (Eds.), *Research on managing in groups and teams* (Vol. 20, pp. 77–140). Greenwich, CT: JAI Press.

DIVERSITY TRAINING

Understanding diversity and its impact on organizational effectiveness has become an organizational priority. This training is no longer perceived as just a part of organizational social responsibility; instead, it is now viewed as a strategic business objective with the capability to make organizations more competitive. More than 50% of all U.S. organizations sponsor some sort of diversity training, at an estimated annual cost of \$10 billion.

Training to improve diversity competency involves a series of programs and activities that reveal similarities and differences among individuals and offer strategies for handling them. However, before any decisions are made concerning the planning and delivery of such training, it is important to define what an organization means by the term *diversity*. Diversity training may be narrowly focused on primary dimensions—characteristics trainees have no control over—such as age, race, ethnicity, and physical ability. Or such training can also include secondary dimensions—characteristics trainees have some control over—such as religious beliefs, marital status, educational level, and geographic location.

Advocates for using a broader definition of diversity identify advantages such as acknowledging the many differences that affect work interactions, making training more agreeable to participants, and reducing trainee resistance. A broader definition also gives trainees greater latitude to discuss issues that are personally relevant to them. Conversely, a narrower definition can prompt trainees to view the training as a corrective action or a program that serves only certain affected groups. Before adopting a definition of diversity, organizations should consider engaging in both an organizational analysis to identify the primary goals of training and an operational analysis to identify the stakeholders and resources necessary to deliver diversity training initiatives effectively.

DIVERSITY TRAINING STRATEGIES

Strategies used in diversity training can be varied and include conceptualization (lecture, readings, film), experimentation (role-playing simulations, guest speakers), experience (immersion in a different group), reflection (journals and diaries), applied activities (team projects), action learning (service activities), and action science (dialogue/discussion, case studies). Many diversity training programs address objectives such as the following:

- Clarifying and addressing trainees' prejudices and stereotypes that promote inaccurate perceptions and attributions
- Helping trainees learn more about others who differ from them and become more aware of the value of diversity
- Showing trainees how to effectively address diversity-related conflicts

Typically, diversity training programs can generally be divided into three broad types: awareness training, skill development, and integrated training.

Awareness Building

Most diversity programs begin with some form of awareness training for employees. These programs strive to sensitize trainees to differing perspectives, values, and norms, as well as interaction patterns that could impede coordination with others from different backgrounds. More pragmatically, these programs seek

to develop communication skills to ensure that interactions are free from prejudicial responses that pose potential legal liability for the organization and thwart the achievement of organizational goals.

Awareness building is designed to increase understanding of the meaning and importance of diversity. Its aim is to reveal unexamined assumptions, biases, and tendencies that stereotype others and how these perceptions affect behaviors, decisions, and judgment. To build awareness, trainees are taught to become familiar with the myths, stereotypes, and cultural differences as well as the organizational barriers that inhibit the full contributions of all employees. This training helps members to be more flexible in their communications with others and to treat each person as an individual rather than rely on a stereotype. In most organizations, the rules for success and advancement are often unwritten and ambiguous. Awareness training offers a means to teach these unwritten rules or cultural values to those who need to know them.

Most organizational diversity training emphasizes the awareness component, and many experts believe that raising trainee awareness is more valuable than skill building. However, these programs rarely address, in a systematic fashion, tactics that enable participants to positively affect diverse work environments. The penchant for awareness training may reflect the greater accessibility of these programs and the tendency to prefer such training because it is relatively inexpensive, easy to conduct, and applicable in a variety of organizational contexts. Although awareness training is a solid first step, and changing values and attitudes are admirable long-term goals, this focus apparently has not resulted in the desired sustainable changes in workplace behavior. Some evidence suggests that awareness programs may perpetuate stereotypes and thus heighten tensions among groups rather than reduce them. Because of these concerns, some practitioners recommend replacing awareness training with a greater emphasis on skill-based training.

Skill Building

Whereas awareness programs target attitudes toward diversity and reveal unexamined assumptions, biases, and stereotypes, skill-based training targets behaviors. Communication is used as the primary strategy for increasing interpersonal effectiveness. Such training teaches employees the practical skills

they need to work effectively in a diverse workplace, such as flexibility and adaptability, negotiation, problem solving, listening across differences, mentoring, and conflict resolution. Some researchers have recommended that diversity training focus only on behavior modification through skill building, not beliefs or awareness.

Integrated Training

A third option for diversity training is to combine the two predominant types in a sequence. That is, awareness training should be presented first and skills training second. This training sequence appears to have wide support. First, awareness training helps employees to understand what diversity means and why it is important. Then skill training provides the specific information and tactics needed for behavior change. Research suggests that a focus on skill training and behavior change may result in later attitude modification.

EFFECTIVENESS OF DIVERSITY TRAINING

Although diversity training has increased, measuring the success of these training programs has been problematic. Reports on the effectiveness of diversity training vary considerably. For example, some research indicates that such training increases knowledge about diversity and support for diversity efforts. Other work, however, has indicated that diversity training is ineffective. Despite this inconsistency, even researchers who acknowledge the potential traps often believe that diversity training remains immensely important and will become even more important in the future.

Diversity training programs rarely are subjected to systematic evaluation. When programs are evaluated, qualitative feedback from trainees is the most prevalent evaluation method. Few organizations measure how employees' behavior is affected by the training. In addition, there has been little work devoted to understanding how trainee characteristics influence training effectiveness.

Motivation to Learn

Because employee buy-in has been identified as an important component of successful training initiatives, organizations should be aware of the potential impact that framing could have on employees'

attitudes toward diversity training. A *frame* is a perceptual lens that directs individuals' attention toward important characteristics of a message. Previous work on framing has demonstrated that it can have a substantial impact on training effectiveness, such that trainees with higher motivation to learn have exhibited posttraining performance superior to that of trainees with lower motivation.

Motivation to learn is the specific desire of the trainee to learn the content of the training program. Significant research confirms that even individuals with the requisite ability will perform poorly in training if their motivation is low and that high motivation to engage in the training program results in more learning. Trainees' motivation to learn influences their decisions about the direction, focus, and level of effort surrounding their participation in a training program. Research has established that training group composition, pretraining experiences, and participants' decision to attend training contribute to participants' motivation to learn.

Training Group Composition

The diversity literature frequently advises organizations to assemble trainee groups that are demographically heterogeneous, particularly concerning the more visible dimensions of diversity, such as gender, race/ethnicity, and age. However, some evidence suggests that heterogeneous training groups may not be necessary or even helpful in all situations. If the organization wants to change on-the-job behavior, and the trainees have previously been exposed to diversity training, homogeneous training groups may be better. However, if the organization wants to change employee attitudes, or if trainees have not been exposed to diversity training, then either heterogeneous or homogeneous training groups may be beneficial.

Diversity Self-Efficacy

Diversity self-efficacy refers to individuals' confidence in their ability to effectively acquire and utilize cognitive and other resources to facilitate appropriate responses to diversity in the workplace. For effective change, diversity training must focus on enhancing self-efficacy and providing the skills needed to affect individual judgments of ability to influence change in themselves and others. A significant body of research supports the claim that self-efficacy is positively

related to training outcomes. Self-efficacy, for example, has been shown to play a significant role in expatriates' ability and willingness to adapt to new cultures effectively.

CONCLUSION

Diversity training has the potential to provide organizations with significant tangible and intangible benefits. However, to realize these benefits, research has offered five suggestions that have been empirically supported:

1. Have strong support from top management.
2. Link training to central organizational goals.
3. Involve all levels of employees.
4. Explicitly address individual behaviors and attitudes.
5. Discuss discrimination as a general process rather than as the experiences of specific groups.

Diversity training is most likely to be successful when it is ongoing or repeated, when there are follow-up activities to see whether the training has accomplished its objectives, and when it is supplemented by other diversity-related activities in an organization.

—Gary Kohut

See also Diversity in the Workplace

FURTHER READING

- Bendick, M., Egan, M. L., & Lofhjelm, S. M. (2001). Workforce diversity training: From anti-discrimination compliance to organizational development. *Human Resource Planning*, 24(2), 10–25.
- Chrobot-Mason, D., & Quiñones, M. A. (2002). Training for a diverse workplace. In K. Kraiger (Ed.), *Creating, implementing, and managing effective training and development* (pp. 117–159). San Francisco: Jossey-Bass.
- Clements, P., & Jones, J. (2002). *The diversity training handbook*. London: Kogan Page.
- Holladay, C. L., Knight, J. L., Paige, D. L., & Quiñones, M. A. (2003). The influence of framing on attitudes toward diversity training. *Human Resource Development Quarterly*, 14(3), 245–263.
- Roberson, L., Kulik, C. T., & Pepper, M. B. (2003). Using needs assessment to resolve controversies in diversity training design. *Group and Organization Management*, 28(1), 148–174.
- Rynes, S., & Rosen, B. (1995). A field study of factors affecting the adoption and perceived success of diversity training. *Personnel Psychology*, 48, 247–270.

Wiethoff, C. (2004). Motivation to learn and diversity training: Application of the theory of planned behavior. *Human Resource Development Quarterly*, 15(3), 263–278.

DOWNSIZING

Downsizing, layoffs, and rightsizing are forms of organizational restructuring. *Organizational restructuring* refers to planned changes in organizational structure that affect the use of people. Organizational restructuring often results in workforce reductions that may be accomplished through mechanisms such as attrition, early retirements, voluntary severance agreements, or layoffs. The term *layoffs* is used sometimes as if it were synonymous with *downsizing*, but *downsizing* is a broad term that can include any number of combinations of reductions in a firm's use of assets—financial (stock or cash), physical (plants and other infrastructure), human, or informational (databases). Layoffs are the same as employment downsizing.

Employment downsizing, in turn, is not the same thing as organizational decline. Downsizing is an intentional, proactive management strategy, whereas decline is an environmental or organizational phenomenon that occurs involuntarily and results in erosion of an organization's resource base. As an example, the advent of digital photography, disposable cameras, and other imaging products signaled a steep decline in the demand for the kind of instant photographic cameras and films that Polaroid had pioneered in the 1940s. On October 12, 2001, Polaroid was forced to declare bankruptcy.

Organizational rightsizing refers to the broad process of aligning a company's staffing levels to the needs of the business, whether it is expanding or contracting. At W. L. Gore and Associates, a contributions-based model is used to ensure that the organization is the right size for its business conditions. Gore employees (called *associates*) work in teams. Team members rank each other using a peer-to-peer contribution-ranking system. The system is based on associates knowing what their coworkers are working on (their commitments), how important this work is to the success of the business (impact of commitments), and what results are being achieved (effectiveness at completing commitments).

Associates who are ranked higher than their counterparts are perceived to be contributing more to the

company's success than those ranked lower. All associates are ranked by their teammates and leaders at least once a year, and the resulting lists place everyone in rank order based on contribution from highest to lowest. The ultimate goal is to develop a contribution-based, rank-order list that is accurate and fair to all parties.

The primary purpose of the contributions-based model is to set pay levels each year. However, it also is used for staffing purposes on an ongoing basis to rightsize the organization. Gore believes that the overall health of the organization will be maintained and improved as associates with high contribution potential are added and those with unacceptably low contribution potential are removed. The process may accelerate in times of major business growth or decline.

The term *resizing* is closely related to the term *rightsizing*. Resizing is the repositioning of an organization's employee ranks to achieve a company's strategic objectives. It does not necessarily suggest massive job cuts. It is primarily strategic in nature, and it is part of an ongoing organizational transformation (as opposed to a one-time-only event). Resizing contributes to executives' intentions to cut costs, focus resources, and implement strategic shifts to capitalize on the ever-changing global marketplace. It typically involves layoffs, divestitures of underperforming assets, and closings of certain operations. Examples include the elimination of jobs at CNN following its merger with AOL Time Warner, United Airlines' closing of money-losing stations, and Vivendi's divestiture of a liquor business that was outside its area of managerial expertise.

An extensive body of research has shown that downsizings, closures, and divestitures often fail to achieve their financial and strategic objectives and that they often produce unintended consequences, such as overwork and stress for those who remain, increases in health care costs for victims and survivors, increases in accidents and workers' compensation claims, and uncertain effects on productivity and profitability. To put this issue into perspective, the next section reviews the extent of downsizing in the 1980s, the 1990s, and the early 21st century.

EXTENT OF DOWNSIZING

An analysis performed for the U.S. Department of Labor examined financial and operating data on 7,194

companies that were listed on the New York or NASDAQ stock exchanges at some point in the 15-year period from 1980 to 1994. Almost a third of the companies downsized 15% or more of their employees at least once during the period of the study. The average magnitude of a downsizing in any given year was about 10%. Manufacturing firms accounted for the largest number of downsizers, service firms were second, and retailers third.

Very large companies, those with more than 10,000 employees, were most likely to downsize employees. This is because they are usually the ones that can take advantage of economies of scale or technological innovation to eliminate redundant workers. In general, employment downsizing is a large-company phenomenon. It occurs commonly among low- and medium-profitability firms. Firms shed workers throughout the 1990s and through 2000 at a rate of roughly 1.5 million per year.

In 2001, however, companies in the United States announced layoffs of almost 2 million workers (1.96 million), with firms such as American Express, Lucent, Hewlett-Packard, and Dell conducting multiple rounds in the same year. Corporations announced 999,000 job cuts between September 11, 2001, and February 1, 2002, alone. In 2003, according to the U.S. Department of Labor's Bureau of Labor Statistics, the United States shed more than 1.2 million jobs, and in 2004, that number declined to just under 1 million. In short, downsizing has become etched into the corporate cultures of many companies, and it is not limited to periods of economic decline.

The phenomenon of layoffs is not limited to the United States. Layoffs occur often in Asia, Australia, and Europe, as well. In western Europe, the incidence of layoffs varies among countries. Labor laws in countries such as Italy, France, Germany, and Spain make it difficult and expensive to dismiss workers. In Germany, for example, all "redundancies" must by law be negotiated in detail by a workers' council, which is a compulsory part of any big German company and often has a say in which workers can be fired. Moreover, setting the terms of severance is uncertain, because the law is vague and German courts often award compensation if workers claim they received inadequate settlements. In France, layoffs are rare. Even if companies offer generous severance settlements to French workers, as both Michelin and Marks & Spencer did, the very announcement of layoffs triggers a political firestorm.

RATIONALE FOR DOWNSIZING

Many firms have downsized and restructured successfully to improve their productivity. They have done so by using employment downsizing as part of a broader business plan. Extensive research has shown that employment downsizing is not a quick fix that will necessarily lead to productivity improvements and improved financial performance. Employment downsizing alone will not repair a business strategy that is fundamentally flawed.

There are at least two circumstances in which employment downsizing may be justified. The first occurs in companies that find themselves saddled with nonperforming assets or consistently unprofitable subsidiaries. They should consider selling them to buyers who can make better use of those assets. Employees associated with those assets or subsidiaries often go with them to the new buyers. The second instance occurs when jobs rely on old technology that is no longer commercially viable. This was the case in the newspaper industry following the advent of computer-based typesetting. There simply was no longer a need for compositors, a trade that had been handed down from generation to generation. However, indiscriminate slash-and-burn tactics, such as across-the-board downsizing of employees, seldom lead to long-term gains in productivity, profits, or stock prices.

THE PSYCHOLOGICAL AND FINANCIAL TOLL

Downsizing is a traumatic event, and it often takes a disturbing toll on workers, their families, and their communities. Lives are turned upside down, people become bitter and angry, and the added emotional and financial pressure can create family problems. *Survivors*, or workers who remain, can be left without loyalty or motivation. Their workplaces are more stressful and political after downsizing. Local economies and services become strained under the impact to the community.

When combined with heavy debt loads, employment downsizings often lead to personal bankruptcies, which hit families hard and ratchet up stress levels. At the same time, employee assistance counselors often report increases in crisis calls involving problems such as online affairs, addictions in adolescents, and spousal abuse.

For those who still have jobs, their incomes, hours, and bonuses are often cut. Money woes also lead to

medical problems, lower productivity, and increased absenteeism and accidents. As for the managers who do the firing, their health suffers, too. A study conducted at 45 American hospitals found that executives ran twice as much risk of a heart attack in the week after firing someone.

GUIDELINES FOR IMPLEMENTATION

If an organization decides that it must downsize, the following principles, based on a considerable body of research and practical lessons born of experience, may prove helpful:

1. *Carefully consider the rationale behind restructuring.* Invest in analysis and consider the impact on those who stay, those who leave, and the ability of the organization to serve its customers.
2. *Consider the virtues of stability.* In many cases, companies can maintain their special efficiencies only if they can give their workers a unique set of skills and a feeling that they belong together. Stability is crucial in knowledge-based and relationship-based businesses.
3. *Seek input from employees.* Before making any final decisions about restructuring, executives should make their concerns known to employees and seek their input. Make special efforts to secure the input of star employees or opinion leaders, for they can help communicate the rationale and strategy of restructuring to their fellow employees and also help to promote trust in the restructuring effort.
4. *Use downsizing or rightsizing as an opportunity to address long-term problems.* Unless severe overstaffing is part of a long-term problem, consider alternatives to layoffs first, and ensure that managers at all levels share the pain and participate in any sacrifices employees are asked to bear.
5. *Be mindful of fairness and consistency.* If layoffs are necessary, be sure that employees perceive the process of selecting excess positions as fair and make decisions in a consistent manner. Make special efforts to retain the best performers, and provide maximum advance notice to terminated employees. Provide as much personal choice to affected employees as possible.
6. *Communicate regularly and in a variety of ways in order to keep everyone abreast of new developments and information.* Executives should be visible, active participants in this process, and lower-level

managers should be trained to address the concerns of victims as well as survivors.

7. *Give survivors a reason to stay and prospective new hires a reason to join.* Be able to explain how business processes will change and why the organization will be better able to compete and to serve its customers after downsizing. Alternatively, a stable, predictable employment relationship is a powerful attraction to join and to stay at an organization.
8. *Train employees and their managers in the new ways of operating.* Evidence indicates that firms whose training budgets increase following a restructuring are more likely to realize improved productivity, profits, and quality.
9. *Examine carefully all management systems in light of the change of strategy or environment facing the firm.* These include workforce planning, recruitment and selection, performance management, compensation, and labor relations.

—Wayne F. Cascio

See also Work Motivation

FURTHER READING

- Cascio, W. F. (1993). Downsizing: What do we know? What have we learned? *Academy of Management Executive*, 7(1), 95–104.
- Cascio, W. F. (2002). *Responsible restructuring: Creative and profitable alternatives to layoffs*. (2002). San Francisco: Berrett-Koehler and the Society for Human Resource Management.
- Cascio, W. F., Young, C. E., & Morris, J. R. (1997). Financial consequences of employment-change decisions in major U.S. corporations. *Academy of Management Journal*, 40(5), 1175–1189.
- De Meuse, K. P., & Marks, M. L. (Eds.). (2003). *Resizing the organization: Managing layoffs, divestitures, and closings*. San Francisco: Jossey-Bass.
- Fisher, S. R., & White, M. A. (2000). Downsizing in a learning organization: Are there hidden costs? *Academy of Management Review*, 25(1), 244–251.
- Leana, C. R., Feldman, D. C., & Tan, G. Y. (1998). Predictors of coping behavior after a lay-off. *Journal of Organizational Behavior*, 19(1), 85–97.
- U.S. Department of Labor. (1995). *Guide to responsible restructuring*. Washington, DC: Government Printing Office.
- Wagar, T. H. (2001). Consequences of work force reduction: Some employer and union evidence. *Journal of Labor Research*, 22(4), 851–862.

DRUG AND ALCOHOL TESTING

Organizations use drug and alcohol testing to determine whether an employee (or prospective employee) is under the influence of alcohol or specific drugs. The drugs included in the test are illegal drugs such as cocaine, marijuana, PCP, and methamphetamines and commonly abused legal drugs such as amphetamines, barbiturates, and opiates.

Drug and alcohol tests are also used to confirm that employees are in compliance with organizational substance abuse policies. Many organizations are drug-free workplaces. They have policies and programs that prohibit drug and alcohol use in the workplace. Testing is used to ensure compliance with their policy.

The primary reasons employers use testing are safety and productivity. A variety of statistics connect employee alcohol and drug use with higher absenteeism, lower productivity, higher medical insurance claims, and increased frequency of on-the-job accidents and injuries. Evidence also connects increased employee theft, property damage, and security issues to workplace drug use. All of these represent significant costs to organizations that can be reduced by preventing drug and alcohol abuse among employees.

There are legal reasons to conduct drug and alcohol testing. Many employers are required under state or federal regulations to have policies prohibiting drug use among employees. These laws are often justified under the umbrella of public safety. For example, truck drivers and railroad workers are covered by Department of Transportation regulations that require drug and alcohol testing.

Employers who choose to implement a drug and alcohol testing program typically analyze the costs and benefits of the program. Employers argue that the benefits of preventing drug and alcohol abuse significantly outweigh the costs of a testing program. Preventing one serious accident is usually enough to justify the cost of the program. In the case of government-mandated testing, the cost of testing is considered a normal cost of business.

Drug testing programs are intended to affect the behavior of applicants and employees. Many employers advertise their testing program to job applicants to deter current drug users from applying or being hired. By educating current employees about the testing program, employers hope to discourage employees from using prohibited drugs or abusing alcohol.

Testing identifies potential policy violations. Organizations can then remove the offenders from the workplace or put them into a rehabilitation program. In many programs, the testing policies explicitly encourage employees who may have chemical dependency problems to seek appropriate treatment. Treatment or counseling options may be offered in lieu of disciplinary action.

Many employers offer an employee assistance program (EAP) that provides free and confidential counseling to employees and their immediate family members. An EAP allows employees to get professional help with drug or alcohol problems before getting caught in a testing program.

Employers also use testing to reduce potential liability. For example, if an employee's drug or alcohol use could cause harm or injury, the organization may use testing to reduce that risk. In the event of on-the-job accidents, testing may identify a contributing cause of the accident. Under workers' compensation law in some states, a positive drug test may reduce or eliminate the employer's financial liability for a work-related injury.

TESTING METHODS

Several methods are used to test employees for drug use:

- *Urine test:* The most common test is a urine test. Urine samples are easy to collect and cost-effective to test. The disadvantage of urine testing is that a variety of substances and equipment are available for the sole purpose of cheating on the test.
- *Blood test:* Blood tests for drugs are more accurate than urine tests. It would be virtually impossible to cheat on a blood test. However, a blood test is considered by many to be invasive and is considerably more expensive than a urine test.
- *Hair test:* Hair retains detectable residue of drugs. The hair test is considered to be very accurate. It does not necessarily prove that someone was under the influence at the time of the test. The hair sample test is expensive. Although not invasive, hair sample testing is not common. It would, however, be difficult to cheat on a hair test if the sample were collected properly.
- *Sweat test:* A relatively new test uses a sweat sample. The individual wears a patch on his or her skin for several days. The patch collects a sample of sweat, which is then analyzed for the chemical residue and active ingredients of various drugs. The patch cannot

be reattached if it is removed, therefore limiting tampering or cheating.

- *Saliva test:* Saliva can be tested for both drugs and alcohol. This test is accurate, samples for it are easy to collect, and cheating on the test is difficult, but it is not currently a common testing method.
- *Alcohol test:* Testing for alcohol levels is usually performed by one of two methods: a breathalyzer test or a blood test. Both tests are considered accurate and are difficult to dispute when done properly.

A positive test is one in which the presence of drugs or alcohol is detected and confirmed above a defined threshold level. Threshold levels are carefully set to prevent false positives or positives owing to incidental exposure. A negative test is one in which no prohibited substance is detected in the sample above the threshold levels. A negative test does not conclusively determine that the individual is not a drug user. It only verifies that at the time of the test, the person was not considered under the influence.

TESTING PROTOCOLS

For all tests, it is critical that specific protocols are followed to maintain integrity in the process. For tests mandated by federal law, the federal regulations require specific procedures. For any program, applicable state and federal laws should be reviewed prior to developing the program. To avoid challenges to test results, it is extremely important for employers and testing facilities to strictly follow all required protocols. Some typical protocols are described below.

Samples must be obtained under controlled conditions to limit opportunities for tampering or cheating. For example, when a urine specimen is collected, the toilet used should have dyed water in both the bowl and the tank to prevent sample dilution. Fresh water should not be available in the room where the sample is collected. The temperature of the specimen must be checked to verify there was no substitution or dilution.

Samples must follow a strict chain-of-custody process. The chain of custody documents who handled the specimen and the times and dates of every change in custody. The custody documentation must be retained with each specimen. This ensures the sample is not tampered with at any step in the process.

Tests should be done only by certified labs that have proven they meet or exceed all applicable regulations, levels of accuracy, and staff competence.

Equipment should be tested regularly with known samples. Positive results must be verified using alternative testing equipment to ensure accuracy.

The laboratory must have a medical review officer (MRO) review all positive tests. The primary responsibility of the MRO is to receive, review, and interpret all test results before they are reported to the employer. The MRO would answer any questions regarding the accuracy of the test. The MRO must be a qualified licensed physician.

TYPES OF ALCOHOL AND DRUG TESTING

Employer testing programs typically include the following types of drug and/or alcohol testing:

- *Preemployment:* Testing done on job applicants prior to hire. Preemployment testing is normally done after a contingent job offer is extended. The offer can be rescinded if the applicant tests positive. Applicants sign an acknowledgment that they are aware of the preemployment testing requirements and that any job offer is contingent on passing a drug test.
- *Random:* Testing that is done on an unscheduled basis. Employee drug testing can occur at any time to anyone covered by the program. This approach adds an element of surprise and would presumably discourage drug use. Random testing programs select a specified number of employee names for testing at regular intervals.
- *Postaccident:* Testing that is done immediately following any work-related accident. The policy should describe specifically what conditions trigger a test—for example, requiring a test after any accident that involves a personal injury or property damage.
- *Reasonable suspicion:* Provides for an employee to be tested if there is reason to believe that the employee is under the influence or unfit for duty. Those with the authority to require a test must be trained to recognize what would justify reasonable suspicion. Difficulty walking, talking, or performing simple tasks; smells of alcohol or marijuana; or witnesses who observed use of prohibited substances are examples of behaviors and circumstances that might trigger a reasonable suspicion test.
- *Scheduled:* This is testing conducted at regular or scheduled intervals. It is common in industries that for safety or security reasons test employees on a regular basis. It is also used for follow-up testing as part of last-chance agreements. In those cases, the employee has previously tested positive and as a condition of employment is subject to ongoing tests.

- *Baseline:* Testing done at the start or implementation of a drug program. Employers can use baseline testing to identify drug users and then either terminate them or provide substance abuse counseling.

ARGUMENTS AGAINST DRUG AND ALCOHOL TESTING

Workplace drug and alcohol programs are criticized for a variety of reasons. Common arguments are based on invasion of employee privacy and accusations of inaccurate tests resulting in false positives.

The invasion of privacy argument is based on the premise that employers should not have the right to dictate off-work behavior, particularly behavior that does not affect the employer. This argument is easier to accept for off-duty behavior that clearly has no connection to work performance or the employer. In some situations, employees' off-duty activities and affiliations may even be protected by law. For example, under federal law employees cannot be discriminated against based on their religion or union membership.

However, in the case of drugs or alcohol, an employer would argue that a test showing the active ingredients of illegal drugs or the presence of alcohol over a certain limit does affect the person on the job. In the case of dangerous jobs, this can be a very compelling argument. Employers carefully word their policies to prohibit employees from being under the *influence* of drugs or alcohol at work. The presence of the prohibited substances in the employee's blood or urine while working would therefore be a violation of company policy. It would not matter where or when the drug or alcohol was ingested. The employer has an interest in the employee's off-duty behavior because it affects on-duty behavior and job performance.

OTHER ISSUES AND CONCERNS

Recently, local and state laws have been proposed—and, in some jurisdictions, have passed—that legalize the use of marijuana for medical reasons. The Supreme Court has ruled that local laws do not supersede federal laws or regulations regarding the use of marijuana. This has allowed employers to continue to treat marijuana as an illegal substance even in areas where its use is legal under certain circumstances.

Because drug testing involves personal medical information, the use and release of test results may fall

under federal privacy laws. Most employer policies already treat drug testing information as private and highly confidential. Employers should be even more careful in today's legal environment to ensure that strict confidentiality is maintained.

Training is key to the successful implementation of any drug testing program. Employees need to be aware of how the program works and to have some level of confidence in the process. Employee education about the effects of drugs and alcohol in the workplace is also critical to acceptance of the program. Managers need to be trained in how to recognize signs of drug use. At the same time, they must be cautioned against making a diagnosis. That should be left to trained professionals.

Cheating on drug tests is a serious concern; however, it is hard to measure. Numerous Web sites and other resources claim to offer proven methods or products for beating drug tests. Product offerings include clean urine specimens, masking agents, and even prosthetic devices to deliver a clean sample while under observation. As long as there are drug users, there will be a market for ways to cheat. It is important for employers to be aware of cheating methods and to design procedures that minimize the opportunity for cheating.

Employers can expect periodic claims that a result was a false positive. The usual allegation is that something other than inappropriate drug use caused a positive result. In most cases, the threshold level set

for a positive result will virtually eliminate false positives for secondary or dietary exposures to similar substances. The issue of addressing allegations of a false positive test is best left to the MRO. This person is well qualified to determine if there is any possibility of an inaccurate result.

Drug and alcohol testing is very complex. Laws vary from state to state. The technology for testing has dramatically changed over time. In addition, the ingenuity of cheaters continuously improves. An employer implementing a testing program should obtain competent technical, medical, and legal advice.

—David Dougherty

See also Employee Assistance Program; Prescreening Assessment Methods for Personnel Selection; Workplace Injuries; Workplace Safety

FURTHER READING

de Bernardo, M. A., & Pedro, G. M. (2005). *Guide to state and federal drug testing laws* (13th ed.). Vienna, VA: Institute for a Drug-Free Workplace.

Smith, S. (2004). What every employer should know about drug testing in the workplace. *Occupational Hazards*, 66(8), 45–47.

United States Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Division of Workplace Programs. Retrieved February 21, 2006, from <http://workplace.samhsa.gov/>

E

ELECTRONIC HUMAN RESOURCES MANAGEMENT

Electronic human resources management (eHR) focuses on the use of technology to maintain employee records and enhance human resources (HR) processes, including job analysis, recruitment, selection, training, performance management, and compensation. There has been an increased use of eHR systems in recent years because they are thought to (a) streamline HR processes, (b) reduce cycle times, (c) increase efficiency, (d) decrease costs, and (e) enhance the degree to which organizations can attract, motivate, and retain talented employees.

IMPACT OF TECHNOLOGY ON HR PROCESSES

The use of technology has prompted a number of changes in HR processes. Selected examples are described in the following paragraphs.

E-Job Analysis

Organizations can now access job descriptions online and collect data for job analysis from employees and supervisors via sophisticated online questionnaires (e.g., Common Metric Questionnaire). Data from these systems are automatically summarized, and standardized job descriptions are created. In addition, many of these systems convert the data to a job evaluation format and create job evaluation point scores for use in compensation systems.

E-Recruiting

To attract talented applicants, a large number of organizations now use Web-based systems, portals, or kiosks to post job openings and screen résumés. These e-recruiting systems are also used to track applicants, provide them with virtual job previews, and evaluate the cost and effectiveness of recruiting strategies. Research on e-recruiting systems has shown they do attract a larger number of applicants but may not always attract higher quality applicants than traditional sources. In addition, research suggests that the perceived ease of use and navigability of a Web site may affect applicants' motivation to apply for jobs, but the attractiveness of the Web site may not always influence applicants' attraction to organizations. Furthermore, research has indicated there are individual differences in the use of e-recruiting systems. For example, research has shown that online recruiting is more likely to be used by young, male, well-educated, computer-literate applicants than by those who are women, over age 55, or lack computer skills. In addition, research has revealed that White candidates may be more likely to use online systems than some ethnic minorities (e.g., Hispanic Americans). One reason for this is that there is a digital divide in society that precludes some ethnic minorities from gaining access to computers or receiving computer training. However, other studies have shown that African Americans may be receptive to online systems, especially when they perceive these systems to be objective or as providing them with information about the climate for minorities in the organization. Taken together, these findings suggest that the use of e-recruiting may affect the characteristics and diversity of an organization's workforce.

E-Selection

Organizations are now using e-selection systems to assess job applicants' knowledge, skills, and abilities; manage applicant flow; and evaluate the effectiveness of selection systems. For example, résumé scanning systems often search résumés for keywords and provide candidates with immediate feedback about whether they are qualified for jobs. In addition, organizations now conduct interviews, personality assessments, and background checks online and use computerized testing to examine candidates' cognitive ability levels. Furthermore, intelligent Web-based systems are used to generate profiles of applicants' strengths and weaknesses, and can be used to generate a set of specific interview questions for managers. The data from these systems are then combined with results of drug tests and other assessments to help managers make final hiring decisions. Little research has been conducted on e-selection, but some critics have argued that online systems (e.g., cognitive ability testing, keyword systems) may not produce reliable and valid assessments because they are not always monitored or based on job analysis. It merits noting that e-assessments are subject to the same professional standards as other selection procedures.

E-Learning

Organizations now use various forms of technology, including Web-based systems, CD-ROMs, audio- or videoconferencing, and audio- or videotapes, to design and enhance the delivery of education and training programs. The use of technology also means that education and training systems can be delivered to remote locations (i.e., distance learning), which may increase the flexibility and decrease the overall costs of training. Research on distance learning shows it can be a viable method for training in workplace skills but is best used to convey hard skills (i.e., explicit knowledge) rather than soft skills (e.g., interpersonal skills). Furthermore, some research shows that most employees prefer face-to-face instruction to distance learning. As a result, researchers have argued that organizations might use blended or combined face-to-face and e-learning techniques to meet employees' needs. In addition, researchers contend that organizations should consider the following factors when designing e-learning systems: (a) human cognitive processes needed, (b) trainees' degree of

control, and (c) strategies for engaging trainees in the learning process.

E-Performance Management

Technology contributes to performance management in three primary ways. First, it can facilitate the measurement of performance through computer monitoring. For example, computerized systems can be used to count (a) the number of work units completed per time period, (b) the number of keystrokes, (c) time spent on various tasks, or (d) error rates. Second, technology may be used to facilitate the process of writing appraisals and for delivering feedback to employees (e.g., multirater appraisal systems). Third, technology can track unit performance, absenteeism, grievance rates, and turnover levels over time. Research on e-performance management has shown that these systems have both functional and dysfunctional consequences. For example, some research shows that computer-mediated feedback is often more accurate and honest than face-to-face feedback, and these systems may increase the frequency and timeliness of feedback. However, e-performance management systems may also create distance between supervisors and subordinates, which can decrease trust and negatively affect attitudes, productivity, and turnover rates. Similarly, these systems may result in a reductionist approach to management, which is analogous to computerized scientific management.

E-Compensation

Web-based software tools are increasingly being used to help organizations administer compensation, benefits, and payroll systems. In particular, technology assists with the management of compensation systems by (a) providing managers with a tool to design and model the costs of compensations systems, (b) giving organizations access to critical labor market data that will help them maintain a competitive edge in the labor market, (c) providing employees with information about benefits, (d) providing self-service systems that allow employees to select or change benefits, (e) streamlining burdensome payroll processes, and (f) enabling organizations to comply with extant laws and union contracts. Although there has been little empirical research on e-compensation systems, researchers have argued that these systems have a number of benefits. For example, they can be used to

ensure that compensation systems are equitable and may enhance employee motivation and retention levels. However, other researchers contend that these systems may decrease the service provided to employees and managers by the HR department and may actually shift work from the HR department to employees.

FUNCTIONAL AND DYSFUNCTIONAL CONSEQUENCES OF USING eHR

Given the increased use of technology in human resources management, it is important to consider the functional and dysfunctional consequences of using these systems to meet HR systems goals. First, eHR systems should be aligned with the organization's mission and enable the organization to attract, select, and retain employees who have high levels of motivation and job-related skills and abilities. Second, although these systems may streamline processes and reduce cycle time in organizations, they may also decrease flexibility and depersonalize HR processes. Some research shows that online communication systems are viewed as less beneficial than face-to-face communication because they are less interactive and weaken personal relationships. As a result, organizations should consider the extent to which eHR systems provide service to employees and managers and affect their overall satisfaction levels. Third, in designing eHR systems, organizations should consider the degree to which individuals accept these systems. For example, it has been suggested that eHR systems are more likely to be accepted in Western cultures (e.g., western Europe or the United States) than in Asian or Latin American cultures, because they are predicated on Western HR practices and cultural values. Fourth and finally, organizations should consider the degree to which eHR systems have the potential to invade personal privacy. In particular, it is important that organizations develop fair information policies that ensure employee data are accurate and place limits on the extent to which data about individuals can be disseminated to third parties.

—Dianna L. Stone

See also Human Resource Management

FURTHER READING

Gueutal, H. G., & Stone, D. L. (Eds.). *The brave new world of eHR: Human resources management in the digital age*. San Francisco: Jossey-Bass.

ELECTRONIC PERFORMANCE MONITORING

Electronic performance monitoring describes the process of obtaining information about work-related behaviors using various forms of information technology. The information may simply be observed behaviors but can also take the form of measurements of time, resource usage, an individual's or a vehicle's movement through space, or various combinations of these. Electronic monitoring of employees is often conducted on behalf of their supervisors, ostensibly in service of improving productivity and quality, but may also be conducted for other purposes in an organization (e.g., for the maintenance of information security). Technology can monitor groups of people, but it is most typical to monitor the activities of individual workers.

Decreasing costs and increasing capabilities of information technology have provided one impetus for the increasing use of electronic performance monitoring in organizations. This increasing use has caused both researchers and managers to give greater attention to the issues surrounding this application of technology. Historically, nontechnological performance monitoring was performed by an employee's supervisor, who personally recorded and reported the worker's performance and behavior. Many of the questions that have arisen around the uses of electronic monitoring relate to the ease, simplicity, and inexpensiveness of delving deeply into the myriad detailed on-the-job activities of workers. Questions have arisen about whether electronic monitoring may sometimes constitute an invasion of workers' privacy and whether intensive monitoring may have adverse health effects on workers.

The remainder of this entry includes consideration of two issues. First, a brief history of monitoring and monitoring technology sets the stage for a description of current practices. Second, a concise exposition on the implications of monitoring describes issues for practitioners and for future researchers.

ELECTRONIC MONITORING TECHNIQUES

The use of electronic performance monitoring in business settings actually predates the use of computers. In one of the first widespread deployments of electronic technology, the Bell Telephone Company began the

use of manual telephone switchboards in the 1870s. The first operators of these switchboards were teenage boys, presumably because of the low labor costs and wide availability of such workers. Unfortunately, the teenagers frequently spoke rudely to callers and, as a result, were soon replaced by young women, who proved more reliable and courteous. In urban telephone switchboard offices, young women were soon directing hundreds of calls per hour. Bell Company managers had learned from their earlier experiences, however, and were keenly interested in ensuring that the young women consistently treated callers courteously even under the strain of handling many calls per minute. One technique the managers used to accomplish this supervision was to listen in on a sample of calls completed by the operators. As the technology behind the telephone switching system became more sophisticated, the managers also obtained the means to time each call transaction, ascertain the average speed at which an operator was handling calls, and calculate the time an operator spent on rest breaks and other “nonproductive” activities. By the early to mid-1900s, telephone operators were one of the most closely monitored groups of workers in history; it was the technological nature of their jobs that made this monitoring economical for companies. The cost of the monitoring technology was more than offset by the managers’ ability to identify low-performing operators and either motivate them to perform better or remove them from the workforce.

Meanwhile, researchers in Bell Telephone’s laboratories were busy creating new technology to enhance the telephone system and make it more reliable. Some of this research culminated in the development of the transistor in 1947, which in turn shortly led to the mass commercialization of digital computers. Within about 15 years, a completely new class of highly monitored workers emerged—data entry clerks and computer operators. Beginning with IBM’s marketing of the model 360 computer in 1964, many large companies started to use mainframe computers as an essential part of their operations. With this usage came a continuing need to transform paper records into electronic records, a tedious and repetitive process that was once again performed mainly by women. Because data entry by its nature is a computer-based activity, the use of electronic performance monitoring was quite straightforward from the start. Data entry software automatically counted keystrokes and completed records. Using these records, the software

also calculated each clerk’s speed, break time, and overall productivity. As with telephone operator monitoring, these records helped managers to differentiate between high- and low-performing clerks and take personnel actions based on a desire to obtain the highest possible productivity from each worker.

As the 20th century ended, the increasing sophistication and power of digital computers gradually reduced the need for workers to perform repetitive, manual tasks using computers and other electronic technologies. For example, caller dialing, automatic call switching, and touch-tone menu systems have largely eliminated the need for the great majority of telephone operator jobs. Image scanners and optical character recognition have likewise greatly decreased the need for data entry clerks. Note, however, that these trends apply mainly in developed countries: In underdeveloped countries, the use of manual labor for automatable tasks is still substantial. In addition, global trends in outsourcing have moved many low-skill clerical tasks from locations where they could have been automated—at some substantial expense—to locations where the labor costs are still so low that it is more cost-efficient to have humans do the work. In some countries with low labor costs and large English-speaking populations, for example, it is still highly common to have human operators who handle high volumes of customer service and support calls. In these situations, the use of electronic performance monitoring as a means for measuring and controlling the quantity and quality of task completion is also still common.

Setting aside these carryovers of the older electronic performance monitoring techniques, the most common application of electronic monitoring in contemporary organizations is to track and control the behavior of information systems’ users. Unlike the earlier applications of electronic monitoring, which tended to focus almost exclusively on task completion rates and related measures of individual productivity, these new applications of electronic monitoring are deployed much more frequently in the service of information protection. The telephone operators and data entry clerks of old have been replaced by a new class of knowledge workers whose productivity depends not on the repetitive completion of mundane tasks, but rather on the timely compilation, manipulation, and distribution of information. The tasks these workers undertake are too complex and unpredictable to be counted or measured in the tick-tock fashion of

operators and clerks, but electronic monitoring has proved nonetheless valuable for their managers. In the contemporary information-driven business, the value of electronic monitoring comes from the value of the information that the organization maintains in its information systems. Databases, services, applications, and all of the other facilities that information workers use to get their jobs done must be protected, and electronic monitoring of employees' computer usage is one of the key tools in this protection regime.

Various technologies help to monitor who did what, where, and when everywhere within an organization's information systems. Computer operating systems ensure that each time a user retrieves, modifies, or deletes a piece of information, a record is made of the fact. Logs of computer activity show who worked on files, how long they spent working on them, and the extent of the changes made to the information. Most database systems contain auditing capabilities that provide administrators with an ongoing record of who has done what to the data. These measures help control access to valuable organizational information and prevent its corruption or destruction. Although these records can also certainly provide data on an employee's level of productivity, a more common problem in this time of Internet-connected laptops and desktops is nonproductive activity.

Connecting an organization's internal computer network to the Internet has obvious benefits for many companies but also has the potential to substantially disrupt operations in two major ways. First, the Internet provides an avenue for malicious software and individuals to gain access to the company's internal network. Second, the Internet provides a method for employees to conduct non-work-oriented activities with relative ease and without leaving the building. Unfortunately, the latter problem often facilitates the former problem, because recreational computer activities such as peer-to-peer file sharing and instant messaging also create substantial opportunities for malicious outside agents to gain access to and destroy internal information. As a result, many firms that have Internet access also extensively monitor their employees' use of that access. In particular, e-mail and browser usage are two of the most commonly monitored Internet activities.

At the most basic level, companies often keep a record of who sent messages to whom: sender and recipient addresses. At the next level, companies may keep complete records of the contents of messages

because these are sometimes needed for legal or regulatory purposes. Finally, developments in automatic text processing (also known as *natural language processing*) have also made it relatively straightforward and inexpensive to actively analyze message content—a capability that is frequently used to detect unauthorized distribution of intellectual property or inappropriate uses of company e-mail systems. Detecting inappropriate usage is also a primary function of the Web tracking and filtering programs used by many companies. Web tracking and filtering programs stand as a gateway between each employee's computer and the Internet at large and therefore are able to compile reports of all of the places employees have visited with their browsers. These systems often show that employees use their workplace computers for nonbusiness Internet activities such as shopping, reading the news, downloading music, and viewing pornography.

In addition to these computer and Internet monitoring techniques, a variety of related technologies are beginning to mature for tracking the movement of people and material in time and space. For example, many truck drivers are now electronically monitored through Global Positioning System devices that pinpoint the location of a vehicle from moment to moment, combined with satellite-based digital communications for relaying the location information to a central office. On a smaller scale, many firms have begun to use active badges, radio frequency identification tags, and digital video surveillance to monitor the movement of people and products within the confines of their facilities. Like many other monitoring techniques, these positioning and tracking systems help to maintain security and protect the organization's assets.

In short, like many technologies, electronic monitoring has made a major transition from its pre-Internet days to the present. Whereas most of the early applications of electronic monitoring focused on aspects of job performance such as productivity rates and transaction quality, in contemporary organizations, electronic monitoring is at least as likely to be used as a tool to protect the organization and its resources. With this transition, the character of the jobs affected by electronic monitoring has also changed. Whereas older forms of monitoring tended to focus on routine, repetitive jobs in which workers—mainly young and mainly women—were closely watched by managers, modern forms of electronic monitoring are used to track the activities of anyone

and everyone, regardless of their position in the corporate hierarchy. Although it is most straightforward and inexpensive to monitor the digital activities of computer users, it has also become increasingly feasible to monitor what workers do in the physical world.

IMPLICATIONS OF ELECTRONIC MONITORING

The shift from monitoring worker productivity to monitoring all computer activity has also resulted in a change in the focus of researcher and practitioner activities related to monitoring. In 1987, the now defunct United States Congressional Office of Technology Assessment published a comprehensive report of the accumulated research on electronic monitoring of worker productivity. The summary of this report referred to concerns about labor conditions, worker health, stress, the opposition of labor unions to the use of monitoring, and a host of related issues. The emphasis of this report on how monitoring was used to enforce difficult productivity standards and restrictions on break time perfectly matched the primary focus of monitoring on measuring and increasing productivity in repetitive work. Although some researchers continue to refine the research findings in this area, it is largely accepted that the way in which productivity monitoring is deployed within an organization has a substantial effect on worker health and stress. Several different researchers used the term *electronic sweatshop* to refer to the monitored work environment, and although not all call centers and data entry firms could be fairly categorized as such, the overall body of research has made a reasonably convincing case that extensive and harsh usage of monitoring can indeed adversely affect worker health and job-related attitudes.

Fast-forward to the present, and it is evident that the focus of concern about electronic monitoring has changed substantially. Electronic monitoring now affects the majority of white-collar workers, assuming those workers are employed in organizational environments that use networking technology and computers. These organizations generally do not use the monitoring to enforce difficult productivity standards, and thus the effects of monitoring on worker health, if present at all, are likely to be much more subtle and indirect. Instead, the major concern that has arisen pertains to privacy and expectations about nonproductive workplace behavior.

Norms, laws, and regulations pertaining to worker privacy vary substantially from country to country and from region to region. For example, in the United States, workers generally enjoy few legal- or regulatory-based privacy protections on the job, whereas in the European Union, such protections are much more extensive. Despite the lack of protections, however, workers often have concerns about privacy in the workplace, and some of those concerns relate to electronic monitoring. In organizations where equipment exists for monitoring phone calls, e-mails, instant messages, and Web activity, it can become difficult for workers to make routine contacts to family members or conduct everyday nonbusiness tasks that are generally permitted to white-collar workers. In certain sectors—such as national security—such extensive controls may be warranted, but within a typical organization, both managers and workers often see the value of providing some kind of protected space where employees can conduct non-business-related activities without concerns for personal privacy.

As a result, one of the current major research and practice challenges in the area of electronic monitoring is establishing the organizational conditions and processes that will lead to a balance between the organization's right to protect its valuable resources and workers' rights to occasional use of workplace computers, the Internet, and other organizational assets for legal nonbusiness activities. Like earlier research on electronic monitoring—which required cross-disciplinary knowledge of divergent areas such as stress and software design—this new direction for research requires a combination of disciplinary approaches. For example, industrial and organizational psychologists can combine their knowledge of human behavior, cognition, and emotion to assist those with expertise in information systems and information security. Using a combination of these different areas of expertise, researchers and practitioners can address the challenges of implementing a powerful array of electronic monitoring technologies while protecting each worker's right to a measured degree of seclusion, autonomy, and control in the workplace—in short, a limited right to workplace privacy. Overcoming these challenges will in turn require an understanding of how to use training, organizational communications, and other techniques to establish an atmosphere of trust that will enable worker acceptance of reasonable and appropriate monitoring techniques.

SUMMARY

In more than a century of usage, electronic monitoring has evolved from a technologically primitive workplace activity focused on maintaining worker productivity into a sophisticated collection of tools for examining and controlling the computer-related behavior of employees. With this shift, the concerns expressed about the impacts of electronic monitoring have also shifted. Whereas early concerns pertained to the use of monitoring to enforce difficult productivity standards, the contemporary concern revolves around the intervision of the electronic eye into every corner of the modern, computer-enabled workplace. To avoid misuse of electronic monitoring, managers must balance an organization's need to protect its valuable resources—for example, information and information services—with basic needs and rights of those employees who are subject to electronic monitoring. Addressing the research and practice challenges involved in this balancing act will require expertise from those who study and understand people, as well as those who study and understand technology.

—Jeffrey M. Stanton

See also Performance Appraisal

FURTHER READING

- Holman, D., Chissick, C., & Totterdell, P. (2002). The effects of performance monitoring on emotional labour and well-being in call centres. *Motivation and Emotion, 26*, 57–81.
- Junglas, I. A., & Spitzmueller, C. (2005). A research model for studying privacy concerns pertaining to location-based services. *Proceedings of the 38th Annual Hawaii International Conference on System Sciences (HICSS'05)*, 180–190.
- Stanton, J. M. (2000). Reactions to employee performance monitoring: Framework, review, and research directions. *Human Performance, 13*, 85–113.
- Stanton, J. M., & Weiss, E. M. (2000). Electronic monitoring in their own words: An exploratory study of employees' experiences with new types of surveillance. *Computers in Human Behavior, 16*, 423–440.
- Zweig, D., & Webster, J. (2002). Where is the line between benign and invasive? An examination of psychological barriers to the acceptance of awareness monitoring systems. *Journal of Organizational Behavior, 23*, 605–633.

EMOTIONAL BURNOUT

Burnout is a set of negative human reactions to prolonged experienced stress on the job, especially reactions to exposure to stressors in the social environment at work. The burnout itself is also prolonged or chronic in the sense that it tends to last over a period rather than be an acute, short-term reaction. Furthermore, it might take different forms over time. Burnout is concerned with both the well-being of the individual and the success of the person in performing on the job, just as many other important topics in industrial and organizational psychology are.

As with most topics in work psychology, workers themselves certainly recognized the phenomenon of burnout before scholarly researchers did, but in the case of burnout, the term was even coined in the more popular press before it became a topic of serious study and practice. Researchers first theorized and studied burnout among people with human service careers—for example, psychotherapists and social workers. In fact, the early work on burnout defined its cause as working with and helping people in need. Subsequently, however, perhaps because the term *burnout* was so engaging, it became common to consider that people in any type of job can experience burnout.

It is difficult to discuss research on burnout without considering its measurement. More than most other major topics in industrial/organizational psychology, the theoretical construct of burnout has almost become synonymous with one specific questionnaire measuring it, the Maslach Burnout Inventory (MBI). Paraphrasing from a comment on definitions of job satisfaction, one could almost say that *burnout* is defined as whatever the MBI measures. This measure of burnout, and/or its separate subscales, is so widely used that the comments in this entry often concern both the construct and this particular measure of it.

FACETS OF BURNOUT

The MBI's original three subscales measure the three dimensions of burnout assumed to encompass the phenomenon: emotional exhaustion, depersonalization, and (reduced) personal accomplishment. *Emotional exhaustion* is often acknowledged as the core of burnout and is pretty much what the label implies: a feeling of tiredness, lack of energy, and

generally negative and inactive emotion. Emotional exhaustion is frequently used by itself in research, sometimes with the label of *burnout* but other times being called *emotional exhaustion* or given even more general labels. Burnout is often considered to be distress or strain in the language of job stress literature—that is, it is seen as a harmful, aversive reaction resulting from environmental stressors. The centrality of the emotional exhaustion facet of burnout is probably the main reason for this view, because conceptually and empirically it resembles psychological strains in that literature. One difference is said to be that burnout, or just the emotional exhaustion facet, is job-related, whereas psychological strains such as depression are not necessarily job-related. This is an issue in which the measurement of burnout and the construct influence each other; the overwhelming majority of questionnaire items, for example, refer to something about workplace (job, work, clients, etc.). That is, most of the emotional exhaustion items tend to ask if people are emotionally exhausted at work or because of work. It seems possible that if the workplace were not referenced in the measure, the measure would appear and act even more as general depression-type items do.

Reduced personal accomplishment is a feeling that one does not or even cannot do good and important work on the job. On the MBI in particular, this dimension has been renamed in recent years as a *sense of inefficacy*, and some of the items measuring it do indeed resemble work-related self-efficacy items.

Depersonalization refers to the phenomenon in which human service workers go beyond the frequently recommended professional objectivity about their clients to the point where they think of clients more as objects than as humans, and they actually care about their clients less. This depersonalization might stem from the psychological burden of constantly working with people who have problems that are difficult to solve. Depersonalization could even be a way of attempting to cope with this type of job. Although depersonalization can technically occur only for people whose jobs require working with clients of some sort, the concept of burnout intuitively applied to other types of jobs, as well, and in recent years a new version of the MBI was developed that is intended for use with jobs in general (not necessarily human services jobs); it has a subscale labeled *cynicism* instead of the depersonalization subscale. Thus, for non-human services jobs, burnout might consist of emotional exhaustion, feelings of inefficacy, and

cynicism. Work-related cynicism has not been studied widely in industrial/organizational psychology, and therefore this measurement and conceptual development cannot easily be set in a context of related industrial/organizational psychology research topics. *Cynicism's* basic meaning in English is a lack of belief in the virtue of other people. In the workplace, this might mean lack of faith or trust in the intentions and abilities of people to do good or appropriate things; therefore, its use to replace the people-oriented construct of depersonalization for non-human services jobs appears logical. The items in the MBI measure of cynicism do not directly address this concept, however; instead, most of them tend to ask about more general negative views of work such as psychological engagement with it. Because research on burnout relies so heavily on this questionnaire, the literature on employee cynicism will surely burgeon in the near future. Whether or not it actually will address cynicism is uncertain, however, given that the items may not address cynicism very clearly.

A great deal of research has been conducted on burnout, especially with the original MBI, and the three subscales (emotional exhaustion, depersonalization, and feelings of inefficacy) tend to be factorial independent of each other, showing they probably are indeed separable constructs. In addition, a meta-analysis showed that emotional exhaustion and depersonalization tend to be strongly correlated with each other but not with feelings of inefficacy. There have been hypotheses that these three burnout reactions develop separately or at least at different times. One proposition is that emotional exhaustion develops first, depersonalization second, and inefficacy last. A second is that depersonalization develops first, inefficacy second, and emotional exhaustion last. A third is that emotional exhaustion and inefficacy develop first and at the same time, and then depersonalization develops last. Most research does not actually measure burnout as it develops, however, and the facets' developmental order, if any, is uncertain. Some rationales for these orderings depict depersonalization as a kind of coping attempt, the idea being that depersonalizing clients is a way of reducing the emotional pain that can come from caring too much about people experiencing problems. One type of rationale is that depersonalization comes late in the process as a way to alleviate human service providers from the pain arising from the other two facets of burnout. Conservation of resources theory has become a somewhat

popular explanation for burnout in recent years, and it takes the position that depersonalization serves this purpose; it conserves the energy and effectiveness of the person. Alternatively, however, depersonalization might come earlier in the process but makes people feel they are no longer faithfully doing the good and important work they had set out to do early in their careers, leading to feelings of inefficacy or even emotional exhaustion.

POTENTIAL CAUSES AND CONSEQUENCES OF BURNOUT

There are many potential causes and consequences of burnout. Most of the research has used cross-sectional and nonexperimental methods, however, and as a result, there is little strong evidence about these. Potential causes prominently include occupational stressors, such as role overload, role ambiguity, and role conflict. In occupational stress theory, these stressors are derived from role theory and represent expectations or demands that the people in a role place on the focal person. Thus, these stressors have an interpersonal component. Other stressors, such as pressure for performance and a variety of stressful events, might also lead to greater burnout. Unmet expectations are also related to burnout, and this is consistent with the idea that burnout develops over time in a job. The perception of an inequitable work environment might also lead to burnout, although this relationship might not be linear or simple. Some environmental characteristics also might lead to *lower* burnout, including innovative environments, jobs using the person's valued skills, participation in decision making, and job autonomy. The empirical evidence for these and for the other relationships reported here tend to be more consistent for emotional exhaustion and depersonalization than for inefficacy, however.

In addition to the work environment, some personal characteristics or individual differences also appear to predict burnout. These include both demographic and dispositional variables. The empirical relationships found between environmental predictors and burnout are much stronger and more consistent than relationships between personal factors and burnout, but it should be remembered that the measures of the environmental factors are nearly always the person's perceptions of the environment rather than objective measures. To the extent that age is related to burnout, the relationship appears to be negative, with younger

people reporting more burnout than older ones. It could be predicted that older people would be more burned out owing to their longer experience with the occupation, but the negative relationship is usually interpreted as meaning that older people were different in some way—so that they survived instead of burning out and leaving their jobs. That is, those who burned out when they were younger left the job and are no longer there to be detected by burnout studies when they are older. The relationship between other demographic variables and burnout is even less clear, but women and single people might have slightly higher levels of burnout. Regarding personality or dispositions, evidence for causation is not strong, but people who have generally “good” or healthy characteristics tend to report less burnout. These characteristics include internal locus of control, low neuroticism, high self-esteem, hardiness, and type B behavior pattern.

Although burnout can be considered an outcome of stress and therefore important in its own right, another reason to be concerned about it is that it might lead to other important outcomes. Outcomes from burnout would be expected to include distress or strains (or other strains, if burnout itself is a strain), low organizational commitment and job satisfaction, few organizational citizenship behaviors, low job performance and low career success, high absenteeism, and high turnover. Obviously, some of these outcomes would be important to an employer. Less research has been done in this area, and therefore there is less certainty about the relationships with potential outcomes. One would expect the different facets of burnout to be related differentially to each outcome. For example, emotional exhaustion should be related especially to other strains or ill psychological or even physical health, inefficacy should be related to lower job performance and career success, and depersonalization might be more closely related to fewer helping behaviors that are part of organizational citizenship toward individuals. There is some modest evidence for this, but more striking is the overall finding that emotional exhaustion and depersonalization tend to be related to other variables in general more strongly than inefficacy is.

REMAINING ISSUES FOR PRESENT AND FUTURE

Coming back to the issue of measurement, it is not wholly certain whether there might be more or different facets (or even fewer) of burnout than the three in

the MBI. Very quickly in the early research on burnout, this measure became the standard, perhaps because it was relatively successful in tapping an intuitively important problem, was easy to use, and gave good results to researchers. It has been a very serviceable instrument for researchers and practitioners alike. We can make the definition of *burnout* isomorphic with this measure, and burnout will, by definition, have these three facets. The changing of one facet from depersonalization to cynicism (for non-human services jobs) indicates that the three may not be set in stone, and there have been a few limited research attempts to add other facets, as well. This might be an issue for future theoretical and empirical work.

There has been a great deal of interest in burnout, especially in the helping professions, and this has resulted in many efforts to reduce it, often in the form of workshops and self-help books. There have been far more efforts toward application than toward evaluating the effectiveness of the applications, however. Most interventions focus on changing the person in some way, rather than changing the presumed cause (the environment), and many are relatively short in duration. The very short (e.g., one half or even one whole day) workshops might not be very effective, but there is more promise when the interventions are long term and include periodic booster or follow-up sessions. Very gradually, more and better empirical evaluations are occurring, and we will eventually learn more about the effectiveness of interventions aimed at reducing burnout.

—Terry A. Beehr

See also Morale; Stress, Consequences; Type A and Type B Personalities

FURTHER READING

- Densten, I. L. (2001). Re-thinking burnout. *Journal of Organizational Behavior*, 23, 833–847.
- Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology*, 81, 123–133.
- Maslach, C. (2003). Job burnout: New directions in research and intervention. *Current Directions in Psychological Science*, 12, 189–192.
- Maslach, C., & Leiter, M. P. (2005). Stress and burnout: The critical research. In C. L. Cooper (Ed.), *Handbook of stress medicine and health* (2nd ed., pp. 155–172). London: CRC Press.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52, 397–422.
- Toppinen-Tanner, S., Kalimo, R., & Mutanen, P. (2002). The process of burnout in white-collar and blue-collar jobs: Eight-year prospective study of exhaustion. *Journal of Organizational Behavior*, 23, 555–570.
- Wright, T. A., & Cropanzano, R. (1998). Emotional exhaustion as a predictor of job performance and voluntary turnover. *Journal of Applied Psychology*, 83, 486–493.

EMOTIONAL INTELLIGENCE

Emotional intelligence (EI) is the ability to reason with, and about, emotions. This is the ability model of emotional intelligence developed by psychologists Peter Salovey and John Mayer in 1990. However, since that time, emotional intelligence has come to mean many different things to both the public and to researchers. Some popular approaches to emotional intelligence (also referred to as EQ, for *emotional quotient*) view emotional intelligence as a set of personality traits or as a set of traditional leadership competencies. The result has been a good deal of confusion, as models and assessments that have little or no basis in either emotions or intelligence employ the EI or EQ terminology. Emotional intelligence defined as traits or competencies does not appear to offer anything new, whereas EI defined as an ability may or may not represent a new construct.

The term *emotional intelligence* had been used in an unsystematic way in the 1980s and earlier, but it became widely known in 1995 through the publication of a trade book titled *Emotional Intelligence: Why It Can Matter More Than IQ*, written by Daniel Goleman, a psychologist and science writer for the *New York Times*. The book became a best-selling publication. It described a loose collection of skills and traits as emotional intelligence, thus permitting a wide range of preexisting models, assessments, and approaches to be relabeled to include the term *emotional intelligence*. Even researchers began to base their work on this trade book, rather than examining the intelligence-based roots of the construct.

DEFINITIONS OF EMOTIONAL INTELLIGENCE

Emotional intelligence can be defined as a set of personality traits, as competencies, or as an intelligence.

Trait-based approaches gather together traits such as optimism, assertiveness, and reality testing to create an EQ construct. Competency-based approaches include traditional leadership competencies such as influence, communication, and self-awareness. The ability-based approach to EI posits four related abilities: identifying emotions accurately; using emotions to facilitate thinking; understanding emotional causes and progressions; and managing emotions to result in optimal outcomes.

WHAT AN EMOTIONAL INTELLIGENCE SHOULD LOOK LIKE

Approaches to emotional intelligence can best be evaluated by looking at the two parts of the construct: emotions and intelligence.

Intelligence and Emotional Intelligence

Intelligence has been defined in a number of ways, such as the ability to think abstractly, to reason, and to adapt to environmental demands. The existence of a general mental ability factor (*g*) does not preclude the possible existence of other intelligences, such as spatial or emotional, and the importance of more specialized abilities has also been recognized by *g* theorists such as John Carroll. Evidence as to what sort of intelligence an emotional intelligence might be is very limited, but there is a suggestion that it might be best viewed as a crystallized rather than a fluid intelligence.

Emotion and Emotional Intelligence

An emotional intelligence must be based on the processing of emotions or emotional information. Emotions are complex and likely involve a number of processes, including cognition, arousal, motor activity, and action tendencies. Emotions are signals, primarily about interpersonal events and relationships. Emotions can also be differentiated from moods: emotions are more specific and goal-oriented than are moods. An emotional intelligence should address the processing and management of both moods and emotions.

Evaluating Models of Emotional Intelligence

There is no agreed-on definition of emotional intelligence, but it seems clear that an acceptable scientific

definition must position emotional intelligence as a form of standard intelligence that operates on, and/or with, emotional information.

MEASUREMENT OF EMOTIONAL INTELLIGENCE

Measures of EI can be placed in a three-by-three matrix: how EI is defined (trait, competency, or ability model) and the measurement method used. It can be measured via a traditional self-report survey (“I tune in to people’s emotions”), a competency 360 (“George tunes in to people’s emotions”), or an ability test (“Indicate what emotions are expressed by this face”). Common tests include the Bar-On EQ-i (a self-report trait EI measure), the Emotional Competency Inventory (ECI, a 360 competency measure), and the Mayer, Salovey, Caruso Emotional Intelligence Test (MSCEIT, an ability measure of ability EI). Generally speaking, self-report measures of trait-based EI do not appear to substantially differ from traditional personality measures (e.g., Big 5 measures), and self-report measures of ability EI are generally unrelated to ability measures of ability EI.

The major difficulty with ability-based EI measures such as the MSCEIT is how to determine the correct answers to the emotional problems. Consider an item on the “faces” task of the MSCEIT: a photo of a person’s face. The test taker rates the face on the presence of a number of discrete emotions. Several methods have been attempted for scoring such an item, including target scoring (agreement with the person expressing the emotion), general consensus (agreement with a large sample of test takers), and expert consensus (agreement with a sample of emotions experts). Although expert and general consensus scores tend to converge, suggesting that there are right answers to such test items, the absence of true, veridical scoring criteria remains a limitation of the ability approach to measuring EI.

PREDICTIVE VALIDITY OF EMOTIONAL INTELLIGENCE

One of the many popular appeals of emotional intelligence was the claim that it was “twice as important as IQ.” However, the actual claim was that emotional intelligence, defined loosely, was a better predictor than was analytical intelligence (IQ) for certain “soft” outcomes such as relationship quality. In reality, EI as a trait shows little discriminant validity above and beyond traditional

personality variables. Emotional intelligence as an ability, controlling for IQ and Big Five traits, has some predictive validity. Ability EI appears to be predictive of the quality of interpersonal relationships and, inversely, of the frequency of negative behaviors.

Findings for ability EI in the workplace are not robust, but there is a suggestion that ability EI has some predictive power for a limited range of performance “how” outcomes as opposed to performance “what” outcomes. Some of these outcomes relate to quality of vision statements, team support networks, and team-oriented leadership styles.

TRAINING OF EMOTIONAL INTELLIGENCE

Trait- and competency-based EI training programs have been developed, with participants demonstrating significant pretest–posttest differences. However, these evaluations are based on self-report EI measures and may simply reflect expectation bias. To date, there is no evidence that supports the contention that ability EI can be increased. Indeed, if EI is viewed as a standard intelligence, then it is unlikely that a training intervention, especially a short-term one, would demonstrate an impact on measured EI.

SUMMARY

The trait-based and competency-based approaches to emotional intelligence are nothing new. However, once the overblown popular claims for an emotional intelligence are critically examined, we conclude that emotional intelligence, defined as a standard intelligence, is a construct separate from general cognitive ability or dispositional personality traits (e.g., Big 5), can be measured reliably, and is modestly predictive of a narrow range of important life outcomes.

—David R. Caruso

See also Big Five Taxonomy of Personality; Emotions

FURTHER READING

- Caruso, D. R., & Salovey, P. (2004). *The emotionally intelligent manager*. San Francisco: Jossey-Bass.
- Goleman, D. (1995). *Emotional intelligence: Why it can matter more than IQ*. New York: Bantam.
- Matthews, G., Zeidner, M., & Roberts, R. D. (2002). *Emotional intelligence: Science and myth*. Cambridge, MA: MIT Press.

- Mayer, J. D., Salovey, P., & Caruso, D. R. (2004). Emotional intelligence: Theory, findings, and implications. *Psychological Inquiry*, 60, 197–215.
- Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition, and Personality*, 9, 185–211.

EMOTIONAL LABOR

Emotional labor is the regulation of felt and expressed emotions at work in the service of organizational goals. The construct of emotional labor is traced to the seminal work of sociologist Arlie Hochschild, who studied the work of airline flight attendants and, specifically, the strategic use of emotion by flight attendants to create a desired experience for passengers. Her research revealed that the work role of flight attendants involved much more than the obvious duties of serving drinks and meals and ensuring passenger safety and comfort. Their job role also included the expression of emotions and the creation of feeling states in others; they were required to act friendly and upbeat to make passengers feel safe, happy, and comfortable. The significance of this early work is that it highlighted the fact that the management of emotions is an important organizational phenomenon, it is an effortful process for employees, and it may affect employee well-being.

Jobs that require emotional labor typically are those that (a) involve direct contact with the public, (b) require the employee to use emotions to produce an emotional state in another person, and (c) allow the organization to exert some control over the felt and/or displayed emotions of employees. Customer service jobs are those most typically associated with high demands for emotional labor. Service employees spend a great deal of time interacting with the public. Part of their job is to produce an emotional state such as happiness or delight in the customer, because with services, much of what the customer is evaluating is intangible. As such, the customer’s affective experience becomes part of his or her evaluation of the organization and its product. Finally, the organization exerts some control over the customer service agent’s emotional display. Employees are often trained on the types of emotions to display, and this behavior is enforced by peers, management, and customers.

Emotional labor is relevant, however, to many jobs that fall outside typical ideas of service work, and not

all emotional labor is the management and display of positive emotions. Bill collectors and police detectives manage and display negative emotions to produce anxiety, fear, and compliance in debtors and suspects. Funeral directors display warmth and sadness in their job roles. And physicians engage in emotional labor by suppressing negative emotions to display the neutrality required of their jobs. In all of the above cases, the employee ultimately is managing his or her displayed emotions: expressive behavior including, but not limited to, facial expressions, vocalizations, and posture. This expressive behavior communicates important information to the receiver and can be viewed as a control move, an intentional means of manipulating the situation to produce a desired response in the receiver. Emotional labor is, as such, a tool of influence: it is intended to produce responses in others that are favorable to the individual and/or the organization.

THE PROCESS OF EMOTIONAL LABOR

Display Rules

Because displayed emotions are an important component of many jobs, *display rules* are created to serve organizational and professional goals. Display rules are norms about which emotions are appropriate to express in a particular job or organization. Flight attendants, for example, learn the importance of expressing good cheer even to rude passengers. Scholars also have described organizational *feeling rules*, or norms about the emotions a person is supposed to feel in a given situation. Salespersons for Mary Kay cosmetics, for example, are taught not just to display good cheer but that it is important to *feel* enthusiastic about their products. Most current emotional labor research focuses on display rules, as norms in service organizations typically specify the emotions one is supposed to display publicly. Whether the norms are about expressed or felt emotions, however, it is the existence of display rules that makes emotional labor necessary.

Surface Acting and Deep Acting

To display the emotions required by organizational display rules, employees may engage in one of two processes: surface acting or deep acting. *Surface acting* involves faking or “painting on” the appropriate emotion without any change in corresponding internal

feelings. A busy waiter who smiles despite the rage he feels at a rude customer is engaging in surface acting. In deep acting, the employees induce the required emotions in themselves, such that the expressed emotion is not fake, but is a true emotion that has been created to serve an organizational end. Bill collectors, for example, may take a moment to create in themselves a slight feeling of anger or annoyance before placing a phone call, so that they can more naturally express urgency and irritation toward the person on the other end of the phone.

Because emotional labor is fundamentally a process of emotion regulation, recent theoretical work now frames surface and deep acting within the broader framework of emotion regulation. Emotions can be regulated by two processes. *Antecedent-focused* emotion regulation acts on emotion-eliciting stimuli before they can produce a full emotional response. An example of antecedent-focused coping is cognitive reappraisal: thinking about the situation differently so that it does not produce undesired emotions. Physicians engage in cognitive reappraisal when they cognitively transform patients from real people into analytic and clinical objects to ward off any inappropriate feelings that might interfere with their required neutral affective displays. Antecedent-focused coping is analogous to deep acting. Emotions also can be regulated through *response-focused* coping. Response-focused coping works only on changing the outward expression of emotion, not the experience of emotion. Suppressing the display of negative emotions in the face is an example of response-focused coping and is analogous to surface acting.

ANTECEDENTS OF EMOTIONAL LABOR

Conceptualizing emotional labor as the regulation of emotion to conform to organizational display rules, the antecedents of emotional labor, or those things leading to greater or lesser degrees of emotion regulation, can be thought of broadly in terms of (a) situational and contextual demands on displayed emotions, or (b) factors that influence an individual’s felt emotions.

Situational Demands

Certain jobs have more demanding emotional labor requirements than others: the clerk at an exclusive boutique likely has more intense display rules than does the cashier in a discount chain store. Organizations

develop and maintain display rule norms through recruitment and selection, socialization, and rewards and punishment. Research on Disney's theme parks reveals intense recruitment and socialization, including formal training, on many issues pertaining to emotional displays, including smiling and proper greeting of park guests. Reward and punishment is common in, for example, the use of secret shoppers who record employee smiles and demeanor.

Situational demands also come from the nature of interactions with customers. In jobs where interactions with customers are more frequent, are of longer duration, and require a greater variety of emotions to be displayed, the demands for regulating emotions will be stronger. Direct customer demands also influence the need to regulate emotion. Some research suggests that customer social cues, including gender, enhance emotional labor demands (males appear to receive more positive emotional displays than females). The pace of the work environment also affects demands for the regulation of emotion. Research has consistently shown that as store busyness (in terms of customers being served) increases, the display of positive emotion decreases. It appears that during busy times, norms emphasize speed and efficiency and deemphasize the display of positive emotions during interactions with customers. It seems likely that during busy times, employees also feel greater stress and negative emotion, which would make emotion regulation more difficult.

Felt Emotions

Perhaps not surprisingly, employees are not always successful in regulating their emotional displays. Despite efforts to conceal them, real feelings do leak out and can be perceived by others. This is particularly true when employees engage in surface acting without changing true, underlying affect. Therefore, employees who experience higher levels of emotions that are incongruent with display rules will find it necessary to engage in greater emotional labor. An important caveat to this statement is that this is only true to the degree that employees are committed to organizational display rules.

Felt emotions are also influenced by affective events in the workplace that influence employee positive or negative emotion. If these events produce emotional states that are incongruent with display rules, more emotion regulation will be required. Store

busyness, with its potential to create negative affect, and an interaction with a rude customer are two examples of negative affective events.

OUTCOMES OF EMOTIONAL LABOR

Effects on Employees

A major premise of the early work on emotional labor was that it can have a detrimental impact on employee well-being. When there is a discrepancy between felt emotions and displayed emotions, a state of *emotional dissonance* is proposed to exist, and, theoretically, this is a stress-inducing state. Individuals who report engaging in surface acting should be, in theory, experiencing emotional dissonance, because they report changing the expression of emotion but not the underlying affect.

In general, evidence for the existence of emotional dissonance and the negative effects of emotional labor is mixed. Laboratory research clearly shows that suppressing the expression of felt negative emotion has detrimental effects on physiological and cognitive functioning. Further, emotional labor is a type of self-regulation, and ample evidence demonstrates that self-regulation is an effortful process that can divert cognitive resources from other tasks. Therefore, it is logical to suspect that emotional labor taxes cognitive resources and could potentially hinder performance in other domains. For example, a bank teller who is focused on maintaining a positive emotional display would be expected to make more errors, and laboratory research on emotional labor appears to support this position. The generalizability of this research, however—particularly the social psychological research on general emotion regulation—to field settings where employees are frequently called on to amplify positive emotions (in addition to suppressing negative ones) has been questioned.

Several studies have demonstrated links between emotional labor demands and stress outcomes, yet frequently these studies are based on self-reports, and recent research suggests that, across several studies, no consistent differences in stress outcomes have been found in individuals in "people work" jobs (those with higher emotional labor demands) than in other jobs. Additionally, several studies have found associations among surface acting, stress outcomes, and the display of positive emotions as reported by observers. Although promising, this research has yet to establish

that the negative effects associated with surface acting result from emotional dissonance per se.

In sum, it is clear that emotion regulation in the service of organizational goals can, in some cases, tax cognitive and coping resources. On the other hand, research also suggests that over time, some emotional labor may become routine and automatic, requiring little effort. Surface acting is associated with negative outcomes for employees, but no research has convincingly demonstrated that emotional dissonance, or the discrepancy between felt and displayed emotions, is the cause of these negative outcomes. This is perhaps the most fruitful area at this moment for future research on emotional labor.

Finally, emotional labor also can produce positive outcomes for employees. Emotional labor is a control move ultimately designed to influence others. Successful emotional labor may give employees feelings of competence and mastery in their ability to control the emotions of a situation. It likely contributes to successful job performance and financial gains—for example, when the salesperson successfully uses emotions to generate excitement and purchases from a client.

Outcomes for Customers and Organizations

Because customers evaluate a service as an experience, the display of positive, integrative emotions by employees can lead customers to more positive evaluations of the service and organization. Customer mood may also be affected directly (and perhaps outside of conscious awareness) by the process of emotional contagion. *Emotional contagion* is the process of mimicking and synchronizing emotional expressions between interaction partners. As a result, interaction partners converge emotionally: One person can “catch” the affect of the other. Research has shown that customers interacting with employees expressing positive emotions find themselves in a better mood and subsequently evaluate the organization’s services more positively. Emotional contagion processes have also been shown within teams and between leaders and followers.

SUMMARY

Emotions were, at one time, viewed as the antithesis of rationality in organizations; they were viewed as a

distraction that should be minimized. Today, there is awareness that emotions are important and can serve useful organizational ends. Emotional labor, the regulation of felt and expressed emotion by employees, is an effortful, learned process. Emotional labor, like any behavior that taxes resources, may have some detrimental effects on employee stress and well-being. The nature and role of emotional dissonance in causing these detrimental effects remains unclear.

—S. Douglas Pugh

See also Customer Satisfaction With Services; Emotions

FURTHER READING

- Côté, S. (in press). A social interaction model of the effects of emotion regulation on work strain. *Academy of Management Review*.
- Grandey, A. A. (2000). Emotion regulation in the workplace: A new way to conceptualize emotional labor. *Journal of Occupational Health Psychology, 1*, 95–110.
- Grandey, A. A. (2003). When “the show must go on”: Surface acting and deep acting as determinants of emotional exhaustion and peer-rated service delivery. *Academy of Management Journal, 46*, 86–96.
- Hochschild, A. R. (1983). *The managed heart*. Berkeley: University of California Press.
- Pugh, S. D. (2001). Service with a smile: Emotional contagion in the service encounter. *Academy of Management Journal, 44*, 1018–1027.
- Rafaeli, A., & Sutton, R. I. (1987). Expression of emotion as part of the work role. *Academy of Management Review, 12*, 23–37.

EMOTIONS

In 1884, William James asked the fundamental question about the nature of emotions in his famous article “What Is an Emotion?” More than 120 years later, psychologists still wrestle with this question, and a single, precise definition has proven elusive. Definitional precision has been difficult both because *emotion* is a word lifted from common language—it is not a scientific term—and because scientists studying emotion approach it from many different perspectives. Psychologists from evolutionary, cognitive, and physiological traditions each focus on different antecedents, components, and outcomes of emotions. Further, an emotion is not one thing; it is a cluster of responses.

DEFINING EMOTION

In light of these obstacles to a precise definition, however, most researchers agree that emotions have the following characteristics. First, they include a subjective, experiential feeling state. This is the prototypical idea of an emotion: It is what we commonly refer to as *feelings* and what psychologists call *affect*. Second, emotions include a physiological component. Anger, for example, is associated with autonomic changes in areas such as heart rate and galvanic skin response. Third, emotions have a behavioral component. This includes expressive behavior as seen in facial and postural changes, and action tendencies (e.g., the tendency to recoil when experiencing fear). Finally, most definitions of emotion also include an evaluative component connecting the emotion to a specific person, object, or event. That is, emotions have a focus: We are angry *at* someone or sad *about* something.

It is this final component that is useful for distinguishing emotion from the closely related concept of mood. *Moods* are affective states, similar to the subjective, experiential feeling state of emotions. Moods also typically are of a longer duration, and are less intense, than emotions. But the primary feature that distinguishes emotions from moods is that unlike emotions, moods lack a specific focus. Moods are broad and diffuse, whereas emotions are associated with a person, object, or event that has been evaluated as significant for the individual. In distinguishing emotions from related concepts, it is useful to think in terms of a hierarchy, with affect, the subjective feeling state, as a broader, higher order category characteristic of both emotions and moods. If the affective state is accompanied by distinct physiological changes, behavioral tendencies, and a referent person, object, or event, it is most appropriate to classify it as an emotion.

Because *emotion* is a term lifted from common language, its use, even in the scientific literature, does not always match the definition provided here. Concepts such as emotion regulation, emotional contagion, and emotional labor often focus more on general affective states than on emotions per se. Thus, more technically correct terms might be *affective regulation*, *mood contagion*, or *affective labor*. For most uses of these concepts, however, the distinction between affect and emotion is relatively unimportant, and because these terms are well established in the literature, their use will continue.

DISCRETE EMOTIONS VERSUS DIMENSIONS

There are two traditions in psychology for how to best conceptualize emotions. In one camp are those who argue for the existence of a small set (5 to 9) of discrete primary emotions. These typically include happiness, interest, surprise, fear, anger, sadness, and disgust. Evidence for the existence of basic emotions is mostly drawn from studies showing the existence of distinct, specific, and universal (across cultures) emotional antecedents and responses. Particularly influential in this area is the work of Paul Ekman, whose research has demonstrated the existence of a small number of distinct, universal facial expressions of emotion. Across numerous cultures (Western and Eastern, modern and premodern), basic emotions such as fear are expressed in the face in the same manner and are universally recognized in pictures of facial expression. There have, however, been several influential critiques of the entire notion of basic emotions in recent years.

In contrast to the basic emotions view is the view held by researchers who assert that the domain of affective experience (mood and emotion) can be described by two underlying dimensions. Typically, one dimension is described as *valence* or *hedonic tone* (from pleasant to unpleasant), and the other dimension is *intensity* or *arousal* (from high to low). The structure of affective experience can then be described by a model called the *affective circumplex*. The affective circumplex is represented as a circle created by two bisecting dimensions: valence and arousal. All emotions can be represented as falling in a circle around these dimensions, as each can be described by different levels of valence and arousal. Anger is a combination of negative valence and high arousal; sadness is negative valence at moderate levels of arousal; boredom is negative valence at low levels of arousal. There is a vigorous debate surrounding how to best use the circumplex to represent affective experience. One group of researchers argues that affective experience is best represented by the orthogonal dimensions of positive and negative affect (each dimension representing a combination of valence and arousal), whereas others argue that the dimensions of valence and arousal best represent affective experience (see the May 1999 issue of the *Journal of Personality and Social Psychology* for a special section devoted to this debate). Despite this ongoing debate, virtually all researchers studying emotions from a dimensional perspective use the circumplex model in some form.

In industrial/organizational (I/O) psychology, most researchers have adopted a dimensional view of emotions. This is seen in, for example, the wide use of the Positive and Negative Affect Schedule (PANAS) measure, which is based on the affective circumplex. The prevalence of the dimensional view in I/O psychology research likely stems from the fact that it allows researchers to move seamlessly between discussing general affect, mood, and emotion. The dimensional perspective also meshes well with research on personality: Research shows links between positive and negative affect and, respectively, the Big Five dimensions of extraversion and neuroticism. Further, many outcomes of interest in I/O psychology—for example, prosocial organizational behavior—are sufficiently broad that they are likely better predicted by general categories of emotion than by specific, discrete emotions. Critics of the dimensional view of emotions have argued, however, that conceptualizing emotions in terms of two general dimensions masks important differences between discrete emotions. Anger and fear, for example, are both emotions characterized by high arousal and negative valence. The dimensional view treats these emotions as similar, yet they have unique antecedents and outcomes. As such, in certain areas of study (for example, abusive supervision, in which employees may be expected to experience anger, fear, or both), theoretical precision may warrant the study of discrete emotions.

INDIVIDUAL DIFFERENCES IN THE EXPERIENCE AND EXPRESSION OF EMOTION

Individuals differ in the quantity and quality of emotions they experience and express. How these differences emerge can be conceptualized by using an input-output model of an individual's emotional experience. The experience of emotion begins with an emotional stimulus, such as an interaction with an angry customer. The input triggers *emotion-response tendencies*, the behavioral, physiological, and experiential changes that represent the initial experience of emotion for the individual. Certain individuals (e.g., those high in the personality trait of neuroticism) will be more sensitive to these negative stimuli than others, producing stronger response tendencies in some individuals. Response tendencies do not, however, necessarily translate into visible emotional responses. An

individual's emotion regulation determines whether the generated emotion experience translates into a visible emotional response. *Emotion regulation* is how individuals influence the emotions they have and how they experience and express their emotions.

Research by James Gross suggests that emotion regulation can occur at two points: (a) antecedent to the activation of emotional response tendencies and (b) after the emotion has been generated. Antecedent-focused emotion regulation techniques act on the stimuli coming into the system before emotional response tendencies are activated. Techniques include selecting or modifying situations to alter the emotional stimuli (e.g., avoiding an angry customer); thinking about something different to avoid the stimuli; or cognitive change, which involves attaching a different meaning to the situation. Response-focused emotion regulation works only on changing the outward expression of emotion, not the emotion itself. Suppressing the emotion is a common response-focused strategy. Although antecedent- and response-focused emotion regulation may look similar in terms of outward expression of emotion, their effects are actually quite different. Specifically, when presented with a negative emotional stimulus, suppression changes the outward expression of emotion but not the subjective experience. Suppression also produces increased sympathetic nervous system activation and decrements in cognitive functioning, whereas antecedent-focused coping strategies do not.

Distinctions between types of emotion regulation strategies highlight the importance of differentiating between the experience and expression of emotion. We typically make judgments of people's emotional state based on their expressive behavior: facial expressions, vocalizations, and body posture. What we can see, however, is only emotional expression. Individuals differ in terms of *emotional expressivity*, the extent to which they express outwardly the emotions they are experiencing. Differences in expressivity are a key to understanding the common stereotype that women are more emotional than men. The stereotype is not true: research demonstrates that males and females do not differ reliably in terms of emotional experience. What is true is that women are more emotionally expressive than men. Although men and women experience similar types of emotions, women are more likely to manifest those emotions behaviorally than are men.

—S. Douglas Pugh

See also Affective Events Theory; Affective Traits; Emotional Labor; Mood

FURTHER READING

- Gross, J. J. (2001). Emotion and emotion regulation. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality* (2nd ed.). New York: Guilford Press.
- James, W. (1884). What is an emotion? *Mind*, 9, 188–205.
- Larsen, R. J., Diener, E., & Lucas, R. E. (2002). Emotion: Moods, measures, and individual differences. In R. G. Lord, R. J. Klimoski, & R. Kanfer (Eds.), *Emotions in the workplace*. San Francisco: Jossey-Bass.
- Pugh, S. D. (2002). Emotion regulation in individuals and dyads: Causes, costs, and consequences. In R. G. Lord, R. J. Klimoski, & R. Kanfer (Eds.), *Emotions in the workplace*. San Francisco: Jossey-Bass.
- Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review*, 110, 145–172.
- Weiss, H. M. (2002). Conceptual and empirical foundations for the study of affect at work. In R. G. Lord, R. J. Klimoski, & R. Kanfer (Eds.), *Emotions in the workplace*. San Francisco: Jossey-Bass.

EMPLOYEE ASSISTANCE PROGRAM

Employee assistance programs (EAPs) have various forms and offer different services across organizations but are generally thought of as systems of programs and resources implemented to support the health and well-being of an organization's employees. An organization may choose to institute an employee assistance program (EAP) for many reasons, including cost reductions, health care or employee turnover, and prevention and treatment of problems or disorders that may directly affect the organization's productivity or quality of services.

Employee assistance programs offer help with various problems encountered by employees, both personal and work related. Although there are no requisite services that must be offered to deem the organizational assistance as an official EAP, typical services include, but are not limited to, the following: counseling for substance abuse, including alcoholism; family or marital issues; problems with coworkers or supervisors; productivity issues, which may be related to personal issues, such as financial or health concerns; problems with sexual harassment or discrimination;

safety issues or infractions; and individual assistance with emotional or behavioral problems offered to both the employee and the employee's immediate family members. An organization's employees either are referred to EAP services via management or are self-referred, meaning the employee contacts the EAP without an internal referral.

HISTORICAL DEVELOPMENT OF EMPLOYEE ASSISTANCE PROGRAMS (EAPs)

Current models of EAPs emerged from the late 19th and early 20th centuries, when concern arose about consumption of alcohol in the workplace. At that time, it was commonplace for employees to drink on the job, and employers viewed this behavior as normative and thus acceptable. The foundation of today's EAPs can be traced back to several historical motivations, which raised public concern about alcoholism and alcohol use on the job. The Washingtonians, forerunners of Alcoholics Anonymous (AA), played a vital role in the movement through their attempts to persuade the public about the negative effects of workplace drinking on employee safety and health. During this time, the movement gained strength, with support from both the medical community and published studies documenting the effects of alcohol on workplace efficiency. The emergence of Taylorism (named for Frederick Taylor), a philosophy that emphasized implementation of the most efficient production systems, as well as workers' compensation laws focused on worker safety, further ignited concern and sparked initiatives to eradicate alcohol from the workplace.

Another catalyst for the emergence of EAPs was the mass production requirements incumbent on workers during World War II. Not only were workers who were under the influence of alcohol less efficient on the job, but they were also less dependable, resulting in higher absenteeism and reduced efficiency for the organization. Therefore, the earliest EAPs, also known as *occupational alcoholism programs* (OAPs), emerged in the mid-1940s with the primary goal of eliminating alcohol from the workplace by assisting and treating employees with alcohol problems. The ideal resolve was to return these workers to the workplace, alcohol free, and operating as productive members of the organization.

Early forms of EAPs remained secretive about their intentions and actions, but in the 1950s, formal and

written policies became standard. Still, programs rarely dealt with employee issues outside of alcoholism. Throughout the 1960s and 1970s, EAPs expanded to include employee assistance for issues including drug abuse, family problems, emotional or behavioral problems, legal problems, and financial problems. Beginning in the 1980s, EAPs further expanded to include more preventative, rather than reactive, assistance, including stress management and holistic health practices, such as assistance with smoking and overeating. This latter model has been referred to as an *employee enhancement program* (EEP) because of its focus on prevention. Other contemporary issues addressed by EAPs may include counseling or services for critical/acute stress incidents, such as the tragedies that occurred on September 11, 2001; workforce diversity and awareness, training that may also fall under employee development initiatives; and current mainstream information that may be beneficial for employees both on and off the job, such as how to prevent personal identity theft.

PROGRAM MODELS OF EAPs

Employee assistance program services may be offered using several different program models. A management-based, or in-house, program model, in which an organization maintains an in-house staff to coordinate EAP services, is the most typical arrangement found within organizations that are geographically centralized and have large employee populations. In this model, the EAP is usually considered a division of human resources and both the administrative and counseling/professional staff are employees of the organization. Another variation of an EAP is the contract model, in which an organization contracts services with one or more outside providers. Some companies choose to implement a blended-model EAP, which is a combination of a management-based model and a contract model. When a blended model is used, typically the administration is handled in-house and counseling/professional services are outsourced. Where unions exist, EAPs are sometimes called MAPs (member assistance programs), a name that emphasizes the involvement of union members in the determination of services. Regardless of the model, clinical staff have education and training in a variety of areas, including substance abuse and chemical dependence, crisis intervention, psychosocial counseling, and family issues. The

Employee Assistance Professionals Association (EAPA) now offers certification for employee assistance professionals. The Certified Employee Assistance Professional (CEAP) distinction requires a minimum of three years, or 3,000 hours, of experience in an EAP setting and successful completion of a written exam.

COMPONENTS OF AN EFFECTIVE EAP

Several factors must be considered in the development and implementation of an EAP to ensure its success. Most important, an organization's EAP must be endorsed by all levels of management, reflected in the provision of adequate financial and human resources, as well as public enthusiasm and support of the EAP's benefits to employees. Where labor unions exist, it is of vital importance that EAP professionals work with the union to create programs and services that accommodate the union members. Also of the highest importance is the clear message and consistent practice of confidentiality. Employees should be informed that any referral or assistance received from the EAP will not be included in the employee's personnel file, nor will any information they share be revealed to coworkers or supervisors. Confidentiality is extremely important in a workplace counseling setting, because without its guarantee, employees may be deterred from seeking assistance for fear of reprisal. An organization's EAP should also adopt a philosophy and mission statement, as well as establish program goals and objectives against which program evaluations should be conducted on an ongoing basis.

—Virginia E. Pitts

See also Drug and Alcohol Testing; Stress, Consequences; Stress, Coping and Management; Withdrawal Behaviors, Absenteeism

FURTHER READING

- Cunningham, G. (1994). *Effective employee assistance programs: A guide for EAP counselors and managers*. Thousand Oaks, CA: Sage.
- Emener, W., Hutchinson, J. R., & Richard, M. (Eds.). (2003). *Employee assistance programs* (3rd ed.). Springfield, IL: Charles C Thomas.
- Mannion, L. P. (2004). *Employee assistance programs: What works and what doesn't*. Westport, CT: Praeger.
- Oher, J. M. (Ed.). (1999). *The employee assistance handbook*. New York: Wiley.

Selvik, R., Stephenson, D., Plaza, C., & Sugden, B. (2004). EAP impact on work, relationship, and health outcomes. *Journal of Employee Assistance*, 18–22.

EMPLOYEE GRIEVANCE SYSTEMS

Grievance systems are formal organizational procedures designed to address employee complaints. These employee complaints, hereafter referred to as *grievances*, can range from general disputes about organizational policies (e.g., disputes about interpreting the vacation policy), to specific disputes about how the employee was treated (e.g., conflict with coworkers), to disputes that have legal implications (e.g., racial discrimination).

Grievance systems vary by organization. However, grievance systems typically have several (four to five) hierarchical steps that are used to address conflicts in the organization. Often the lowest level or step of a grievance system in a nonunionized organization is a written complaint or informal discussion with the employee's immediate supervisor. The first step in a unionized organization usually requires employees to talk or file a complaint with the union steward (representative). Higher steps of a grievance system usually consist of the employee presenting his or her complaint to higher levels of management. In a unionized context, the employee would receive union assistance or representation in presenting the complaint to the higher levels. The final step of grievance systems may consist of presenting the complaint to the highest level of administration (e.g., the CEO), a peer review panel (similar to a jury of peers), or an arbitrator (a neutral person who makes a final decision, similar to a judge).

Another common characteristic of grievance systems is that they are appeal procedures. This means that employees make the initial grievance at the lowest level and an initial decision is made. If the employee is not satisfied with the decision, he or she can appeal the decision to increasingly higher levels until satisfied with the decision or until all the steps have been exhausted. Because of these characteristics, grievance systems are also referred to as *multilevel appeal systems*.

WHY DO ORGANIZATIONS HAVE GRIEVANCE SYSTEMS?

The earliest grievance systems were created because of unionization. Specifically, they were created to

handle conflicts related to interpreting or implementing the collective bargaining agreement (a type of contract) that had been negotiated between the union and management. Unions promoted grievance systems as a voice mechanism or as a way to address employee concerns without risking retaliation from management and were considered a key feature for motivating employees to form a union.

Today, organizations voluntarily implement grievance systems in nonunion and union organizations for a variety of reasons. First, some research indicates that grievance systems may serve to reduce costs. For example, they may help identify and resolve organizational problems that could, if not properly addressed, lead to costly outcomes such as employee turnover. They are also considered an inexpensive alternative to litigation and may mitigate an employer's legal liability. Second, organizations may implement grievance systems to enhance the likelihood of increasing the positive outcomes (such as higher employee commitment to the organization) associated with employees feeling fairly treated and conflict being handled effectively. Finally, there is considerable evidence that organizations voluntarily implement grievance systems to reduce the likelihood of successful unionization of their employees.

THEORETICAL ROOTS OF GRIEVANCE SYSTEM RESEARCH

Two main theoretical models have been used to examine grievance systems. The first approach, the exit-voice model, was introduced by a labor economist, Albert Hirschman, to explain consumer behavior but was later applied to the employment context. According to the model, an organization learns about workplace problems via two major methods: exit or voice. The *exit* method is when employees leave the organization, and the *voice* method is when employees complain about the problem directly to the organization (e.g., grievance filing). The voice method is considered better for the organization, because organizations can learn about the problem directly and more quickly. This model predicts that more loyal employees will use voice methods to communicate workplace complaints and voice (e.g., grievance system activity) will be associated with positive outcomes for the organization.

The second theoretical approach draws from the due process and procedural justice literature. In the grievance system context, this theoretical approach

focuses on elements of the grievance system as they relate to the perceived fairness of the system. According to this theoretical approach, the perceived fairness of the system will be associated with higher grievance system usage.

PREDICTORS OF GRIEVANCE FILING

There are a number of ways in which an employee can address a complaint about a workplace issue besides filing a grievance. An employee could try to resolve the complaint on his or her own by discussing it informally with the other party, or the employee could use some alternate dispute resolution services provided by the employer, such as using the assistance of an ombudsperson or mediator. An individual could also pursue litigation through the courts system or choose not to address the complaint at all. This range of possibilities for addressing complaints has led several scientists to examine factors that relate to the use of grievance systems.

There are considerable differences across industries and organizations in the extent to which grievance systems are actually used. The earliest research examined the relation between demographic characteristics (e.g., sex, race, age) and grievance filing (using the grievance system). The findings were generally weak and inconsistent. That is, there is no strong support for the idea that one demographic group (e.g., younger workers) is more likely to file grievances than another group (e.g., older workers).

Today, scientists focus on how characteristics of the grievance system relate to grievance system usage. Most of this research draws from relevant due process and procedural justice theory. The empirical findings are largely supportive of this theoretical approach. For example, employees are more likely to use grievance systems that are considered more credible and have decision makers who are perceived to be fair and neutral. Another important factor is whether employees perceive there to be a low likelihood of punishment (being retaliated against) for grievance filing. Grievance systems that allow grievance filers to have an advocate assist them with the process are associated with higher grievance rates. This helps to explain why union grievance systems are used more frequently than nonunion grievance systems.

Some research focuses on how the characteristics of the organization and economy relate to grievance activity. Theoretical arguments suggest that the culture and norms within the organization for expressing disparate

views is related to grievance filing. Also, empirical evidence demonstrates that organizations that offer a number of different dispute resolution alternatives have lower grievance-filing rates. High unemployment rates are associated with higher grievance activity, suggesting that higher barriers to leaving the organization are important factors.

GRIEVANCE SYSTEM OUTCOMES

Most grievance system research focuses on examining the outcomes of grievance systems. Grievance system outcomes can be measured at both the organizational and individual levels. However, not all scientists agree on how to measure or interpret the measures of grievance system outcomes. The multiple approaches will be described in the following paragraphs.

Organizational Outcomes

One stream of research has applied the exit–voice model to examine the relation between having an organizational grievance system and outcomes such as lower employee turnover. Substantial research indicates that organizations that have grievance systems in place do have significantly lower turnover rates. We do not have any direct research evidence that implementing a grievance system is associated with higher employee productivity. Overall, this research is generally supportive of the predictions drawn from the exit–voice model—that is, the use of the exit option (turnover) can be reduced by providing a voice option.

Another stream of research has specifically examined grievance activity (the extent to which a grievance system is used) and organizational outcomes. Scientists in this stream of research argue that it is more important to consider whether the voice option is actually used than whether it exists. The empirical research suggests that higher grievance system usage is associated with more negative outcomes, such as lower productivity. It is difficult to determine whether the lower productivity results from grievance activity or if both grievance filing and lower productivity result from another, underlying problem, such as employees feeling low commitment to the organization.

Individual Outcomes

Also relevant is the effect of grievance systems on the individual employee. A number of studies compare the personnel records of grievance filers to

those of nonfilers. The general conclusion from this research is that individuals who file grievances experience negative outcomes. Specifically, grievance filers have significantly lower performance ratings, lower promotion rates, higher absences, and higher turnover rates than do nonfilers. In addition, grievance filers who appeal initial decisions and progress through higher levels of the grievance system appear to experience more negative outcomes. Based on these findings, scientists have concluded that, contrary to predictions from the exit–voice model, employees who exercise voice via a grievance system are punished for doing so. Specifically, scientists suggest that employee grievance filing is considered offensive or deviant behavior and managers punish that behavior consciously or unconsciously with lower performance ratings and limited opportunities for promotion.

However, other scientists argue that individual outcomes of grievance activity should be measured differently. In particular, these scientists argue that the negative outcomes attributed to grievance filing may actually result from experiencing a workplace dispute, rather than attempting to resolve it via a grievance system. In this approach, the individual outcomes of grievance filers are compared with individual outcomes of employees who had a complaint but chose not to file a grievance. Research in this area is limited, but there is some evidence that the individual outcomes of grievance filers are very similar to the individual outcomes of nonfilers who had a basis for a grievance but chose not to file one. Thus, it may be the reason for the complaint itself, rather than filing a grievance, that is the root of the negative outcomes.

SUMMARY

When an employee experiences a dispute, he or she may choose to make a complaint through an organization's grievance system, if one is available. Employees are more likely to use a grievance system to file a complaint if the grievance system is perceived as fair. Organizations that employ grievance systems appear to experience positive outcomes such as reduced turnover, yet the individuals who use the grievance systems may suffer negative consequences for doing so.

—Julie B. Olson-Buchanan

See also Conflict at Work; Conflict Management; Industrial Relations

FURTHER READING

- Boswell, W. R., & Olson-Buchanan, J. B. (2004). Experiencing mistreatment at work: The role of grievance-filing, nature of mistreatment, and employee withdrawal. *Academy of Management Journal*, *47*, 129–139.
- Freeman, R. B., & Medoff, J. L. (1984). *What do unions do?* New York: Basic Books.
- Hirschman, A. O. (1970). *Exit, voice, and loyalty*. Cambridge, MA: Harvard University Press.
- Ichniowski, C. (1986). The effects of grievance activity on productivity. *Industrial and Labor Relations Review*, *40*, 75–89.
- Lewin, D., & Peterson, R. B. (1988). *The modern grievance procedure in the United States: A theoretical and empirical analysis*. Westport, CT: Quorum.
- Lewin, D., & Peterson, R. B. (1999). Behavioral outcomes of grievance activity. *Industrial Relations*, *38*, 554–576.
- Olson-Buchanan, J. B., & Boswell, W. R. (in press). Organizational dispute resolution systems. In C. K. W. De Dreu & M. J. Gelfand (Eds.), *The psychology of conflict and conflict management in organizations*. SIOP Frontiers Series. Mahwah, NJ: Lawrence Erlbaum.

EMPLOYEE SELECTION

Employee selection is the process employers use to determine which candidates to choose for particular jobs or roles within the organization. (Some organizations select for a particular job, e.g., customer service representative, whereas others select for a role, e.g., management.) Often, *employee selection* connotes preemployment selection—that is, determining which external applicants to hire. However, the same term can also apply to a number of situations in which current employees are placed into an organizational role or job, including through promotions and transfers into new positions. Occasionally, the term *employee selection* is used broadly to refer to the process of selecting individuals to participate in initiatives such as management training programs, high-potential programs, or succession planning programs, in which the individual does not immediately assume a particular role or job but instead participates in some developmental process.

Candidates may be external applicants (i.e., applicants with no current association with the hiring organization) or internal candidates (i.e., current employees seeking other positions). However, employers sometimes seek candidates from only one source.

For example, in some organizations, candidates for a first-line supervisory job come only from the pool of current employees performing the position to be supervised. In other cases, the candidate pool may be limited to groups of applicants (i.e., nonemployees) because of the nature of the job. For example, employees in a large organization may not desire the lowest entry-level position. Either the individual already holds that position, or the individual perceives that position to be a step backward to be taken only in exceptional circumstances. Thus, the organization selects only from an external pool of candidates.

SELECTION INSTRUMENTS

Most organizations have a goal of identifying the best candidate or a capable candidate and use some sort of tool to help them evaluate a candidate and make decisions about whom to select. These tools may be what industrial psychologists consider a test, an objective and standardized sample of behavior. Generally, these would include traditional standardized paper-and-pencil tests or computer-administered tests, work samples, simulations, interviews, biographical data forms, personality instruments, assessment centers, and individual evaluations. However, many organizations collect information using tools that would not normally be considered tests, because the processes or instruments are either not objective or not standardized. Examples include résumé reviews, educational requirements, experience requirements, license or certification requirements, background investigations, physical requirements, assessments of past job performance, and interest inventories.

Selection procedures should measure job-related knowledge, skills, abilities, and other characteristics (KSAOs). The KSAOs measured depend on the job requirements and the tasks performed by the job incumbents. Typically, selection procedures used in business settings include measures of cognitive abilities (e.g., math, reading, problem solving, reasoning), noncognitive abilities (e.g., team orientation, service orientation), personality (e.g., conscientiousness, agreeableness), skills (e.g., electrical wiring, business writing), or knowledge (e.g., accounting rules, employment laws). Selection procedures that involve assessments of education and experience are generally used as proxies to assess knowledge and skill in a particular area. For example, a college degree in accounting and 5 years of experience as an accountant may

suggest that an individual has a particular level of knowledge and skill in the accounting field.

OBJECTIVES

When using employee selection procedures, employers have a number of objectives. Perhaps the most prevalent reason for employee selection is to ensure a capable workforce. Employers simply want to measure the job-related skills of the candidates to identify the most able or those who meet some minimum standard. In some cases, employers focus on other criteria, such as turnover, instead of or in addition to job performance. Higher levels of job performance lead in turn to organizational benefits such as higher productivity and fewer errors. When recruiting, hiring, and training costs are high, the advantages of lowering turnover are obvious.

Employers may use formal, standardized selection procedures to facilitate meeting other important organizational goals in addition to the enhancement of job performance. An organization may use these selection procedures to ensure a process that treats all candidates consistently. Other organizations may use these procedures because employee selection procedures incorporating objectively scored instruments are a cost-effective method of evaluating large numbers of people when compared with more labor-intensive selection methods such as interviews, job tryouts, work simulations, and assessment centers.

LEGAL ENVIRONMENT

Employee selection in the United States is heavily influenced by the legal environment. Federal laws, guidelines, and court cases have established requirements for employee selection and made certain practices unlawful. State and local legal environments are generally similar to the federal one, although in some states or localities, the requirements and prohibitions may be extended. Typically, the definitions of protected classes (i.e., subgroups of people protected by equal employment opportunity laws, such as racial and ethnic minorities and women) are broader at the state and local levels than at the federal level.

The federal requirements for employee selection are complex; however, the key elements include the following: (a) The selection procedure must be job-related and consistent with business necessity; (b) the selection procedure used does not discriminate

because of race, color, sex, religion, or national origin; (c) equally useful alternate selection procedures with lower adverse impact are not available; (d) the selection procedure should not exclude an individual with a disability unless the procedure is job-related and consistent with business necessity; and (e) adverse impact statistics must be kept. (*Adverse impact* is operationally defined as different selection ratios in two groups.) In addition, (f) where there is adverse impact, evidence of the validity of the selection procedure must be documented.

The laws for employee selection are enforced through two primary processes: (a) the judicial system and (b) enforcement agencies such as the Equal Employment Opportunity Commission, the Office of Federal Contract Compliance Programs, and a local human rights commission. It merits noting that the legal definition of an *employee selection procedure* encompasses all forms of such procedures, regardless of the extent to which they are objective or standardized.

CHOOSING THE TYPE OF SELECTION PROCEDURES

The kind of employee selection procedure used in a particular situation depends on many factors. Perhaps the most important consideration is the kind of knowledge, skill, ability, or other characteristic (KSAO) being measured. Some instruments are better for measuring some skills than others. For example, an interview is a good way to assess a person's oral communications skills, but it is not a particularly efficient means of determining a person's quantitative skills.

Industrial and organizational psychologists often consider the known characteristics of a particular type of employee selection procedure when choosing among various types of selection procedures. The typical levels of validity and adverse impact for an instrument may affect the choice of instrument. Most organizations want to maximize the validity and minimize the adverse impact.

Many organizational factors also influence the choice of selection procedure. Sometimes an organization will consider the consequences of failure on the job and design a selection process accordingly. When the repercussions of an error are high (e.g., death or bodily injury), the organization may use lengthy selection procedures that extensively measure many different KSAOs with a high level of accuracy. When the repercussions of an error are minor (e.g., wrong

size soft drink in a fast food order), the organization may opt for a less comprehensive process.

Some organizations consider other factors that are related to a high need for success in selection. Often, the cost of hiring and training and the time required to replace an individual who cannot perform the job at the level required influence the choice of selection instruments.

Some instruments may not be workable in the context of the organization's staffing process. A 2-day assessment center composed of work sample exercises and requiring two assessors for each candidate is not often practical when the hiring volumes are high. A test requiring the test taker to listen to an audiotope will not work if the equipment is unavailable. Some instruments may not be feasible with certain candidate groups. Candidates who are current employees may resist extensive personality assessments. Measures of past performance may not be feasible if the applicant pool contains external applicants. Some organizations attempt to minimize the need for reasonable accommodations under the Americans With Disabilities Act and avoid selection procedures, such as highly speeded tests, that often generate accommodation requests.

Most organizations consider the costs of selection instruments in their selection process. Often, selection procedures such as assessment centers, which typically cover many job-relevant KSAOs, present a great deal of face validity (i.e., the extent to which the measure looks like it would measure job-related KSAOs), and predict job performance well with moderate adverse impact, are rejected because of their costs. Some organizations systematically consider costs and benefits when choosing selection instruments and choose instruments that provide more benefits than costs. These organizations may be willing to spend a lot on selection procedures if the value of the resulting candidate pool is commensurately higher.

VALIDATING THE SELECTION PROCEDURE

Ideally, an employer uses a systematic process to demonstrate that a selection procedure meets the legal and professional requirements. Employers often avoid a systematic process when using less formal selection procedures, because they believe that such procedures are not required or fear the outcomes. However, compliance with current legal procedures generally requires some demonstration of job relevance and business necessity.

The validation process for a selection instrument typically involves determining job requirements, assessing the relationship of the selection process to those requirements, demonstrating that the selection process is nondiscriminatory, and documenting the results of the research.

Job analysis or *work analysis* is the process for determining what KSAOs are required to perform the job. The purpose of a job analysis is to define which KSAOs should be measured and define an appropriate criterion. A variety of techniques, ranging from interviews and observations to job analysis questionnaires, can be used to determine what tasks incumbents perform and what KSAOs are necessary to perform the tasks. The extent and formality of the job analysis varies with the particular situation. When tests that are known to be effective predictors of performance in a wide range of positions, such as measures of cognitive ability, are used, the job analysis may be less detailed than in cases in which a job knowledge test is being developed and information sufficient to support the correspondence between the job content and test content is necessary. Often when a test purports to predict criteria such as turnover, the need to analyze the job and demonstrate the relevance of turnover is obviated.

A *validation study* establishes a relationship between performance on the predictor and some relevant criterion. *Validity* refers to the strength of the inference that can be made about a person's standing on the criterion from performance on the predictor. Many ways exist to establish the validity of an inference, and current professional standards encourage an accumulation of validity evidence from multiple sources and studies. Perhaps the three most common approaches are content-oriented strategies, criterion-oriented strategies, and validity generalization strategies. *Content-oriented* strategies involve establishing the relationship between the selection procedure and the KSAOs required in the job, and *criterion-oriented* approaches involve establishing a statistical relationship between scores on the predictors and a measure on some criterion, often job performance. *Validity generalization* strategies (e.g., synthetic validity, job component validity, transportability) usually involve inferring validity from one situation in which formal studies have been done to another situation, based on demonstration of common KSAOs or tasks.

Demonstrating that selection procedures are nondiscriminatory is usually accomplished through a bias study. Accepted procedures involve a comparison of

the slopes and intercepts of the regression lines for the protected and nonprotected classes. Often psychologists will evaluate mean group differences and adverse impact; however, it is important to note that neither of these statistics indicates bias.

Government standards require documentation of research related to the job analysis, validity, and bias research. Careful industrial and organizational psychologists who want a successful implementation of an employee selection procedure will also provide detailed user's guides that explain how to use the selection procedure and interpret scores in addition to the technical report documenting the validity studies.

USING AND INTERPRETING THE RESULTS OF THE SELECTION PROCEDURE

Multiple ways to combine, use, and interpret employee selection procedures exist. Like the selection of a particular type of format for the employee selection procedure, the choice of how to use scores on employee selection procedures depends on scientific and practical considerations. Each approach has its advantages and disadvantages.

One of the first questions in using the results of selection procedure is how to combine data from multiple procedures. Two approaches are frequently used. In a *multiple hurdles* approach, the standard on one selection procedure must be met before the next is administered. In a slight variation, all selection procedures are given, but the standard on each procedure must be met for a candidate to be qualified. Another approach frequently used is the *compensatory model*, in which all components of a selection battery are administered and a standard for a total score on the battery must be achieved.

Multiple hurdles approaches have the advantage of ensuring that a candidate possesses the minimal level of the KSAOs being measured to perform the job at the level specified by the organization, whereas a compensatory model allows for a higher level of skill in one area to compensate for lower skill in another. For example, strong mental abilities may compensate for low levels of job knowledge: a candidate may not have all the job knowledge needed but may possess the ability to acquire additional knowledge quickly and efficiently. There are situations in which skills are not compensatory, and minimal levels of both are required. For example, in a customer service position, an employer may expect problem solving skills and

interpersonal skills. Some organizations prefer multiple hurdles because this approach allows them to spend their staffing resources wisely. For example, an organization may use a short test of basic reading skills to eliminate candidates who do not read well enough to complete a lengthy job knowledge test. In other situations, such as competitive labor markets, asking candidates to return for multiple testing events is not feasible. Consequently, organizations prefer a compensatory approach, or a modified multiple hurdles approach in which all instruments are given to all candidates.

Whether looking at one selection procedure or a combination of procedures, there are several ways to use the scores. In *top-down hiring*, the employer chooses the top scorer, then the next highest scorer, and so on, until the positions are filled. Top-down hiring maximizes performance on the criterion and frequently results in the highest levels of adverse impact, particularly when the employee selection procedure contains a significant cognitive component. Top-down selection procedures work well in *batch* selection—that is, the selection procedure is administered to a large number of individuals at one time, and all selections are made from that pool. When selection is *continuous*, meaning the selection procedure is administered frequently, the top of the list changes often, making it difficult to provide information to candidates about their relative status on a list of qualified individuals. In addition, if the skill level of the candidates tested is low, the employer runs the risk of selecting individuals who lack sufficient skill to perform the job at the level required by the organization.

Cutoff scores are often used to solve the problem of identifying who is able to perform the job at the level specified by the organization, specifying the pool of qualified people, and reducing the level of adverse impact. Using a cutoff score, the employer establishes for the procedure a minimum level that each candidate must achieve. Typically, all candidates who score above that on the procedure score are considered equally qualified. Although this approach solves several problems, it reduces the effectiveness of the selection procedure by treating people with different skill levels the same. The extent to which adverse impact is affected depends on where the cutoff score is set.

Both top-down selection and cutoff scores can result in individuals with very similar scores being treated differently. Sometimes banding is used to overcome this problem by grouping individuals with

statistically equivalent scores. Yet the bounds of the band have to be set at some point, so the problem is rarely surmounted completely.

Another approach that is often used by employers is the *piece of information* approach. The staffing organization provides the score on the employee selection procedure and interpretive information such as expectancy tables, and allows the hiring manager to determine how to use the selection procedure information and combine it with other information. For example, a hiring manager might compare test information with other indicators of achievement, such as college grade point average, and make a judgment about the mental abilities of a candidate. The advantage to this approach is its recognition that no test provides perfect information about an individual. The problem with the approach is that it opens the door to inconsistent treatment across candidates.

USEFULNESS OF AN EMPLOYEE SELECTION PROCEDURE

The usefulness of a selection procedure can be assessed in several ways. One approach determines the extent to which the number of successful performers will increase as a result of using the employee selection procedure by considering three factors: (a) the validity of the instrument; (b) the selection ratio (i.e., the percentage of candidates to be selected); and (c) the base rate for performance (i.e., the percentage of employees whose performance is considered acceptable). Another approach is to calculate the dollar value of using the selection procedure by applying utility formulas that take into account the research and operational costs of the tests, the dollar value of better performers, the number of employees hired per year, the average tenure, and the validity of the test.

—Nancy T. Tippins

See also Executive Selection; Prescreening Assessment Methods for Personnel Selection; Selection Strategies; Selection: Occupational Tailoring

FURTHER READING

American Educational Research Association, American Psychological Association, and National Council on Measurement in Education. (1999). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.

- Equal Employment Opportunity Commission. (1978, August 25). Uniform guidelines on employee selection procedures. *Federal Register*, 38290–393150.
- Schmitt, N., & Borman, W. C. (1993). *Personnel selection in organizations*. San Francisco: Jossey-Bass.
- Schmitt, N., & Chan, D. (1998). *Personnel selection: A theoretical approach*. Thousand Oaks, CA: Sage.
- Society for Industrial and Organizational Psychology. (2003). *Principles for the validation and use of personnel selection procedures* (4th ed.). Bowling Green, OH: Author.

EMPLOYMENT AT WILL

Since the late 1800s, absent a contract specifying otherwise, an employment agreement generally has been regarded in the United States as being terminable at will by either employee or employer. In practice, the doctrine primarily inured to the benefit of the employer, who was able, according to one court, to discharge or retain employees with any or no cause. This extreme characterization began to erode shortly before the 1950s, although employment at will remains a viable doctrine and the basic law in a majority of the United States.

Several factors limit the reach of the employment at will doctrine. For example, in the public sector, most employees have a constitutionally protected right to notice and a hearing, embodied in civil service regulations, before they may be terminated. Most collective bargaining agreements contain provisions that a covered employee may be terminated only for good cause and frequently require arbitration requiring the employer to prove the existence of good cause. Generally, employees may not be terminated for any discriminatory reason such as those proscribed by Title VII or other federal or state antidiscrimination statutes. Finally, almost all of the states have imposed some limits on the doctrine through legislative or judicial (common law) intervention. Three areas of statutory and common law exceptions to employment at will, especially developed since 1980, are summarized in the following sections.

VIOLATION OF PUBLIC POLICY

This exception, the most significant limitation, is based on tort law providing a cause of action that a discharge is wrongful if it violates some well-established public

policy. Although some form of public policy exception is recognized in nearly all states, exactly what constitutes a public policy varies widely. Most commonly, it must be proved that termination was because of retaliation, malice, or bad faith. Many states require that a public policy be expressly stated in a statute or be derivable from some constitutional provision. These cases frequently fall into one of four categories—for example, it is a violation of public policy if an employee is terminated for (a) refusing to violate a statute (commit perjury); (b) performing a statutory duty (jury duty); (c) exercising a statutory right (filing for workers' compensation); or (d) reporting a statutory or regulatory violation (by the employer). Courts in other states have been more willing to find an exception where policy is found to be fair and in the public interest. Thus, discharge of an employee who cooperated with law enforcement authorities investigating criminal activities of a coworker was held to violate public policy. In another case, a court held that it was a violation of public policy to discharge an armored truck driver who left the vehicle to save the life of a woman being threatened by an armed bank robber.

On the other hand, it must be stressed that a counterexample may be proffered for each of the foregoing cases. For example, at least one state has held that it was not a violation of public policy when an employee was terminated in retaliation for filing for workers' compensation.

COVENANT OF GOOD FAITH AND FAIR DEALING

An implied duty of good faith and fair dealing in the manner of performance and enforcement generally is taken to be part of every contract (not employment contracts only). For example, dismissal of an employee to deny payment of a sizable bonus that was due for concluding a substantial sale to a client was held to violate the covenant. Again, other courts have held otherwise, and less than a third of the states recognize the covenant as an exception to the at-will doctrine. Of those, many allow only the damages awardable under a claim of breach of contract.

BREACH OF IMPLIED CONTRACT

Courts have shown an increasing receptivity to finding implied promises of employment security that

are contractually binding. Typically, such promises are found in oral representations during applicant interviews or by supervisors, or in employee handbooks and personnel manuals. More than half of the states recognize this exception to employment at will. For example, an implied contractual commitment to job security was found in the policy manual of an employer that stated that it was the employer's policy to retain the services of all employees as long as their job performance was effective and efficient. In addition, the manual explicitly defined different types of termination; the definitions of disciplinary discharge and discharge because of performance were held clearly to imply discharge only for good cause. Employers may avoid such implied promises by well-drafted and conspicuous disclaimers, preferably acknowledged by the employee receiving the handbook or manual, a measure that is increasingly followed.

CONCLUSION

Because of the extreme variation among the states as to how the employment at will doctrine shall be interpreted, employers must be vigilant in keeping abreast of legislative and common-law developments in their jurisdictions. A Model Employment Termination Act (META) was proposed by the National Conference of Commissioners on Uniform State Laws in 1991 that would limit involuntary termination only to circumstances where there was good cause, but it has not been widely adopted or followed. Consequently, only the United States remains as a major industrial democracy that permits the termination of employees without valid reason.

—Donald L. Zink

See also Whistleblowers

FURTHER READING

- Ballam, D. A. (2000). Employment-at-will: The impending death of a doctrine. *American Business Law Journal*, 37, 653–687.
- Lindemann, B., & Grossman, P. (1996). *Employment discrimination law* (3rd ed., Vol. 1). Washington, DC: Bureau of National Affairs. (See Chap. 26, § III: Contract and tort causes of action that limit the “employment-at-will” doctrine. See also the 2002 Cumulative Supplement.)

EMPLOYMENT INTERVIEW

The employment interview is one of the most common methods organizations use to recruit, screen, and select employees. Few individuals are hired without going through at least one interview. Generally defined, an *employment interview* is an interpersonal exchange between a job candidate and one or more organizational representatives who attempt to assess the candidate's job-relevant experience and knowledge, skills, abilities, and other characteristics (KSAOs) to make a personnel decision. Although the typical interview involves a face-to-face interaction between candidate and interviewer, alternative interview modes such as telephone and videoconferencing are becoming increasingly prevalent.

Organizations use employment interviews for three main purposes: recruiting, screening, and selection. Recruiting interviews are used to provide information about a job and organization to individuals, with the primary goal of attracting potential applicants. Screening interviews take place early in the hiring process and are used to determine whether individuals are minimally qualified, as well as to assess the fit between an individual's goals, values, and interests and those of the hiring organization. Finally, selection interviews generally take place later in the hiring process (e.g., after some applicants have been screened out on other selection criteria) and are used to assess the extent to which candidates possess the experience and KSAOs important for success on the job. Selection interviews are also used to evaluate candidates for promotion within an organization.

Scholars have studied numerous aspects of the employment interview. Because most research has focused on the use of interviews for selection (rather than for recruitment and screening), the current discussion will focus primarily on findings relevant to selection interviews. However, many of the research findings are also applicable to recruiting and screening interviews.

SOCIAL AND COGNITIVE FACTORS IN INTERVIEWS

The social nature of the interview distinguishes it from many other types of selection techniques, such as paper-and-pencil and computer-based tests. Therefore, a great deal of research has examined how the

interaction between candidate and interviewer influences interview outcomes. Unlike some other kinds of selection techniques, for which a candidate's score is primarily under his or her control, high performance on an interview requires both the candidate to perform well and the interviewer to recognize that performance and assign high ratings. Therefore, researchers have also studied the role that interviewers play in the interview process, particularly how their decision-making and cognitive processes can affect interview outcomes.

There is evidence that a variety of social and cognitive factors can influence interviewer ratings. Unfortunately, these factors tend to be irrelevant to the KSAOs interviews are designed to measure, thus making their influence problematic. Below are some of the most common research findings in this area.

- Interviewers tend to overweight negative information and information obtained near the start of the interview (i.e., *primacy effects*) and near the end of the interview (i.e., *recency effects*).
- Some interviewers assign higher ratings to candidates who are similar to them on characteristics such as race, sex, education, and social background (i.e., the *similar to me* effect).
- Interviewers can be influenced by various nonverbal cues from interviewees, such as physical attractiveness, smiling, and eye contact.
- Interviewers tend to allow their preinterview impressions of candidates (e.g., based on their employment application) to influence their interview evaluations. For example, interviewers often unknowingly allow their initial impressions to affect how they gather and interpret information during an interview.
- Interviewers are often influenced by a variety of impression management behaviors, which many interviewees use to present themselves in a favorable light. For example, impression management tactics such as overemphasizing one's role in past successes and complimenting the interviewer have been shown to result in higher interview scores.

Although these factors can have a detrimental impact on interview outcomes, their effects tend to be rather small. In addition, some of these factors may be related to success on the job (e.g., smiling and eye contact for customer service jobs, impression management behaviors for sales positions), and therefore their influence may actually increase the validity of interviewer judgments in some cases.

THE IMPORTANCE OF STRUCTURE

Given the potential influence of the social and cognitive factors discussed above, researchers have attempted to identify ways to help interviewers focus on job-related information. The most significant finding in interview research over the past two decades has been that adding structure to the development, conduct, and scoring of employment interviews can result in a variety of positive effects. Michael Campion and his colleagues identified 15 ways to increase the structure of interviews. These elements are summarized here, beginning with seven characteristics that pertain to the content of structured interviews.

1. Design interview questions to assess the critical KSAOs identified by a job analysis.
2. Ask all candidates the same or highly similar questions to ensure that every job candidate receives the same opportunity to perform in the interview.
3. Limit prompting and follow-up questions to keep the interview as consistent as possible across candidates and discourage interviewers from leading candidates toward desired responses.
4. Use effective types of interview questions. Past behavior and situational questions are perhaps the two most researched types of structured questions. Past behavior interview questions ask candidates to describe how they behaved in previous situations relevant to the targeted KSAOs, whereas situational questions ask candidates how they would behave in hypothetical situations relevant to the job.
5. Include a large number of questions (e.g., 10 to 15) to maximize the amount of job-relevant information obtained during the interview.
6. Limit interviewers' exposure to candidate information (e.g., application forms, résumés, test scores) so that such information does not bias their judgments of candidate performance during the interview.
7. Limit the amount and type of questions candidates may ask during the interview, as uncontrolled questions can reduce the standardization of the interview.

The last eight characteristics of structured interviews pertain to how interviewers evaluate candidates' performance during the interview.

8. Have interviewers make multiple ratings, either by rating candidates' responses to each question or by rating each KSAO or behavior the interview is

designed to measure. Rating such subcomponents of the interview is thought to be less cognitively demanding for interviewers and may increase the reliability of the overall interview score.

9. Have interviewers make their ratings using a common set of detailed rating scales so that all candidates are evaluated on the same criteria.
10. Have interviewers take detailed notes regarding candidates' responses to each structured interview question to help them recall what candidates said during the interview.
11. Use multiple interviewers (in either a single panel interview or in multiple individual interviews) to help increase the reliability of interview scores.
12. When possible, use the same interviewers to evaluate all job candidates to ensure that one candidate is not selected over another simply because he or she happened to draw a lenient interviewer.
13. Ask interviewers not to discuss candidates between interviews, as such discussions could cause interviewers to change their standards for evaluating subsequent candidates applying for the same job.
14. Train interviewers to conduct and score interviews to help ensure the consistency of the interview process.
15. Combine interview ratings using statistical techniques (e.g., by computing the average rating) rather than by having interviewers integrate interview information themselves to derive an overall rating.

Clearly, increasing the structure of employment interviews can involve many factors. Thus, interviews tend to vary on a continuum of structure rather than being classified simply as structured versus unstructured. Although it is not always possible to incorporate all of the elements of structure described here, research generally indicates that increasing the level of interview structure tends to result in more valid and reliable judgments than those formed on the basis of less structured interviews. Research has also shown that interview structure is positively related to favorable decisions for defendants (i.e., hiring organizations) in employee discrimination cases. Nevertheless, very little is known about the relative contribution of specific elements of structure to the various outcomes discussed in the following section.

OUTCOMES OF EMPLOYMENT INTERVIEWS

Considerable interview research has focused on outcomes important to organizations, including reliability,

validity, equal opportunity, and applicant reactions to employment interviews. Some of the key results of this research are summarized in the following paragraphs.

Reliability

One important factor in judging the quality of interview outcomes is the extent to which interviews yield reliable scores. In an interview context, *reliability* is often defined as the extent to which different interviewers' ratings of the same set of job candidates result in a similar rank order of candidates for the position. Research results suggest that employment interview ratings can have acceptable interrater reliability. One of the main findings is that the average reliability coefficient for more structured interviews (.67) is higher than the average coefficient for less structured interviews (.34).

Criterion-Related Validity

Another important outcome is whether interviewer ratings can predict how well candidates would perform on the job if they were selected. The *criterion-related validity* of interviews is assessed by correlating interview scores with criteria of interest to organizations, such as training success, job performance, absenteeism, and turnover. Most studies have examined the relationship between interview ratings and job performance. After accounting for factors such as unreliability in the performance measure, correlations between interview ratings and performance typically range from .14 to .33 for less structured interviews and from .35 to .57 for more structured interviews. These results suggest that structured interviews are one of the most effective selection techniques for predicting job performance.

Incremental Validity

Organizations often use a combination of selection instruments to evaluate job candidates. Because interviews (particularly structured ones) tend to require a lot of time and resources to develop and administer, it is important to determine whether an interview will predict valued criteria (e.g., job performance) over and above the prediction provided by other, less expensive selection instruments. Several studies have found that structured interviews can have *incremental validity* when used with other selection measures,

such as cognitive ability tests, personality inventories, and situational judgment tests. Results suggest that adding a structured interview to a selection process can increase the criterion-related validity of the overall process by as much as 20%.

Equal Opportunity

Equal opportunity is another significant criterion on which selection techniques are evaluated. Most organizations want selection procedures that predict valued outcomes (e.g., job performance) but that also allow job candidates from different backgrounds an equal opportunity to succeed. Although ensuring equal opportunity is often a goal of organizations, the use of fair selection procedures is also important for ensuring that decisions based on selection scores are legally defensible. Research suggests that interview score differences between candidates from different racial and ethnic groups (i.e., Whites versus African Americans and Hispanics) tend to be small to moderate in magnitude. In addition, there is evidence that increasing interview structure can reduce ethnic group differences. Fewer studies, however, have examined the extent to which interviews yield similar scores for individuals who vary on other demographic characteristics, such as gender and age.

Applicant and Interviewer Reactions

Organizations have become increasingly concerned with how job candidates perceive selection procedures. For example, applicants' reactions are believed to affect how they perform on selection instruments, whether they decide to withdraw from the selection process, the probability they will accept a job offer, and even how likely they are to file lawsuits owing to the perceived unfairness of organizational hiring practices. Job candidates' reactions to employment interviews are typically among the most favorable of any type of selection method. For example, people believe that how candidates perform on an interview is generally a good indicator of how they will perform on the job if selected (e.g., interviews have high *face validity*). However, much of this research has examined applicant reactions to less structured interviews. Less is known about how candidates react to highly structured interviews. It is likely, for example, that job candidates might react negatively to some of the characteristics of structured interviews described earlier, such as limiting questions

from candidates, the use of multiple interviewers, and interviewer note taking.

As discussed, interviews involve an exchange of information between a job candidate and one or more representatives of an organization. Thus, it is also important to consider how *interviewers* react to different aspects of the interview process. Scholars have recently begun to investigate how interviewers perceive more structured interview formats. Despite the various benefits associated with structured interviews, initial results suggest that many interviewers still prefer interviews with less structure. For example, some interviewers feel that highly structured interviews do not allow them to control the conduct and scoring of the interview.

THE INTERVIEW AS A METHOD

Finally, it is important to note that the interview is a *method* of collecting information about candidates rather than a psychological construct such as cognitive ability or personality. In other words, the specific content of interviews (e.g., the interview questions) depends on the KSAOs and behaviors organizations want to assess in job candidates. Although interviews offer organizations the flexibility to evaluate a wide range of KSAOs/behaviors, there is relatively little research on how well interviews actually measure specific job-relevant attributes (e.g., interpersonal skills). Furthermore, studies that have attempted to examine this issue have not found strong evidence that interviewer ratings reflect the intended constructs. Thus, although employment interviews have been shown to have useful levels of criterion-related validity for predicting various outcomes, to date, less is known about the *construct-related validity* of interviewer ratings.

In addition to the flexibility of using interviews to assess a variety of job-related attributes, interviews can be conducted in several different modalities, including face-to-face, telephone, and videoconferencing interviews. Some organizations also video- or audiorecord face-to-face interviews and then distribute the recordings to raters to observe and evaluate. Such interview methods offer several advantages to organizations. Perhaps the most salient benefit is that they allow interviewers in geographically dispersed locations to evaluate job candidates without having to travel, thereby reducing the cost associated with face-to-face interviews.

Recent research has investigated whether alternative interview methods are comparable to the

traditional face-to-face method. Most studies have examined applicant reactions to different interview methods. The general finding is that applicants, and to some extent interviewers, seem to prefer face-to-face interviews to telephone and videoconferencing interviews. Other research has found that alternative methods tend to result in lower interview scores than those based on face-to-face interviews. Very few studies have investigated whether alternative interview methods differ on factors such as validity, reliability, or equal opportunity, although there is some evidence that structured telephone interviews have similar levels of criterion-related validity as do face-to-face interviews.

SUMMARY

Employment interviews play a key role in the hiring process for virtually all jobs. Early reviews of the interview literature were pessimistic about the usefulness of the interview as a selection technique. This pessimism was likely caused by the extensive use of less structured interview formats and by research showing how various interviewee and interviewer factors can unduly affect interview outcomes. The advent of structured interviews, however, has reestablished the interview as an effective method for evaluating job candidates. There is evidence that structured interviews can predict important outcomes such as job performance, can provide incremental validity beyond that of other selection techniques, and tend not to produce large score differences among candidates from different ethnic backgrounds. Furthermore, because the interview is a method, it can be used to assess a variety of job-relevant attributes. Although much has been learned about the employment interview, more research is needed to determine (a) what elements of structure are most important for reliability and validity, (b) how interviewees and interviewers react to different aspects of structure, (c) what types of attributes employment interviews are best suited to assess, and (d) the extent to which alternative interview modes yield similar results.

—Chad H. Van Iddekinge

See also Adverse Impact/Disparate Treatment/Discrimination at Work; Applicant/Test-Taker Reactions; Employee Selection; Job Analysis; Reliability; Selection Strategies; Validity

FURTHER READING

- Campion, M. A., Palmer, D. K., & Campion, J. E. (1997). A review of structure in the selection interview. *Personnel Psychology, 50*, 655–702.
- Conway, J. M., Jako, R. A., & Goodman, D. F. (1995). A meta-analysis of interrater and internal consistency reliability of selection interviews. *Journal of Applied Psychology, 80*, 565–579.
- Eder, R. W., & Harris, M. M. (Eds.). (1999). *The employment interview handbook*. Thousand Oaks, CA: Sage.
- Huffcutt, A. I., Conway, J. M., Roth, P. L., & Stone, N. J. (2001). Identification and meta-analytic assessment of psychological constructs measured in employment interviews. *Journal of Applied Psychology, 86*, 897–913.
- McDaniel, M. A., Whetzel, D. L., Schmidt, F. L., & Maurer, S. (1994). The validity of employment interviews: A comprehensive review and meta-analysis. *Journal of Applied Psychology, 79*, 599–616.
- Posthuma, R. A., Morgeson, F. P., & Campion, M. A. (2002). Beyond employment interview validity: A comprehensive narrative review of recent research and trends over time. *Personnel Psychology, 55*, 1–81.
- Williamson, L. G., Campion, J. E., Malos, S. B., Roehling, M. V., & Campion, M. A. (1997). Employment interview on trial: Linking interview structure with litigation outcomes. *Journal of Applied Psychology, 82*, 900–912.

EMPOWERMENT

Today, more than 70% of organizations have adopted some kind of empowerment initiative for at least part of their workforce. To be successful in today's business environment, companies need the knowledge, ideas, energy, and creativity of every employee, from frontline workers to the top-level managers in the executive suite. The best companies accomplish this by empowering their employees to take initiative without prodding, to serve the collective interests of the company without being micromanaged, and to act like owners of the business. So what is empowerment, and how can it be effectively implemented in work organizations?

Over the last two decades, two complementary perspectives on empowerment at work have emerged. The first focuses on the social structural conditions that enable empowerment in the workplace, and the second focuses on the psychological experience of empowerment at work. Each perspective plays an

important role in empowering employees and is described in the sections below.

SOCIAL-STRUCTURAL EMPOWERMENT

The roots of the social-structural perspective on empowerment are found in theories of social exchange and social power. The emphasis is on building more democratic organizations through the sharing of power between superiors and subordinates, with the goal of cascading power to lower levels of the organizational hierarchy. In this perspective, *power* means having formal authority or control over organizational resources and the ability to make decisions relevant to a person's job or role. In short, social structural empowerment is about employee participation through increased delegation of responsibility down throughout the organizational chain of command.

The goals of the social-structural perspective focus on understanding how organizational, institutional, social, economic, political, and cultural forces can root out the conditions that foster powerlessness in the workplace. Practically, organizations can change organizational policies, processes, practices, and structures from top-down control systems to high involvement practices in which power, knowledge, information, and rewards are shared with employees in the lower reaches of the organizational hierarchy. For example, management can change its policy to allow employees to decide on their own how they will recover from a service problem and surprise and delight customers by exceeding their expectations rather than waiting for approval from a supervisor.

Specific practices that exemplify a high involvement system include the following:

- *Shared decision making.* Employees and/or teams may have input into and influence over decisions ranging from high-level strategic decisions to routine day-to-day decisions about how to do their own jobs.
- *Performance-based pay.* Employees share in the gains of the organization and are compensated for increases in their own skills and knowledge.
- *Open flow of information.* This includes the downward flow of information (about strategic direction, competitive intelligence, and financial performance) and the upward flow of information (concerning employee attitudes and improvement ideas).
- *Leadership development and training.* Training enables leaders to do their own jobs better and also

may provide interpersonal/leadership skills and knowledge of the economics of the business.

However, although this perspective has garnered much attention by practitioners because it helps them see how the kinds of managerial actions can facilitate empowerment at work, it is limited because it provides an organization-centric perspective on empowerment. It does not address the nature of empowerment as *experienced* by employees. This is important because in some situations, power, knowledge, information, and rewards were shared with employees yet they still felt disempowered. And in other situations, individuals lacked all the objective features of an empowering work environment yet still felt and acted in empowered ways. This limitation helped to spur the emergence of the psychological perspective on empowerment, which is described in the next section.

PSYCHOLOGICAL EMPOWERMENT

Psychological empowerment has its roots in early work on employee alienation and quality of work life. Rather than focusing on managerial practices that share power with employees at all levels, the psychological perspective examines how employees experience empowerment at work. This perspective refers to *empowerment* as the personal beliefs that employees have about their role in relation to the organization. When people feel empowered at work, they experience four dimensions:

1. *Meaning.* Meaning involves a fit between the needs of one's work role and one's beliefs, values, and behaviors.
2. *Competence.* *Competence* refers to self-efficacy specific to one's work, or a belief in one's capability to perform work activities with skill.
3. *Self-determination.* Self-determination is a sense of choice in initiating and regulating one's actions. It reflects a sense of autonomy over the initiation and continuation of work behavior and processes (e.g., making decisions about work methods, pace, and effort).
4. *Impact.* Impact is the degree to which one can influence strategic, administrative, or operating outcomes at work.

Together, these four cognitions reflect an active, rather than passive, orientation to one's work role. In

other words, the experience of empowerment is manifest in all four dimensions—if any one dimension is missing, then the experience of empowerment will be limited. For example, if people have discretion to make decisions (i.e., self-determination) but they don't care about the kinds of decisions they can make (i.e., they lack a sense of meaning), they will not feel empowered. Alternatively, if people believe they can make an impact but don't feel like they have the skills and abilities to do their job well (i.e., they lack a sense of competence), they also will not feel empowered.

The social-structural perspective is limited because it is organization-centric, and the psychological perspective is also limited because it is individual-centric. A complete understanding of empowerment at work requires the integration of both perspectives. In the sections below, we describe the key research findings on the two empowerment perspectives.

RESEARCH ON EMPOWERMENT

Social-Structural Empowerment Findings

In terms of the social-structural approach on empowerment, much of the work has been conducted under the terms *high-involvement work practices* and *high-performance work systems* and has focused on organization-level outcomes. Programmatic research on high-involvement work practices has been conducted by researchers at the Center for Effective Organizations at the University of Southern California. Their research has shown that high-involvement practices that involve sharing power, information, knowledge, and rewards with employees at all levels have positive outcomes for organizations, particularly in terms of improvements to employee quality of work life, the quality of products and services, customer service, and productivity. Broader research in the area of high-performance work systems (these include employee involvement but also things such as long-term job security, flexible scheduling, and multi-skilling) shows similar findings but also documents the higher labor costs that are incurred with these practices.

Psychological Empowerment Findings

Unlike the social-structural perspective, in which many different instruments have been used to measure empowerment, a single measure of psychological empowerment has been predominately used in empirical

research. Much of the work on the psychological experience of empowerment has been conducted at the individual level of analysis, although more recent research has examined team-level empowerment. In terms of the demographics of empowerment, employees with higher levels of education, more tenure, and greater rank report experiencing more feelings of empowerment.

Research suggests that when people experience empowerment at work, positive outcomes are likely to occur. When employees experience more empowerment, they report less job strain and more job satisfaction and organizational commitment. They are also less likely to leave the company. But empowerment does not affect only employees' attitudes; it also affects their performance (i.e., managerial effectiveness and employee productivity/performance) and work behaviors (i.e., innovation, upward influence, and being inspirational to others).

Research on empowered teams also indicates positive outcomes. More empowered teams have better process improvement, higher quality products and services, and more customer satisfaction than less empowered teams. Empowered teams are also more proactive, less resistant to change, more satisfied with their jobs, and more committed to the team and the organization.

Recent research also suggests that empowerment is particularly important in certain kinds of contexts. Empowerment is found to be especially important in virtual settings where people do not have face-to-face interactions and must work independently. And empowerment has been found to be particularly important to preserve the hope and attachment of survivors during times of organizational downsizing.

Findings Linking the Social-Structural and Psychological Perspectives on Empowerment

Research has also examined the relationship between different elements of social-structural empowerment and the psychological experience of empowerment. In an array of studies, employees experience more psychological empowerment under the following conditions: wider spans of control between management and workers, more access to information about the mission and performance of the organization, rewards based on individual performance, role clarity, enriching job characteristics, and supportive

organizational cultures in which employees feel valued and affirmed. Strong work relationships also enable feelings of empowerment. Employees experience more empowerment when they have more sociopolitical support from subordinates, peers, superiors, and even customers. Employees also experience more empowerment when their leaders are approachable and trustworthy.

Although the above findings indicate that social-structural empowerment enables psychological empowerment, the converse is also true. Employees who experience empowerment at work seek out and shape their work contexts to further enable their empowerment. They act to create and sustain work environments that provide social-structural empowerment.

SOME KEY CHALLENGES IN BUILDING EMPOWERMENT AT WORK

Empowerment practices are implemented in hopes of building employee commitment, overcoming worker dissatisfaction, and reducing absenteeism, turnover, poor-quality work, and sabotage. But all too often these implementation efforts fail to achieve their hoped-for results. Why?

First, some managers confuse empowerment with a quick fix and give up before it has been successfully implemented. The transition from a more traditional command-and-control system to an empowered organization requires a culture change. It is not unusual for a culture change to take more than 5 years to be completed. Culture changes take discipline, consistency, and patience. The long-term approach necessary for successful empowerment implementation efforts appears at odds with a business environment that requires quarterly results. This long-term approach is especially difficult as leadership transitions bring frequent changes to the vision for the organization.

Second, sometimes there is confusion about what is meant by the term *empowerment*. For example, it is not uncommon for managers to tell employees that they are empowered but not explain what they mean by empowerment. An employee may make an assumption about what the manager means by empowerment—he or she responds enthusiastically by independently making a decision that might have required approval in the past. The manager responds negatively because he or she was just looking for employees to share more ideas with him or her, not actually make decisions on their own. The employee

feels dejected and returns to his or her old ways of working. As this scenario illustrates, a key issue is for managers to be clear and explicit about what they mean by empowerment.

Third, some managers lack the courage to genuinely empower their people. These managers are afraid they will lose control if they genuinely empower employees. They worry about loose cannons who are not aligned with the goals of the unit. They worry that employees will make mistakes. They assume that they alone are the source of the best ideas. These concerns are especially strong for managers who have spent significant time in command-and-control bureaucracies. Starting with small initial steps at sharing power, setting clear limits for empowerment, and building trusting relationships have been found to be effective mechanisms for reducing these concerns.

And fourth, some empowerment efforts fail because employees resist efforts at empowerment. A very small percentage of employees value the simplicity of following directions and being told what to do. Some employees have been trained and conditioned to follow orders for much of their work lives. Taking initiative will feel countercultural to them, and it takes time for them to learn to be more proactive. To empower them, managers can set up small initiative steps to build comfort and confidence. Training and development programs can also bolster their confidence to act in more empowered ways.

—Gretchen M. Spreitzer

See also Leadership Development; Organizational Culture; Training

FURTHER READING

- Becker, B. E., & Huselid, M. A. (1998). High performance work systems and firm performance: A synthesis of research and managerial implications. *Research in Personnel and Human Resources Journal*, *16*, 53–101.
- Conger, J. A., & Kanungo, R. N. (1988). The empowerment process: Integrating theory and practice. *Academy of Management Review*, *13*, 471–482.
- Kirkman, B., & Rosen, B. (1999). Beyond self-management: The antecedents and consequences of team empowerment. *Academy of Management Journal*, *42*, 58–71.
- Lawler, E. E. (1996). *From the ground up: Six principles for building the new logic corporation*. San Francisco: Jossey-Bass.
- Lawler, E. E., Mohrman, S. A., & Benson, G. (2001). *Organizing for high performance: Employee involvement, TQM,*

reengineering, and knowledge management in the Fortune 1000. San Francisco: Jossey-Bass.

- Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, 38, 1442–1465.
- Spreitzer, G. M., & Quinn, R. E. (2001). *A company of leaders: Five disciplines for unleashing the power in your workforce*. San Francisco: Jossey-Bass.
- Thomas, K. W., & Velthouse, B. A. (1990). Cognitive elements of empowerment. *Academy of Management Review*, 15, 666–681.

ENGINEERING PSYCHOLOGY

Ergonomics and human factors seek to enhance the fit between individuals and their work environments by applying knowledge of human abilities and limitations to the design of operational processes, system interfaces, training, and performance aids. Developed along similar lines as industrial and organizational psychology, the career field owes much of its early success to applications in support of military efforts in World War II. Of these early success stories, one of the most notable involved redesigning pilot controls on military aircraft in response to a large number of pilots flying their airplanes into the ground. Despite extensive training, the pilots were not able to control their aircraft under stressful emergencies, primarily because system design was in contrast to pilot expectations of how things should work. A lack of standardization between different aircraft models was improved by modifying the handles of the landing gear control into the shape of a wheel and the handles of the aileron control to resemble a wing, and these changes eliminated “belly landings” almost overnight.

What may seem trivial 60 years after the fact is actually an exemplar for the profession. Real-world operational problems (i.e., belly landings) led to an investigation of work processes (i.e., analysis of pilot tasks during landing) that served to identify a set of constraints that affected performance (i.e., pilots had to rapidly discriminate between two identical controls) and led to design modifications (i.e., alternative handles). This principled approach to the assessment and design of complex sociotechnical systems (e.g., an aircraft cockpit) is the cornerstone of the field.

In the ensuing 60 years, the field has expanded, and *human factors* is often presented as a catchall label for a discipline that encompasses tasks familiar

to engineering psychology, industrial engineering, ergonomics, systems engineering, human–computer interface design, and software usability. Most recently, human factors, along with much of psychology, has been greatly influenced by the advancement of cognitive science. A variety of theories and approaches, including naturalistic decision making, shared mental models theory, and metacognition, have markedly influenced current approaches. The result is a greater focus on the information-processing and decision-making aspects of job performance. Furthermore, the many recent advances within cognitive engineering and cognitive psychology provide human factors professionals with additional tools for knowledge elicitation and measurement of knowledge structures.

This broader context, leveraging interdisciplinary methods to enhance the relationship or fit between humans and work environments, can be thought of as a method of human-centered engineering (HCE). The objectives of HCE, therefore, are to understand human skills and knowledge, study and analyze work environments, design better interactions between humans and technology, and engineer better teams and organizations. The underlying intention is to prepare and enable humans to excel at their work. The use of models within HCE, both descriptive and executable, provides a framework to analyze work processes and identify opportunities and means for performance enhancement. Within this context there remains a focus on design that harks back to landing gear controls and views the work environment as changeable and a source of constraints on human performance. There are several defining characteristics of the HCE approach.

SYSTEMS APPROACH

Within HCE, the human operator is the central figure within a complex sociotechnical system composed of the operator, the technology (i.e., tools, computers, etc.) necessary to complete the required tasks, and the work environment (i.e., organization, physical setting, task requirements). These systems are characterized by common purpose, shared information networks, interactions between components, and imposed constraints that influence behaviors. Because of system complexity a structured, systematic approach to design and evaluation is required, simultaneously considering all components across the sociotechnical system.

A variety of models have been proposed to describe the system approach and the systems development process. Common to all are a set of stages that begin with a representation of the system requirements (i.e., operational needs) that facilitate a design process and evaluation methods. Additionally, they identify a wide range of HCE methods (i.e., task analysis, cognitive work analysis, decision support systems, etc.) that can be used to enhance the fit between the components of a sociotechnical system. Looking across these models, one is aware of a continuum of influence on the work environment. Within this context, HCE methods to enhance fit can be applied at the person (e.g., training), technology (e.g., interface design), or organizational (e.g., team design) level.

MODEL-BASED APPROACHES

The complexity of the systems approach provides a comprehensive method to understand, assess, and design for performance. This also creates a requirement to represent a variety of detailed parameters to describe a system. Therefore, the use of models within HCE has emerged as a key enabler to apply the system approach to ever larger and more complex systems. Models provide a useful mechanism to structure the design space and highlight the constraints that will affect overall system performance. Many modeling approaches exist, and a review is beyond the scope of the current entry.

One important benefit of a model-based approach is that it provides both reactive and proactive approaches. In the reactive mode, models can be developed to describe current systems, diagnose performance, and highlight areas for improvement. In a proactive mode, models can be used to predict and develop reasonable designs, providing both cost and risk reduction. Models are limited by the fact that they are representations of real-world systems and require some means of validation. Therefore, the results of modeling efforts ultimately require evaluation with prototype or test systems. The outcomes of these evaluations serve a dual use, as they can be used to iterate and refine both the models and the design.

KNOWLEDGE ELICITATION

The traditional systems approach and model-based approaches require an understanding of overall system processes. This understanding develops from a

variety of knowledge elicitation methods employed by HCE, including the following:

- *Cognitive task analysis.* This approach is a group of techniques that identify the cognitive processing requirements that are required when working with complex computer-based systems. To identify these requirements, the analyst interviews workers in the context of the work environment (contextual inquiry) about critical incidents or about critical decisions.
- *Cognitive work analysis.* This constraint-based method is performed in five stages. Each stage further constrains the next. The first identifies the physical work environment or system functions that must be considered. The second stage determines the tasks that must be accomplished. The third stage delineates the strategies that can be used in accomplishing those tasks. The fourth stage focuses on the socio-organizational aspects of completing the tasks using that strategy. The final phase defines the required worker competencies.
- *Needs analysis.* This method identifies the goals of the system, the environmental factors that will affect the needs of the system and the workers to reach these goals in this environment. There are several methods for obtaining this information, including interviews, observation, literature review, and critical incident analysis. Some of the information that will be gathered in this analysis includes, for example, the protective equipment to be used and whether it interferes with operation or maintenance, tasks to be performed to meet the goals, and information requirements to complete the tasks.

There are many variations on these and other techniques based on the position within the continuum of influence and the nature of the work. A central component of each, however, is a focus on the human cognitive and information processing requirements.

PROCESS DESIGN

Central to the systems approach are the interactions among the components of the sociotechnical system. As such, core to an HCE approach is assessment and design of the processes for using a system. Processes may be developed in parallel with new technologies or can be designed around existing technology. In either case, the objective is to improve the fit between worker and environment. A well-designed process is one in which individuals can easily learn and efficiently perform their tasks and understand the other

functions in the system. There are two components of process design: task analysis and work flow analysis.

Task analysis is the documentation of the tasks that are performed and the steps that these tasks comprise. The method to complete task analysis depends on the nature of the work. Analysis of cognitive tasks should be obtained through interviews often centered on atypical incidents; physical tasks should be observed. The information and equipment used, the time required, and the variety of methods employed should be included (especially noting differences between experienced workers and novices and methods of documentation).

In the *workflow analysis*, the analyst combs through the data documented in the task analysis looking for constraints, redundancies, and clusters of actions that require the same equipment or information. These are often demonstrated in differences between experts and novices. The analyst then develops a new process that eliminates redundancies and increases efficiency by having actions with the same equipment or information performed consecutively. These workflows must also consider infrequent but predictable situations (e.g., errors, increased volume, etc.). The more complex the system is, the harder it is to identify and evaluate all possible workflows for all possible situations. Therefore, models based on the constraints and the task analysis can be used to determine the best workflow for both typical and infrequent situations.

SYSTEM DESIGN

One of the most effective ways to enhance the fit between the human and the work environment is to design a system in which each of the following factors is considered:

- Technological constraints
- Environmental factors (temperature, ambient noise levels, etc.)
- Goals of the system
- User capabilities and limitations

Although these factors provide design goals, a more principled approach is needed to achieve desired outcomes. Some may view system design as a structured and formalized process, but it is less rigid in reality. A variety of design methods have evolved over time, providing the design practitioner with different approaches for different applications. Sample

approaches are listed below; however, it is important to identify the commonalities across them to understand the core elements of systems design.

A review of the system-design literature highlights key features necessary to ensure an effective design. The design process must create an integrated sociotechnical system that considers the organization (formal and informal), the interactions between the human organizations and the technological systems, and the constraints imposed by the environment. The process must also consider multiple operational situations or scenarios and allow for comparisons among these scenarios using prototypes or models. The design process must include the user throughout life-cycle development. Finally, the process must include iterations to facilitate redesign and modification, especially to make affordances for technological changes.

Examples of System-Design Approaches

- *Traditional system design*: This linear or waterfall approach spans from conceptual design to physical design to implementation and evaluation. This approach is generally believed to have become obsolete, as the capabilities of system technology have outpaced designers' abilities to understand all the design ramifications of these technological advancements.
- *Sociotechnical systems approach*: Design is driven by the analysis of the environment, the social system, and the technology system, with the objective of maximizing the fit among the three components.
- *User-centered design*: In this approach, the primary objective is to design systems that explicitly satisfy human operator task and information processing requirements. This approach emphasizes user involvement throughout the design process.
- *Participatory ergonomics*: This approach is related to user-centered design, with user involvement throughout the design process, but goes further, allowing users, with expert supports, to complete the design.

USER INTERACTION AND USABILITY

The user interface (UI) is the primary means by which a user interacts with a system. To the user, however, the UI is the system; very rarely does the user have a strong comprehension of how the system is actually working. Thus the UI must serve two functions: It must (a) provide users with an understanding of how the system functions and (b) permit users to operate the system in a manner that is most natural for them.

Therefore, the flow of information is a critical component to designing a user-friendly UI. There are several guiding cognitive-perceptual principles to consider:

- Logical display groupings (e.g., follow gestalt principles, etc.)
- Consistency of look and function (e.g., like items look and function similarly and vice versa)
- Labels are legible, visible, meaningful, and discriminable
- Controls are reachable and movable by the population in the work environment

These are not all of the concepts that must be considered, but it is clear that UI design in particular and system design in general can enhance or impede the effectiveness of the system.

SUMMARY

Human-centered engineering serves as a global term to describe a variety of methods, tools, and approaches associated with human factors, ergonomics, engineering psychology, industrial engineering, systems engineering, human-computer interface design, and software usability. As a discipline, HCE represents a powerful method to enhance the fit between humans and their work environment.

—Michael J. Paley and Rebecca Grier

See also Person-Environment Fit

FURTHER READING

- Norman, D. *The design of everyday things*.
- Reason, J. (1990). *Human error*. Cambridge, UK: Cambridge University Press.
- Salvendy, G. (Ed.). (1997). *Handbook of human factors and ergonomics* (2nd ed.). New York: Wiley.
- Woodson, W., Tillman, B., & Tillman, P. (Eds.). (1992). *Human factors design handbook* (2nd ed.). New York: McGraw-Hill Professional.

the phases of emergence, recognition, evaluation, and exploitation of opportunities). Small and medium-sized enterprises are the major agents of economic development and growth, adding new jobs, in contrast to most large companies. Entrepreneurial activity predicts wealth creation across nations. Entrepreneurs start new organizations and mold their organizational climate and culture. Entrepreneurial success (successful start-up, survival, firm growth) depends on the owners and may be a more useful (and a more objective) performance outcome variable than the supervisor ratings typically used in industrial/organizational psychology. Industrial/organizational psychology should, therefore, do more research on entrepreneurship.

A psychological model of entrepreneurship looks at distal variables of interpersonal variables, cognitive ability, school education, and experience and at proximal variables, such as cognitions (e.g., opportunity perception), motives (such as entrepreneurial visions and passions), and action strategies (e.g., proactive vs. reactive strategies). All of these factors should affect entrepreneurial success in interaction with situational and environmental conditions (such as industry, difficulty of doing business in an environment, and culture).

Meta-analyses and other reviews show that among the interpersonal variables, need for achievement, self-efficacy, cognitive ability, and expertise are clearly related to starting a business and business success. Similarly, entrepreneurial orientation, such as proactivity, innovativeness, competitive aggressiveness, risk taking, and autonomy, are related to starting a business and success. Only risk taking shows small correlations, and its importance is often overestimated.

The variables related to intelligence, education, and experience (often summarized as *human capital*) help small business owners to run their enterprises successfully. More recent resource-based theorizing argued for the importance of firm-specific knowledge and experiences for success that cannot be easily duplicated by competitors in the market.

The proximal variables relate to active exploration of business opportunities, which are strengthened by goals and action strategies, cognitive processes, and task-specific self-efficacy. High goals, visions, passion for work, and other motive patterns, as well as confidence in one's ability, predict success. Proactively and systematically approaching the environment and shaping it to a certain extent, rather than reacting to events, leads to success, as well. Cognitive

ENTREPRENEURSHIP

Entrepreneurship is about starting an organization, organizing effort, and exploiting opportunities (with

processes, such as helping to recognize present opportunities in the market and alerting entrepreneurs, as well as biases in cognition (such as a bias for optimism and illusion of control) seem to be important to distinguish entrepreneurs from nonentrepreneurs. One interesting issue is whether the proximal variables are mediators between distal variables and success. Recent evidence indicates that action planning and motivation mediate between personality and success.

Innovations and entrepreneurs are geographically clustered. Entrepreneurship has a social dimension—one function of entrepreneurs is to organize effort and, thus, to lead people. Entrepreneurs do better if they are well networked and if they possess social capital.

Entrepreneurs are nested in environments. There is some controversy about the function of the environment. Ecological approaches to entrepreneurship conceptualize the environment to determine start-ups and success. In contrast, psychological approaches emphasize the function of entrepreneurs' activities on the environment and the interaction between psychological and environmental variables (e.g., personality-by-environment interactions). There is, as yet, little theory and research on the relevant context conditions. Promising moderators in entrepreneurship research are environmental variables (hostility, complexity, predictability, controllability), industry tasks (e.g., service vs. manufacturing), national culture, and stage at the life cycle of the firm (such as prelaunch, launch, and postlaunch phases).

Ever since David McClelland's classic studies of entrepreneurs, psychologists have participated in training entrepreneurs to be more effective in the start-up of organizations and in managing new firms, and these efforts seem to be effective (although there is still a dearth of efforts to integrate newer industrial/organizational methods into this training and to evaluate the training, as pointed out by J. R. Baum, M. Frese, and R. A. Baron).

The field of entrepreneurship research is an interdisciplinary field to which industrial/organizational psychology can contribute substantially. Once industrial/organizational psychologists become more dominant in this field, this will also change industrial/organizational psychology itself by enabling the creation of more interesting questions and the development of an important area of applying psychological principles.

—Michael Frese and Andreas Rauch

FURTHER READING

- Aldrich, H. E. (1999). *Organizations evolving*. London: Sage.
- Baum, J. R., Frese, M., & Baron, R. A. (Eds.). (in press). *The psychology of entrepreneurship*. Mahwah, NJ: Lawrence Erlbaum.
- Shane, S. (2003). *A general theory of entrepreneurship*. Cheltenham, UK: Elgar.

EQUAL PAY ACT OF 1963

The Equal Pay Act (EPA) was instituted in 1963 and was intended to prevent sex discrimination in wages. It is part of a larger architecture of fairness in wages known as the Fair Labor Standards Act (FLSA). This entry will not cover FLSA, but good reviews of FLSA by Cristina Banks and Lisa Cohen, as well as Arthur Gutman, are available to the interested reader. The EPA is one of the few employment statutes that identifies a single protected class (i.e., gender, although age is another protected category). The act permits unequal pay for men and women if any of the following foundations are used to determine pay: (a) bona fide seniority systems, (b) merit-based pay systems, (c) a pay system that uses quantity or quality of production as a basis for allocating wages, or (d) a system of allocation based on any factor other than sex of the employee. The act further prohibits an employer from *lowering* the wages of one employee group (i.e., men) to eliminate a wage differential between men and women. The act covers all employers, in both the private and public sectors, and an EPA claim can be applied to a workforce as small as two, as long as one is a man and the other a woman.

The EPA ushered in a new era of antidiscrimination laws applied to the workplace. Although initially the EPA was administered by the Department of Labor, the administration is now the responsibility of the Equal Employment Opportunity Commission (EEOC). During the period from 1992 to 2003, 1,200 claims on average were filed annually under the EPA statute, representing approximately 1% of all charges filed with the EEOC. Although this number may not seem substantial in a relative sense, the problem can be quite expensive from an absolute perspective. In part, this expense occurs because correcting the problem requires raising the lower salary rate and considering not only back pay, but also interest and denied salary

increases. As an example, Texaco paid \$3.1 million to underpaid female employees. Suits may be filed directly by an individual, by a class of claimants, or on behalf of an individual or a class by the EEOC. Violations considered to be willful or intentional often result in considerably greater monetary awards than those considered unintentional. Gutman has suggested that willfulness or intentionality might simply be construed as whether or not the employer was even *aware* of the existence of the EPA or the FLSA. This is a rather low threshold for the definition of *willfulness*. A more reasoned definition of willfulness might be that the employer knew or had reason to know that its compensation practices were in violation of the EPA.

The essence of the EPA is a determination of whether women are being paid less for substantially equal work done by men. This does not necessarily require that men and women have the same job titles. The definition of *equal work* is derived from four factors:

- *Equal skill required*: equal experience, training, education, and ability
- *Equal effort required*: equal physical and mental exertion
- *Equal responsibility*: equal accountability and supervisory duties
- *Equal working conditions*: equal physical surroundings and hazards

If there are substantial differences in *any* of these categories, the jobs are not considered equal for purposes of the EPA, although if there are minor differences, unequal pay could not be justified. An example of a typical EPA challenge was the case *Laffey v. Northwest Airlines*. The charge was that male “pursers” were paid more than female “stewardesses” (who would now be called *flight attendants*), even though both performed basically equal work.

THE CONCEPT OF COMPARABLE WORTH

As we have seen in this discussion, the foundation for the application of the EPA is the concept of *equal work*. This concept has been broadened in the human resources, industrial/organizational, and employment policy literature to one of *comparable work*. The EPA does not address the concept of *comparable work*, but limits itself to *equal work*. Nevertheless, the concept of comparable work for comparable pay may find some foundation in Title VII law. Although we will

not cover the legal arguments in this entry, we will briefly consider the concept of comparable worth.

In its simplest form, comparable worth means that people who are making equal contributions to the organization (i.e., input) are entitled to comparable pay (i.e., outcomes). One approach for reconciling input to outcomes is known as *job evaluation*. Typical job evaluation systems identify factors with differential weights that result in a recommended wage or salary level. Various levels of contribution are identified for each factor. The weighted and summed values for a given job are the basis for compensation determinations. There has been some criticism that these apparently objective systems for determining pay are themselves subject to various biases. Job evaluation systems produce estimates of *internal worth*. Thus, values emerge from a comparison of each job title with each other job title *within or internal to* an organization. Alternatively, an employer might conduct a wage or salary survey of other employers in the same business sector and/or geographic area. In this case, the comparison is among job titles *outside of or external to* the organization. Critics of external worth methods for determining compensation argue that current compensation architecture is simply a manifestation of the unfairness of the past decades.

The larger issue surrounding the debate about comparable worth relates to jobs that might be considered traditionally male or female. In this case, there is no easy way of comparing jobs with very different job titles or responsibilities. The determination of comparable contribution becomes more complicated. One must determine whether women are being underpaid or are just gravitating to jobs that are worth less to employers.

Robert Dipboye and Adrienne Colella suggested that organizations engage in one or all of three types of audit to determine the fairness of their pay policies:

1. *Equal pay analysis*: an examination of the relative pay for men and women in very similar jobs.
2. *Pay equity audit*: an examination of comparable worth using either internal worth (job evaluation) or external worth (employer compensation surveys), with a particular emphasis on jobs held predominantly by women within the organizations compared with those held predominantly by men.
3. *Across-the-board audit*: a more detailed analysis of the compensation rates for men and women within the organization, with an emphasis on identifying

any factors that might lead to observed differences. As an example, Dipboye and Colella suggested a statistical analysis of compensation levels for men and women within pay grades.

There is speculation that historical patterns of unfair compensation for women in the workplace may disappear as a function of the increasing membership of women in jobs traditionally held by men (e.g., public safety and trades) and the decreasing availability of women in certain jobs (e.g., nurse, secretary), thus resulting in higher compensation for those jobs. Nevertheless, Dipboye and Colella suggested that these social changes are likely to occur only in the context of a vigorous enforcement of both the EPA and Title VII.

—Frank J. Landy

FURTHER READING

- Banks, C., & Cohen, L. (2004). Wage and hour litigation: I-O psychology's new frontier. In F. Landy (Ed.), *Employment discrimination litigation: Behavioral, quantitative, and legal perspectives* (pp. 336–370). San Francisco: Jossey-Bass.
- Colella, A., & Dipboye, R. L. (2005). *Discrimination at work: The psychological and organizational bases*. Mahwah, NJ: Lawrence Erlbaum.
- Gutman, A. (2000). *EEO law and personnel practices* (2nd ed.). Thousand Oaks, CA: Sage.
- Rynes, S. L., & Gerhart, B. (2001). *Compensation in organizations*. San Francisco: Jossey-Bass.
- Triemann, D. J., & Hartmann, H. I. (1981). *Women, work and wage: Equal pay for jobs of equal value*. Washington, DC: National Academy Press.

EQUITY THEORY

Equity theory is a conceptualization that focuses on the causes and consequences of people's perceptions of equity and inequity in their relationships with others. First proposed by J. Stacy Adams in 1963 and fully developed in a chapter published 2 years later, equity theory draws on earlier social psychological concepts inspired by Fritz Heider's balance theory (e.g., relative deprivation, cognitive dissonance, and distributive justice). Although equity theory was developed as an approach to explaining the dynamics of social exchange relationships in general, it has been

in the work context that the theory's value was most strongly established.

COMPONENTS OF EQUITY THEORY

According to equity theory, people make comparisons between themselves and certain referent others with respect to two key factors—inputs and outcomes.

- *Inputs* consist of those things a person perceives as contributing to his or her worth in a relationship. In a work setting, inputs are likely to consist of a person's previous experience, knowledge, skills, seniority, and effort.
- *Outcomes* are the perceived receipts of an exchange relationship—that is, what the person believes to get out of it. On the job, primary outcomes are likely to be rewards such as one's pay and fringe benefits, recognition, and the status accorded an individual by others.

It is important to note that the inputs and outcomes considered by equity theory are perceptual in nature. As such, they must be recognized by their possessor and considered relevant to the exchange.

The referent other whose outcomes and inputs are being judged may be either internal or external in nature. Internal comparisons include oneself at an earlier point in time or some accepted (i.e., internalized) standard. External comparisons involve other individuals, typically selected based on convenience or similarity. Equity theory is rather vague about the specific mechanisms through which referent others are chosen.

STATES OF EQUITY AND INEQUITY

In the course of a social exchange with another, or when a person (*P*) and another (*O*) are corecipients in a direct exchange with a third party, *P* and *O* will compare their own and others' inputs and outcomes. A state of *equity* is said to exist for *P* whenever he or she perceives that the ratio of his or her own outcomes to inputs is equal to the corresponding ratio of *O*'s outcomes to inputs. Thus, a state of *equity* is said to exist for *P* when

$$\frac{P's \text{ outcomes}}{P's \text{ inputs}} = \frac{O's \text{ outcomes}}{O's \text{ inputs}}$$

Individuals experiencing states of equity in a relationship are said to feel satisfied with those relationships.

By contrast, a state of *inequity* is said to exist for *P* whenever he or she perceives that the ratio of his or her own outcomes to inputs and the ratio of *O*'s outcomes to inputs are unequal. Inequitable states are purported to result in tension—known as *inequity distress*—and negative affective reactions. The degree of these adverse reactions is said to be proportional to the perceived magnitude of the inequity. Equity theory distinguishes between the following two types of inequitable states:

- *Underpayment inequity* is said to exist for *P* whenever his or her own outcome–input ratio is less than the corresponding outcome–input ratio of *O*—that is, when

$$\frac{P's\ outcomes}{P's\ inputs} < \frac{O's\ outcomes}{O's\ inputs}$$

States of underpayment inequity are claimed to result in feelings of anger in *P*.

- *Overpayment inequity* is said to exist for *P* whenever his or her own outcome–input ratio is greater than the corresponding outcome–input ratio of *O*—that is, when

$$\frac{P's\ outcomes}{P's\ inputs} > \frac{O's\ outcomes}{O's\ inputs}$$

States of overpayment inequity are claimed to result in feelings of guilt in *P*.

MODES OF INEQUITY REDUCTION

Because the emotional reactions to inequity—guilt and anger—are negative in nature, the individuals experiencing them are purported to be motivated to redress them. In other words, they will engage in effort to change unpleasant inequitable states, to more pleasant, equitable states—that is, to redress the inequity. Following from cognitive dissonance theory, Adams has proposed six different modes of inequity reduction, described in the following paragraphs.

Altering One's Own Inputs

If *P* feels overpaid, he or she may raise his or her own inputs in an effort to bring his or her outcome–input ratio into line with *O*'s. *P* may do this by working longer hours (assuming that *P* is a salaried, rather than an hourly paid, employee), by putting forth more effort, and/or by doing work of higher quantity or quality, for example. By contrast, if *P* feels underpaid, he or she may lower his or her own inputs in an effort to match *O*'s outcome–input ratio. *P* may do this by reducing the amount of effort put forth, by working fewer hours (again, assuming that *P* is a salaried employee), and/or by doing work of lower quantity or quality.

Altering One's Own Outcomes

In addition to adjusting one's own inputs (i.e., the numerator of the equity equation), *P* also may adjust his or her own outcomes (i.e., the denominator of the equity equation). If *P* feels overpaid, he or she may lower his or her own outcomes in an effort to bring his or her outcome–input ratio into line with *O*'s. *P* may do this by not accepting a raise or by forsaking an opportunity to move to a larger, more prestigious office, for example. By contrast, if *P* feels underpaid, he or she may attempt to raise his or her own outcomes in an effort to match *O*'s outcome–input ratio. *P* may do this, for example, by seeking and receiving a raise, and/or by taking home company property in an effort to receive a larger share of outcomes withheld.

Cognitively Distorting One's Own Outcomes or Inputs

In addition to making behavioral changes, states of inequity motivate people to cognitively distort their perceptions of their own outcomes or inputs to perceive that conditions are equitable. For example, an underpaid person may come to believe that his or her work contributions are really not as great as previously believed (e.g., he or she is not as well qualified as *P*) or that he or she is more highly compensated than previously considered (e.g., he or she works fewer hours than *P* but is equally paid). Correspondingly, an overpaid person may come to believe that his or her work contributions, in reality, are greater than previously believed (e.g., he or she has more experience than *P*) or that he or she is not really any more highly compensated

than P (e.g., he or she works more hours than the equally paid P).

Leaving the Field

As an extreme measure, one may redress inequity by terminating the inequitable relationship altogether. On the job, this termination may take such forms as seeking other positions within one's existing organization or resigning from that organization entirely. Ending the social exchange functions instrumentally by rendering the social comparison process moot and symbolically by signaling the extent of one's disaffection. Because of its extreme nature, this measure typically occurs only after other modes of inequity reduction have been attempted unsuccessfully.

Acting on the Object of Comparison by Behaviorally Altering or Cognitively Distorting the Other's Outcomes or Inputs

Just as people perceiving that they are in inequitable relationships may change their own outcomes or inputs behaviorally or cognitively, they also may attempt to alter or cognitively distort the outcomes or inputs of others. For example, P may focus on O 's outcomes behaviorally by encouraging O to ask for a raise (if P feels overpaid) or to not accept a bonus (if P feels underpaid), or psychologically, by perceiving that O is, in reality, more highly paid than previously believed (if P feels overpaid) or that O is not actually as highly paid as previously believed (if P feels underpaid). Analogously, P may focus on O 's inputs behaviorally by encouraging O to work fewer hours (if P feels overpaid) or to work more hours (if P feels underpaid), or psychologically by perceiving that O is, in reality, not working as hard as previously believed (if P feels overpaid) or that O actually is working much harder than previously believed (if P feels underpaid).

Changing the Basis of Comparison

According to equity theory, feelings of equity or inequity are based on the specific referent comparisons made. Thus, it is possible for people to feel overpaid relative to some individuals, underpaid relative to others, and equitably paid relative to still another group. For example, a management professor may

feel overpaid relative to philosophy professors and underpaid relative to law professors, but equitably paid relative to other management professors. Simply by switching one's basis of comparison, it is possible for individuals who feel overpaid or underpaid to feel more equitably paid. This underscores the fundamentally perceptual, and not necessarily objective, nature of perceptions of equity and inequity.

Equity theory offers little insight into how people come to select particular inequity reduction mechanisms. It is noted, however, that people favor the least effortful alternatives, thereby making cognitive modes of inequity reduction preferable to behavioral ones. The most extreme reaction, leaving the field, is least preferable.

RESEARCH ASSESSING EQUITY THEORY

The earliest tests of equity theory were laboratory experiments in which participants were led to believe that they were inequitably overpaid or underpaid for performing a task (e.g., they were paid more than or less than expected). The dependent measure was the degree to which participants adjusted their work performance, raising or lowering their inputs, relative to members of control groups who were equitably paid. Such efforts generally supported equity theory. The most compelling evidence came from tests of overpayment inequity, in which it was found that people who were paid more than expected raised their inputs, producing more work than equitably paid participants. Additional research established not only that people respond to inequities as predicted by equity theory, but that they also proactively attempt to create equitable states by allocating rewards to others in proportion to their contributions.

The most recent research inspired by equity theory has been broader in scope and more naturalistic in methodology. Such efforts have found that employees respond to inequities caused by such status-based outcomes as job title and office design by adjusting their performance accordingly. Current research also reveals that employees sometimes steal property from their companies in response to underpayment inequity. In so doing, employees are not only modeling the deviant behavior of their organizations (i.e., stealing in response to underpaying them) but also attempting to even the score by compensating themselves (i.e., raising their outcomes) for payment denied.

THE CURRENT STATUS OF EQUITY THEORY

In the 1980s, organizational scholars recognized that equity theory's conceptualization of fairness in organizations was highly limiting because it focused only on the distribution of outcomes. This disenchantment led industrial and organizational psychologists to follow the lead of social psychologists by broadening their efforts to understand fairness in organizations by focusing on procedural justice. As a result, equity theory is no longer the dominant approach to understanding fairness in the workplace. Instead, it is acknowledged to be only one conceptualization within the broader domain of organizational justice.

—Jerald Greenberg

See also Organizational Justice; Work Motivation

FURTHER READING

- Adams, J. S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 2, pp. 267–299). New York: Academic Press.
- Adams, J. S., & Freedman, S. (1976). Equity theory revisited: Comments and annotated bibliography. In L. Berkowitz & E. Walster (Eds.), *Advances in experimental social psychology* (Vol. 9, pp. 43–90). New York: Academic Press.
- Greenberg, J. (1982). Approaching equity and avoiding inequity in groups and organizations. In J. Greenberg & R. L. Cohen (Eds.), *Equity and justice in social behavior* (pp. 389–435). New York: Academic Press.
- Greenberg, J. (1987). A taxonomy of organizational justice theories. *Academy of Management Review*, 12, 9–22.
- Greenberg, J. (1990). Employee theft as a reaction to underpayment inequity: The hidden cost of pay cuts. *Journal of Applied Psychology*, 75, 561–568.
- Greenberg, J. (1996). *The quest for justice on the job*. Thousand Oaks, CA: Sage.
- Leventhal, G. S. (1976). The distribution of rewards and resources in groups and organizations. In L. Berkowitz & W. Walster (Eds.), *Advances in experimental social psychology* (Vol. 9, pp. 91–131). New York: Academic Press.
- Leventhal, G. S. (1980). What should be done with equity theory? New approaches to the study of fairness in social relationships. In K. Gergen, M. Greenberg, and R. Willis (Eds.), *Social exchange: Advances in theory and research* (pp. 27–55). New York: Plenum Press.
- Mowday, R. T., & Colwell, K. A. (2003). Employee reactions to unfair outcomes in the workplace: The

contributions of equity theory to understanding work motivation. In L. W. Porter, G. A. Bigley, & R. M. Steers (Eds.), *Motivation and work behavior* (pp. 65–113). Burr Ridge, IL: McGraw-Hill/Irwin.

ERGONOMICS

See ENGINEERING PSYCHOLOGY

ETHICS IN INDUSTRIAL/ ORGANIZATIONAL PRACTICE

Ethics has to do with defining what is meant by *right* and *wrong* or *good* and *bad*, and with justifying according to some rational system what one ought to do or what sort of person one should be. As applied to the practice of industrial/organizational psychology, *professional ethics* concerns the moral appropriateness of our work activities and the proper treatment of all those with and for whom we work, including employees, clients, client organizations and their various stakeholders, interns, students, and professional colleagues. Many of the moral standards that guide such ethical practice are *deontological*, or rule-based in nature, having to do with principles such as the fulfillment of duties and obligations, keeping one's promises, respecting people's dignity and autonomy, maintaining their trust, and striving for fairness or justice. In some instances, determining the proper thing to do seems better understood from a *consequentialist* or *utilitarian* perspective, choosing the action that maximizes the aggregate good or minimizes the net harm resulting from a particular situation.

Most secular ethicists believe neither that there are objectively verifiable moral facts to guide us nor that ethics is merely a matter of one person's subjective judgment versus someone else's. *Ethical reasoning* suggests that the correct ethical choice is the one that is justified by the best arguments. Because it is not possible to specify in advance or to anticipate all of the potential ethical dilemmas one might face, it is advisable to be familiar with some general principles from moral philosophy as well as applicable ethical standards, such as the American Psychological Association's (APA) *Code of Conduct*, that can provide guidance when needed.

THE DOMAIN OF MORAL ACTION

A problem is generally thought to represent an ethical dilemma if it involves the potential violation of one or more fundamental moral or ethical principles such as those enshrined in formal ethical codes such as the APA's. They are as follows:

Respect for people. Deontological moral theories emphasize people's right to be treated with dignity and their rights to privacy or confidentiality, autonomy, freedom, and self-expression. Such rights are *universalizable* (applicable to all) and so do not extend to the point of infringing on the rights of others.

Beneficence. According to this principle, derived from the empathy-based "ethics of care" in moral philosophy, one is expected to do good and promote human welfare when it is reasonably possible to do so. This concept is especially apt when applied to those to whom one has some special obligation or responsibility or who help further one's own interests, such as employees, students, clients, and research participants. It is also especially appropriate for professionals who—by virtue of the authority, influence, and rights society bestows on their profession—are assumed to have societal responsibilities that go beyond serving only their paying clients.

Nonmaleficence. Refraining from unjustifiably doing harm is the principle about which there is most agreement among moral philosophers. It is especially fitting with respect to those in vulnerable positions and extends to guarding against the possible misuse of one's work by others (e.g., misuse of personnel assessments or survey findings). The APA code directs that conflicts among competing obligations be resolved "in a responsible fashion that avoids or minimizes harm" (Principle A).

Fairness and justice. Justice may be defined in a Kantian manner as a balance of rights and obligations. *Social justice* is generally defined in terms of the fairness by which the benefits and burdens of a social system, such as an organization, are distributed among its members. Industrial/organizational psychology has been more concerned with the empirical microlevel question of *perceived justice* than with explicating normative standards of distributive social justice.

Moral virtue or character. This subdomain calls attention to the role of personal qualities in the expression of ethical behavior. It concerns issues such as being sensitive to potential ethical dilemmas and

being motivated to avoid or resolve them fairly, being trustworthy with those with whom one works, accepting responsibility for one's actions, honoring one's commitments, and promoting the accuracy, validity, and integrity of professional work.

An *ethical dilemma* is a problem that implicates one or more of those moral issues and involves having to make a choice that will have a significant impact on the well-being of others.

Types of Ethical Dilemmas

Despite the multitude of potential ethical dilemmas with which one might be faced, most of them can be characterized as falling in one of the following categories—or as a combination of more than one (the categories are not mutually exclusive, in any event).

Foreknowledge of someone to be harmed by a third party. For example, an industrial/organizational psychologist is asked to participate in a process of developing plans for a major reduction in force (RIF) and learns that management does not plan to announce the RIF to employees who may be terminated until the last minute. Senior managers are concerned about possible adverse effects on productivity if it is announced with too much lead time, and the industrial/organizational psychologist is expected to comply with this timetable—which will exacerbate the RIF's harmful effects on those let go.

A self-serving act that will wrong or harm another. The behavior may even be self-serving by proxy—that is, serving the needs of one's employer—and communicated as company policy. Although most managers want to behave ethically, research has indicated that the threshold for unethical behavior is lower when it is perceived as being on behalf of the organization's goals and objectives rather than for personal gain only. For example, it might be tempting to allow management to direct employees' mandatory cooperation with one's data collection efforts even though it should be presented clearly as voluntary, with no consequences for nonparticipation. One might also be tempted to take on a project that is outside one's boundaries of professional competence, as determined by one's education, training, study, and supervised or professional experience.

Competing obligations to two or more entities. Every good supervisor or manager has encountered situations in which it may not be easy to be fair

and impartial to all employees in the distribution of organizational rewards or with respect to other personnel decisions affecting subordinates. Industrial/organizational psychologists often face analogous conflicts by virtue of our simultaneous obligations to both the client organization (or employer) and the individual employees and managers with whom we work. A review by Carolyn Wiley of the codes of conduct of five professional human resources organizations revealed uniform acknowledgment of multiple obligations to the public or society at large, the employer or client organization, employees, and colleagues and to one's profession and professional association. When working with individuals or teams (e.g., in executive coaching, conducting focus groups, individual assessment, or organizational diagnosis), it is advisable to clarify beforehand and explain to those individuals or groups one's obligations to the organization, such as any necessary limitations on anonymity or confidentiality.

A situation in which two or more equally important ethical values conflict. For example, if an anonymous survey respondent alleges some serious wrongdoing by a senior manager who is putatively damaging the company, the industrial/organizational psychologist has to choose from among courses of action (which include doing nothing) that balance conflicting obligations to respect employee anonymity, to avoid harming a potential victim of mere gossip, and to prevent possible further damage to the organization. The most appropriate response is likely to be determined by details of the situation.

Pressure to violate ethical principles. Business corporations, and the managers who run them, are not subject to all of the ethical standards that characterize the professional responsibilities of psychologists, who are obliged by the preamble of our ethical (APA) code to use knowledge to better people and organizations. The managers are, in fact, subject to pressures for productivity, efficiency, speed, and profitability, and these aims may at times be at odds with some ethical standards. For example, a senior manager might wish to use, for purposes of making personnel decisions, assessment or survey data that had been obtained confidentially after explaining to all participants that it would be used only for personal development or organizational improvement. Standard 1.03 of the APA code also indicates that if there is conflict between the ethical code and organizational demands, the psychologist must resolve the conflict in accordance with the code.

Determinants of Ethical and Unethical Behavior

The expression of ethical behavior (i.e., its incidence and form) can be explained by four general categories of antecedents:

Cultural influences. These include social, economic, and political factors that influence the development of ethical norms and practices through the institutions of a society. For example, in Western (especially American) free-enterprise capitalist society, social justice or fairness is generally understood in terms of *merit*, which is defined by the distributive justice criterion of *equity*, as opposed to *equality* or *need*. Moreover, equity itself is conceived within an individualistic perspective, whereas in many other parts of the world a *communitarian* standard is viewed as right. These ideas consequently shape our values regarding the proper definition and meaning of constructs such as *test bias* and *test fairness*. The socialization experiences that shape one's standards of conduct are initiated and/or mediated by family, schools, peers, religious training, employer organizations, and other institutions.

Individual difference variables. Interdisciplinary research in *moral psychology* has shown that early cognitive and emotional development (e.g., the development of *empathy*) underlies moral development. Adults differ in attributes that fall within the conception of *moral character* or *virtue*—traits such as honesty, moral values, moral sensitivity, moral imagination, moral motivation, and moral self-identity. One's values determine, in part, whether one even experiences a particular situation as an ethical dilemma or choice. For example, some psychologists refuse to work for a cigarette manufacturer; others see nothing wrong in furthering the fortunes of a legal enterprise; still others may consider the situation in terms of a balance of benefits and harms.

Attributes of the dilemma. The relative difficulty and upset caused by an ethical dilemma is a function of its moral complexity, moral intensity, and other factors. *Moral complexity* pertains to the number of moral values and principles evoked and the relations (e.g., conflict) among them. *Moral intensity* is determined by the degree of social consensus surrounding the ethical issue, the nature and magnitude of the decision consequences for those affected, and the likelihood of those consequences occurring. Also relevant are who is likely to be benefited or harmed and, in

the case of organizational settings, how public the situation is.

Contextual, including organizational, influences. Situational effects on behavior constitute a long-standing topic in social psychology. In this domain, for example, ethical judgments have been shown to be influenced by whether one is primed to identify with the perpetrator or the victim of a moral transgression. In the organizational setting, ethical norms, behavior, and the perception of unethical behavior have been shown to be influenced by one's position and status in the organization and by the organization's *ethical culture*, as reflected in the relative salience of moral standards, its social sanctions and reward structure, and the modeling of senior managers and supervisors (the "tone at the top"), as well as the absence of *counter-norms* that contradict the ethical culture (e.g., pressure to "do whatever it takes to get the job done").

PREVENTING ETHICAL PROBLEMS

Although it is impossible to foresee all the ethical dilemmas one might encounter, some activities can help one to anticipate likely problems and ready oneself for thinking through them when they arise.

1. Be familiar with the applicable ethical codes such as those of the APA, the Canadian Psychological Association, the Academy of Management, the International Personnel Management Association, and the Society for Human Resource Management. Also know applied sources and articles such as the Society for Industrial and Organizational Psychology's ethical case book, edited by Rodney Lowman. The introduction of the APA code states explicitly that ignorance of ethical standards is not a defense against ethics charges.
2. Be familiar with applicable state laws and federal regulations. These include laws regulating the licensing of psychologists and dealing with issues of confidentiality, malpractice, and research with human participants. Especially pertinent are statutes and regulations governing employment practices, such as the Civil Rights Acts of 1964 and 1991, the Americans With Disabilities Act, the Age Discrimination in Employment Act, and the *Uniform Guidelines on Employment Selection Procedures*.
3. Know the rules and regulations of the institution at which you work. This knowledge helps assure competent practice in keeping with the organization's expectations and can alert one to possible conflicts

between organizational norms and professional ethical standards.

4. Engage in continuing education in ethics by means of attending courses and workshops, reading books on ethics and ethical practice, and subscribing to relevant journals such as *Ethics and Behavior*, *Professional Psychology*, *Journal of Business Ethics*, *Business and Society*, and *Business Ethics Quarterly*.
5. Attempt to identify areas of potential ethical difficulty before a problem arises. That identification will be aided by information gleaned from the preceding four activities.
6. Maintain a mind-set of ethical watchfulness. In addition to the previous steps, one can exercise one's moral sensitivity to avoid ethically ambiguous situations or attempt to clarify them before becoming involved.
7. Learn a systematic approach for analyzing ethical problems in complex situations. Many texts on applied ethics contain decision-making models for this purpose. The one presented by Joel Lefkowitz is in the context of industrial/organizational psychology. Perhaps most important, find a trusted and knowledgeable confidant with whom to share your concerns. Ethical dilemmas can be very stressful; it is best to not go through the process in isolation.

—Joel Lefkowitz

See also Corporate Social Responsibility; Ethics in Industrial/Organizational Research

FURTHER READING

- American Psychological Association. (2002). Ethical principles of psychologists and code of conduct. *American Psychologist*, *57*, 1060–1073. Retrieved March 13, 2006, from <http://www.apa.org/ethics>
- Darley, J. M., Messick, D. M., & Tyler, T. R. (2001). *Social influences on ethical behavior in organizations*. Mahwah, NJ: Lawrence Erlbaum.
- Lefkowitz, J. (2003). *Ethics and values in industrial-organizational psychology*. Mahwah, NJ: Lawrence Erlbaum.
- Lowman, R. L. (Ed.). (2005). *The ethical practice of psychology in organizations*. Washington, DC: American Psychological Association.
- Murphy, K. R. (1993). *Honesty in the workplace*. Pacific Grove, CA: Brooks/Cole.
- Wiley, C. (2000). Ethical standards for human resource management professionals: A comparative analysis of five major codes. *Journal of Business Ethics*, *25*, 93–114.

ETHICS IN INDUSTRIAL/ ORGANIZATIONAL RESEARCH

Ethics has to do with defining what is meant by *right* and *wrong* or *good* and *evil* (or *bad*) and with justifying according to some rational system what one ought to do or what sort of person one should be. As applied to the conduct of research with human participants, the ethics of research concerns the proper treatment of those participants—their protection—by researchers. This overlaps with, but is different in intent from, the ethics of science, which has to do with the protection of the scientific enterprise by means of norms concerning ways in which its integrity is maintained (e.g., providing full and accurate descriptions of procedures in published research reports).

Deontological (i.e., rule-based) moral principles generally guide the ethical strictures concerning research participation: treating people with dignity and respect for their autonomy (so they are free to decide whether to participate in the research and whether to continue their participation); having concern for their well-being and avoiding the infliction of harm (so that if deception or withholding information can be justified by a rigorous review, adequate debriefing and dehoaxing will be provided); abiding by principles of justice or fairness (so that people are not coerced into participation by virtue of their lesser social status or other factors); and displaying honesty, integrity, and trustworthiness (so that promises made regarding the confidentiality of replies and the potential benefits, discomforts, or risks of participation are fulfilled). However, consequentialist or utilitarian analyses are frequently used in deciding whether the aggregate benefits of a proposed research study outweigh any potential harms involved.

THE NATURE OF INDUSTRIAL/ ORGANIZATIONAL RESEARCH: WHO BENEFITS?

Most research in the social and behavioral sciences is not conducted to benefit those who participate in it as sources of information. Some studies seek to advance our general understanding of psychological processes or constructs (e.g., “What are the determinants of organizational citizenship behavior?”). The students or employees from whom we hope to learn the answers to such questions may have little interest in

the questions or the research and cannot expect to benefit from it. Even much of the applied research that aims to improve the functioning of the organization in which it is implemented is unlikely to improve the welfare of those particular research participants (e.g., applicants or employees in a test validation study). Nevertheless, some organizational studies are of the sort that will yield benefits for the organization as a whole as well as for the participants (e.g., an experimental evaluation of alternative training procedures, the best of which may then be implemented to the benefit of all). And some organizational research activities are components of what might more accurately be described as *interventions* (the introduction of changes in policies, programs, or practices) that are directly aimed at improving aspects of the work life of some segment of the organization.

Therefore, potential research participants, even company employees, should not be thought of as necessarily being obliged to cooperate with one’s research plans. That is one of the important reasons why much of the ethics of research has to do with the appropriateness of the conditions under which prospective research participants are recruited and the voluntariness of their agreement to participate. Other reasons similarly involve basic ethical principles such as respect for persons—their inherent dignity and autonomy—and issues of justice. The essentials of ethical research consist of assuring voluntary participation and informed consent to participate; eliminating coercive influences; securing privacy and confidentiality for participants; minimizing the deception of participants; and providing debriefing, feedback, and *dehoaxing* (correcting any adverse effects of deception). These concerns are codified and operationalized in the U.S. Department of Health and Human Services (DHHS) Federal Policy for the Protection of Human Subjects and the American Psychological Association (APA) Ethical Principles of Psychologists and Code of Conduct.

THE HISTORY OF RESEARCH REGULATIONS

Applied psychologists such as Allen J. Kimmel and other social scientists working under the auspices of the National Research Council have traced the events that led to a growing concern for the protection of participants in biomedical, social, behavioral, and economic sciences research in the 30 years following the end of World War II. These are some critical events:

- At the end of the war, the world was repulsed when it was learned that bona fide medical doctors had been conducting gruesome and horrific experiments on concentration camp inmates.
- For 40 years, beginning in 1932, the U.S. Public Health Service Tuskegee Study withheld treatment for syphilis and deceived almost 400 Black men about the (non)treatment they were receiving, resulting in up to 100 deaths by 1969. Treatment was not provided until after the experiment was uncovered in a 1972 newspaper report.
- In the mid-1950s, in the Wichita Jury Study, law professors secretly recorded the deliberations of several juries without the knowledge of the plaintiffs, the defendants, or the jurors themselves.
- In the early 1960s, a social psychologist, Stanley Milgram, tricked his research participants into believing that they were administering stronger and stronger electric shocks to subjects (actually, Milgram's confederates) when they responded incorrectly in a "learning experiment." A majority of participants remained obedient to the experimenter even when the learners supposedly being punished were apparently in considerable pain and they themselves were experiencing great discomfort and ambivalence about what they were ostensibly doing.

In 1946, the modern era of biomedical research oversight was ushered in by the Nuremberg Code, whose 10 principles emphasize that participation in experimental research must be voluntary, participants must be free to discontinue their participation, and the possibility of harm and risks must be minimized and exceeded by the potential beneficial findings of the experiment. At about that same time, the APA also was deliberating standards of ethics, including issues pertaining to psychological research, resulting in a formal statement of Ethical Principles of Psychologists and Code of Conduct in 1953, which has been revised several times—most recently in 1992 and 2002.

It is not clear, however, that research psychologists (and other social scientists whose disciplines had also developed codes) paid all that much attention to their ethical standards of research until the federal government began to take several larger and larger steps into the picture. In 1966 the United States Public Health Service (USPHS) required that federally funded medical research facilities had to establish review committees (the first institutional review boards, or IRBs) to pass on proposed research; in 1969 the policy was extended to include behavioral and social science research. These policies were further developed by

the Department of Health, Education and Welfare (DHEW) in 1971 (The Institutional Guide to DHEW Policy on Protection of Human Subjects) and 1974 (45 Code of Federal Regulations [CFR] 46). In 1979, the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research produced Ethical Principles and Guidelines for the Protection of Human Subjects of Research ("The Belmont Report"). It placed research with human subjects firmly within a moral framework by emphasizing the relevance of three ethical principles: respect for persons (acknowledging their autonomy and protecting those with diminished autonomy); beneficence and nonmaleficence (the obligation to maximize possible benefits to participants and to do them no harm), and justice (fairness in the distribution of the benefits from, and burdens of, research). In 1981, the National Institutes of Health (NIH) Office for Protection From Research Risks (OPRR) revised 45 CFR 46. Finally, in 1991 the Department of Health and Human Services (DHHS, the successor to DHEW) published a further revision (45 CFR 46, subpart A) that was adopted as "Common Rule" by all relevant governmental agencies and applied to all research conducted at institutions that receive any federal funding. In 2000, the Office for Human Research Protections (OHRP) was established in DHHS, with expanded educational responsibilities as well as regulatory oversight.

From 1966, there has been almost continuous criticism by the social and behavioral sciences research community of the regulatory process conducted by the IRBs that pass on the acceptability of proposed studies. These complaints and the administrative reactions to them, as well as several national investigations of the operation of IRBs, have resulted in a cyclical waxing and waning of the scope and relative restrictiveness and permissiveness of the successive revisions to the regulations. The most frequent complaints have been (a) lack of consistent standards of evaluation across IRBs; (b) lack of expertise among IRB members to evaluate proposals from many different disciplines; (c) greater concern for the bureaucratic formalities of signed consent forms than on furthering prospective participants' understanding of the proposed research; (d) inappropriately critiquing technical aspects of the research design rather than limiting the review to the protection of participants; and (e) failure to take advantage of the flexibility built into the Common Rule—for example, by requiring full board review rather than expedited review or even an exemption from review for

minimal risk research (studies, like most of those in industrial/organizational research, that entail procedures no more risky than ordinary life activities or routine physical or psychological tests).

CURRENT REGULATIONS

An IRB review of proposed studies begins with consideration of four sequential questions:

1. Is it research? According to the Common Rule, *research* is an investigation intended to expand or supply generalizable knowledge. Projects (e.g., attitude surveys, test validation studies) intended for internal organizational use are not included, but if findings are submitted for publication, that would be an attempt to contribute to generalizable knowledge. (IRB approval might be possible ex post facto for the now archival data if it is anonymous.)
2. Does it involve human participants? Such involvement means obtaining private information from living persons who may be individually identifiable. This would exclude qualitative and quantitative literature reviews that are limited to secondary analyses of aggregate data.
3. Does it fall into one of the categories of research exempt from IRB review? The IRB (not the researcher) can determine that the proposed study does not require review. This includes such projects as evaluations of instructional strategies in educational settings, and the use of survey and interview procedures or the collection of existing data—as long as the respondents cannot be identified.
4. If not exempt, does it entail no more than minimal risk so that it is thus eligible for expedited review? Under expedited review, only the IRB chair (or designee) reviews the study, rather than the full board, and the study cannot be disapproved (only the full board can do that). This category includes individual or group behavior research or characteristics of individuals—for example, perception, cognition, game theory, and test development—in which the subjects' behavior is not manipulated and research does not involve stress on the subjects.

BASIC COMPONENTS OF ETHICAL RESEARCH

Privacy, Confidentiality, and Informed Consent

People have a right to maintain their privacy—that is, the right to determine how much information about

themselves will be revealed to others, in what form, and under what circumstances. Empirical research indicates that perceived violations of privacy depend on the nature of the information being sought, how public the setting is in which a person's behavior is being studied, people's expectations regarding privacy, and the anonymity of the research data—that is, assurance that the data cannot be linked directly to the respondent source. It probably also depends on the degree of trust in which the researcher is held by participants. *Confidentiality* refers to people's right to have the information they provide kept private, as well as to the agreements made with them regarding what will be done with the data. Establishing conditions of anonymity is the best way to guarantee privacy and complete confidentiality. Most of the time, a psychologist's research participants (e.g., employees or students) will assume that the information they provide is to be kept confidential. Therefore, it is imperative that any limitations on confidentiality be explained carefully in advance of securing the person's participation. For example, studying the determinants of voluntary employee turnover may require maintaining the identity of data sources so that antecedent information can be linked with later separation data. This should be explained to potential participants, and the personal identifiers that provide the link should be destroyed once the matching is done.

Describing to prospective research participants any limitations on confidentiality is part of the information to be supplied prerequisite to obtaining their informed consent to participate. To summarize briefly the Common Rule and the APA ethics code (Standards 3.10, 8.02, 9.03), additional information to be provided in clear, unambiguous, readily understandable language includes the purpose and expected duration of the research, and its procedures; any factors that might reasonably be foreseen to affect a person's decision to participate; the participant's right to decline to participate or discontinue participation, along with any consequences for not participating; and whom to contact with any questions about the research or the participant's rights. Opportunity should also be provided for the person to have any questions about the research answered. Although obtaining a signed consent form containing the above information from each participant is the default option, there are a number of circumstances under which a waiver can be granted under the Common Rule. These include minimal-risk research; studies of

educational programs; routine assessments of organizational practices; archival data; and collecting test, survey, or interview data—as long as participants cannot be identified; for studies that could not be done unless the waiver was granted; and when the signed consent form would be the only record linking the respondent with the research and a breach of confidentiality would be potentially harmful (e.g., an employee survey of admitted unethical behavior).

The Use of Deception

When individuals are misled (active deception) or not told (passive deception) about significant features of the research in which they are being asked to participate, it arguably violates the principles of respect, autonomy, and trust underlying the researcher–participant relationship and the spirit and intent of providing informed consent. Consequently, deception has been an extremely controversial practice in social science research—much more prevalent in social psychology than in industrial/organizational psychology, owing to differences in the topics studied and the preeminent use of laboratory versus field studies, respectively. The most common forms of deception are concealing the true purpose of the study and/or aspects of its procedures by giving participants false instructions or false information about stimulus materials, use of a confederate to mislead them, and providing erroneous or manufactured feedback about their performance on some task.

Although critics such as Diana Baumrind argue that deception is never justified because of the long-term potential harms it inflicts on participants, on the reputation of the profession, and on society, deception is generally viewed as conditionally appropriate. For example, the APA ethical code indicates that it may be justified by the potential significant value of the study, if the research question cannot be investigated effectively by nondeceptive means, and as long as the deception is explained promptly to the participants and any misconceptions induced in participants are corrected. It is extremely unlikely, however, that any substantial deception would be viewed as appropriate in industrial/organizational research conducted with employee participants in an organizational setting.

—Joel Lefkowitz

See also Ethics in Industrial/Organizational Practice

FURTHER READING

- American Psychological Association. (2002). Ethical principles of psychologists and code of conduct. *American Psychologist*, *57*, 1060–1073. Retrieved March 18, 2006, from <http://www.apa.org/ethics>
- Baumrind, D. (1985). Research using intentional deception: Ethical issues revisited. *American Psychologist*, *40*, 165–174.
- Department of Health and Human Services. (1991). Public Health Service Act: Protection of human subjects. Title 45, Code of Federal Regulations [CFR], Part 46. Retrieved March 18, 2006, from <http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm>
- Kimmel, A. J. (1996). *Ethical issues in behavioral research: A survey*. Cambridge, MA: Blackwell.
- Lefkowitz, J. (2003). *Ethics and values in industrial-organizational psychology*. Mahwah, NJ: Lawrence Erlbaum.
- National Research Council of the National Academies. (2001). *Protecting participants and facilitating social and behavioral sciences research*. Washington, DC: National Academies Press.
- Sales, B. D., & Folkman, S. (Eds.). (2000). *Ethics in research with human participants*. Washington, DC: American Psychological Association.

EUSTRESS

The Canadian physician Hans Selye was first to define *stress* as the response to stressors in the environment. He considered *stressors* to be the external demands or influence an individual feels at any given time. Selye separated stress into two categories: *distress* and *eustress*. Distress occurs when there is too much or too little demand on an individual and disrupts homeostasis. Too much stress can cause performance to decline, whereas no stress at all may cause an individual to lack the motivation and energy to perform. When stress is at a moderate level, it supplies the individual with enough energy to accomplish high levels of performance. During this optimal level of arousal, eustress is believed to occur, which is why eustress is commonly referred to as *positive stress*. Unlike negative stress (distress), eustress is believed to have benefits to the body and mind. These include increased mental alertness and awareness and improved emotional and physical well-being.

In addition, Bret Simmons and Debra Nelson found that when employees experience eustress, they

will be more likely to have a positive perception of their own health.

Selye believed there are ways for people to experience more eustress and less distress by changing how they perceive and react to their stressors. He suggested that having more positive or optimistic views of stressors will increase eustress, performance, and overall health (i.e., lowered blood pressure, less depression, and less susceptibility to diseases). Research indicates that eustress is positively correlated with employees' level of job satisfaction and causes less turnover. Supervisors can promote eustress among employees by setting realistic goals and deadlines for projects, by giving appraisals and encouragement to employees, and by displaying positive, calm reactions of their own during times of difficulty.

—Brittany L. O'Neal

See also Stress, Consequences; Stress, Coping and Management; Stress, Models and Theories

FURTHER READING

- Le Fevre, M., Matheny, J., & Kolt, G. S. (2003). Eustress, distress, and interpretation in occupational stress. *Journal of Managerial Psychology, 18*, 726–744.
- Selye, H. (1974). *Stress without distress*. Philadelphia: Lippincott.
- Selye, H. (1978). *The stress of life*. New York: McGraw-Hill. (Original work published in 1956)

EXECUTIVE COACHING

Executive coaching is an increasingly popular and important part of overall executive development in the United States, Europe, and elsewhere. At the present time, large numbers of people say they do executive coaching, representing a wide range of kinds and levels of knowledge bases, competencies, and credentials—including psychology, engineering, philosophy, anthropology, education, economics, English, communications, and library science (and even no college degree). At this writing, there are no universally recognized and accepted standards for practice, and definitions of executive coaching vary.

In the past 10 to 15 years, however, the practice of executive coaching by psychologists has become more defined and has gained considerable momentum, and a

distinct body of knowledge from practice and recent research is being developed and shared. This piece pertains to executive coaching by psychologists.

DEFINITION

The following definition is consistent with most of the working definitions found in the existing psychological and management literature and in presentations at professional conferences: executive coaching is an *individualized* process of executive development in which a skilled expert (coach) *helps* an individual who is in a leadership or managerial role in an organization *learn* how to become more *effective* in that organization and/or in those kinds of roles. Italicized terms are key. Coaching is a helping relationship between a coach and coachee, one-on-one. It is a process, as opposed to a fixed-curriculum program such as training or group executive development programs, and is designed specifically for the coachee. Some coaches refer to the process as a “journey” of discovery, learning, and change. As the process unfolds, and as the coach and coachee learn more, the course (path) is adapted or modified to best meet the goal(s). The coachee’s overarching goal is to become more effective, and the primary enabling objective is the coachee’s learning.

Although coaching is a key responsibility of every manager who supervises employees, executive coaching, as discussed here, pertains to the role of a third-party (i.e., not the coachee’s supervisor) professional psychologist coach.

HISTORY OF EXECUTIVE COACHING

Consulting by psychologists to organizational leaders has been around for a long time—at least since the 1940s—and the name *executive coaching* to describe it emerged in the late 1980s. This practice area has seen what many describe as explosive growth over the past decade, because of significant popularity and widespread demand.

The vast majority of the research to date has been conducted in the past 15 years and is primarily practice-based, with case studies being the most common method. Although little empirical research on outcomes has been published to date, there is evidence of increasing focus on coaching by scientific researchers, with several studies recently published and in progress.

NATURE OF EXECUTIVE COACHING BY PSYCHOLOGISTS

The practice of executive coaching spans a number of areas of psychology, including clinical, counseling, industrial/organizational, developmental, and social psychology—all represented in consulting psychology. Because executive coaching is a one-on-one helping relationship, clinical and counseling psychology have contributed the most in terms of typology of coaching methods; the principles, art, and ethics of working with individuals; and associated research methods. Industrial/organizational and social psychology contribute significantly in organizational theory, work motivation, interpersonal dynamics, social-organizational dynamics, psychometric theory, assessment, organizational development methods (applied one-on-one), and meta-analysis of outcomes. Coaching draws from developmental psychology for principles of adult learning, stages and characteristics of adult development, and maturation.

Common Characteristics

- Content and process are tailored to the individual's needs.
- Confidentiality is strictly maintained, to enable free discussion of sensitive issues in a safe environment.
- The coach typically uses a wide variety of methods and tools (see "Typical Methods and Tools"), with varying degrees of structure, to help the individual achieve the coaching goals.
- Psychologist coaches focus primarily on cognitive, behavioral/interactional, and/or emotional aspects of performance effectiveness.
- A fundamental assumption is that by enhancing the leader or manager's effectiveness, the effectiveness of the organization is also improved, via the influence and leverage of leadership.

Examples of Differences in Views Across Psychologist Coaches

- Coaching as a dependency relationship or not
- Coach role to provide advice, direction, counsel versus to facilitate a process of self-discovery and learning
- Coaching method(s) used

Typical Areas of Coaching Focus

Executives seek assistance from executive coaches primarily for the following purposes:

- For skill development (e.g., leadership, interpersonal, organizational, intrapersonal)
- For performance enhancement—current job
- For development—for future roles
- To have a sounding board for testing thinking, surfacing assumptions, uncovering blind spots, obtaining objective feedback, and so forth
- For proactive/developmental and/or remedial help—to address one or more problematic behaviors

INTERVENTION APPROACHES AND THEORETICAL ORIENTATIONS

Consumers of executive coaching services are primarily senior managers and executives, or identified high-potential managers, who have already demonstrated a high degree of success. Thus, the focus is nearly always on helping already successful people become more so—for example, helping them get to the next levels of effectiveness, preparing them for advancement, or helping them quickly adapt to a new role. For them, group methods, such as executive education courses, reach a point of diminishing returns, and further gains will come only from intense personal focus and work. Also, a not insignificant proportion of executive coaching clients seek help in changing one or more problematic behaviors that are limiting their effectiveness and potentially their career progress.

The most common intervention approaches and related theoretical orientations of psychologist coaches are *behavioral*, *cognitive-behavioral*, *rational-emotive behavioral coaching*, *psychodynamic*, and *multimodal*. These are adapted to coaching from clinical therapeutic models. In the behavioral approach, the focus of the coaching intervention is behavior. The coach works to help the individual understand the impact of his or her behavior; to further refine and effectively leverage behavioral strengths; to learn new, more effective behaviors; and/or to manage weaknesses. Progress is tracked, and reinforcing mechanisms are typically implemented for sustained improvement. In the cognitive-behavioral approach, the coaching intervention is targeted at thought processes and/or behaviors, using any of a wide range of intervention strategies. Assumptions are as follows: (a) One's thoughts about events affect behavioral response to those events; (b) thought patterns can be accessed, monitored, and modified; (c) changes to thought patterns can change behavior in desired ways; and (d) changed behaviors can eventually change thoughts. Because executive

coaching is results-driven, with emphasis on measurable improvement, this is a common approach. Its limitations are seen primarily in those cases where deeper emotional, internal conflict or object relations issues are the primary factors affecting performance.

Rational-emotive behavioral coaching is a special type of cognitive-behavioral intervention. Its assumptions are as follows: (a) Emotional and behavioral responses to events are shaped by one's interpretation of those events, and interpretations are influenced by one's beliefs, which are sometimes irrational; and (b) if people can be helped to eliminate irrational beliefs (e.g., absolute thinking, catastrophizing), they can direct their energy toward achieving their potential. Coaching is directed at challenging and changing behaviors that negatively influence effectiveness.

In the psychodynamic approach, intervention is focused at a deeper psychological level. Assumptions are that unconscious factors, including past experience, emotional responses to events, defensive reactions, suppressed feelings, underlying and unresolved conflicts, and various dysfunctional patterns of thinking and behaving, can negatively affect performance and organizational effectiveness. Specifically applied to coaching, assumptions include the following:

- Internal unconscious conflict produces strong emotions that people work to keep out of conscious awareness because of associated discomfort. The self-protective behaviors they engage in to suppress these emotions can themselves cause problems interpersonally, as well as intrapersonally in the form of anxiety, depression, stress, and other conditions that affect performance.
- One's effectiveness in work relationships is influenced by one's history of development and past relationship experiences.
- Recognizing and understanding psychodynamic processes at work can help the coach develop much more effective interventions.
- Last, *multimodal* refers to the use of more than one intervention approach.

DIFFERENCE BETWEEN COACHING AND THERAPY

Executive coaching is quite different from clinical therapy, the differences being primarily the focus and depth of the intervention. Therapy focuses on internal unresolved conflicts and/or object relations issues, delving deeply into unconscious motives and past

experiences and relationships. Executive coaching focuses on individual effectiveness in leadership roles, working in the present and at the level of primarily conscious awareness. To the extent that unresolved conflicts or other pathology are interfering with performance, the coach will make a referral to a qualified therapist for the necessary deeper-level work.

IMPORTANT COACH COMPETENCIES

The coach is the most important tool in helping the coachee achieve the coaching goals and is integral to the process of learning and changing. Key coach competencies include the following:

- *Knowledge.* Especially important are advanced knowledge of psychology of behavior in organizations; knowledge of organizational theory; business knowledge; knowledge of the client's organization and industry; knowledge of the ethics code for psychologists; and self-knowledge.
- *Skills.* Especially important skills include cognitive agility; listening; systems thinking and practice; communication; (desirable) psychological assessment; process facilitation; connecting with the individual; and gaining and maintaining trust.
- *Personal characteristics.* Important personal characteristics include being an agile learner; perceptiveness; flexibility; nonjudgmentality—being accepting of people and their values; tolerance of ambiguity; political savvy; trustworthiness; respectfulness of others as people; and appreciativeness of the coachee's talents.

TYPICAL REFERRAL SOURCES

Typical coaching referral sources are as follows:

- Self (often referred by someone who has benefited from and recommended coaching)
- Supervisor
- Human resources

TYPICAL PROCESS

Although approaches vary, they all tend to have a similar general process:

- Request for coaching, and selection of the coach
- "Contracting"—that is, aligning expectations; establishing rules of engagement; agreeing on who the

client(s) is/are; and agreeing on the approach, timing, fees, and so forth

- Assessment of need, including understanding the individual and the context in which performance occurs; and identifying performance strengths, limitations, and development needs. Assessment involves collecting data—existing and new. Examples include the following:
 1. Existing information such as performance appraisals; 360-degree feedback; assessment reports from previous management development programs; and other relevant information, including key e-mail messages
 2. In-depth interview of coachee
 3. (Optional) Individual professional assessment, which may include any subset of measures of cognitive ability and problem solving; personality; emotional intelligence; needs; values; leadership style; interpersonal style; and other relevant organizational effectiveness factors
 4. Information produced from the coachee and from coach-coachee interactions
- Development of coaching goals
- Intervention (coaching) plan
- Implementation of the coaching plan
- Measurement of progress

TYPICAL METHODS AND TOOLS

Typical coaching methods include (a) the use of a coaching plan, including objectives, success criteria, and associated measures, as well as (b) face-to-face meetings. Other methods are telephone conversations between meetings, individually designed exercises, and assigned readings.

Tools may include the following:

- Facilitating thinking, surfacing of assumptions, gaining insight
- Educating, explaining
- Reframing of issues, events, thinking
- Challenging while personally supporting
- Confronting while personally supporting
- Suggesting
- Tailored exercises to facilitate thinking, working through issues, and/or gaining insight
- Role playing
- Other—depending on the situation and need

TYPICAL DURATION

The duration of coaching varies widely—from a few months to many years. Coaching that lasts more than

a year usually evolves into more of a “trusted adviser” relationship.

CERTIFICATIONS

Certifications are offered by several different organizations, most requiring minimal prerequisites, and none of which are sanctioned by the American Psychological Association, and by a few academic institutions that offer executive coaching as a continuing education or executive education program.

—Vicki V. Vandaveer

See also Emotional Intelligence; Global Leadership and Organizational Behavior Effectiveness Project; Individual Assessment; Leadership Development; Organizational Culture; Personality; Positive Psychology Applied to Work; Social Cognitive Theory

FURTHER READING

- Brotman, L. E., Liberi, W. P., & Wasylyshyn, K. M. (1998, Winter). Executive coaching: The need for standards of competence. *Consulting Psychology Journal: Practice and Research*, 50(1), 40–46.
- Flaherty, J. (1999). *Coaching: Evoking excellence in others*. Boston: Butterworth-Heinemann.
- Kampa-Kokesch, S., & Anderson, M. Z. (2001). Executive coaching: A comprehensive review of the literature. *Consulting Psychology Journal: Practice and Research*, 53(4), 205–228.
- Kilburg, R. R. (2000). *Executive coaching: Developing managerial wisdom in a world of chaos*. Washington, DC: American Psychological Association.
- Lowman, R. L. (Ed.). (2002). *Handbook of organizational consulting psychology*. San Francisco: Jossey-Bass.
- Luthans, F., & Avolio, B. (2003). Authentic leadership: A positive developmental approach. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship* (pp. 241–258). San Francisco: Berrett-Koehler.
- Pervin, L., & John, O. (Eds.). (1999). *Handbook of personality* (2nd ed., pp. 154–196). New York: Guilford.
- Roberts, B. W., & Hogan, R. (Eds.). (2001). *Personality psychology in the workplace*. Washington, DC: American Psychological Association.
- Tennant, M., & Pogson, P. (2002). *Learning and change in the adult years: A developmental perspective*. San Francisco: Jossey-Bass.
- Valerio, A. M., & Lee, R. J. (2005). *Executive coaching: A guide for the HR professional*. San Francisco: Pfeiffer.
- Wasylyshyn, K. M. (2003). Executive coaching: An outcome study. *Consulting Psychology Journal: Practice and Research*, 55(2), 94–106.

EXECUTIVE SELECTION

Executive selection represents an important means of gaining competitive advantage for today's organizations. However, such selection has not traditionally used the rich history of conceptual and empirical research on personnel selection that exists within the domain of industrial and organizational psychology. The high failure rate of today's executives points to the need for more effective selection of top organizational leaders, and there has been a recent upsurge in research and development focused on sharpening knowledge and practices of executive selection.

In 2001, Ann Howard described four central topics reflect key issues in executive selection. The first issue refers to executive competencies that ought to guide the process of executive selection. These competencies are necessarily broader and more complex than those for lower- and middle-level organizational leaders. The second issue refers to the source of executive candidates, whether they come from within the organization or are recruited from external sources. The third issue pertains to the assessment strategies used to uncover levels of competencies in executive candidates. The final issue covers the actual selection decision, particularly who makes this decision and how the decision-making process reflects and influences organizational strategy.

EXECUTIVE COMPETENCIES

Research has shown that performance requirements change significantly as leaders rise to the executive level. They need to attend to and interpret a vastly greater array of information. Their constituencies and stakeholders become more diverse, with more conflicting agendas. Although all leaders are responsible for monitoring and spanning the boundaries of their unit and the larger environment, leaders at the top must represent the organization to an external environment (and vice versa) that is increasingly complex, global, and dynamic. Thus, although all leaders in an organization are responsible for setting the direction and managing the operations of their units, these characteristics of executive work define some particular competencies for top organizational leaders that need to guide their selection.

The responsibility for leading a diverse organization and representing it within the industry suggests that executives need broad technological, financial, and

professional knowledge, as well as an understanding of the industry and its operating environment. The high informational complexity of executive work means that they need to have the cognitive skills to make sense of and model this complexity for their subordinates. Executives also need high-level social competencies, including communication skills and the ability to develop broad social capital or a network of personal relationships that accrue trust, information exchange, normative expectations, and professional knowledge. Executives need to have the skill to develop these networks of social capital within and across organizational boundaries. Finally, given the highly dynamic industry environments of most organizations, executives also need an array of skills linked to an ability to manage change for themselves and for their organizations.

EXECUTIVE RECRUITMENT

Executive recruitment can focus exclusively within an organization or on external sources of executive candidates. In her 2001 review of executive selection research, Howard notes several advantages and disadvantages for both internal and external executive recruitment have advantages and disadvantages. Internal recruitment strategies link executive development with executive selection, providing a long-term growth perspective for lower-level managers. When executive development is systematic and tied to changing strategic considerations, the company can enhance its strategic flexibility and generate a pool of candidates particularly well suited to implement strategic changes. Internal candidates already have knowledge of the organization's culture and structure and already have the established social capital to quickly implement new initiatives. Internal recruitment can also engender greater loyalty and commitment to the organization among its lower-level managers.

Howard has also noted that internal candidates may be too associated with organizational culture and norms to provide new and fresh approaches. External candidates can bring different experiences, new industry knowledge, and novel perspectives to the organization. Their evaluations of existing organizational policies, structure, and projects are likely to be more objective than those of internal candidates. Likewise, although external candidates will have less social capital within the company than their internal brethren, they may have broader capital outside the company, enhancing their ability to form industry alliances and networks.

The choice of an internal versus external candidate may rest on the prior performance of the company, its age and growth pattern, and the dynamism of the industry's strategic environment. In larger companies, and Generally, internal candidates are likely to be favored when the organization is performing well, when the company is established and maintaining a slow but steady growth rate, and when the rate of change in the strategic environment is not fast enough to render skills and knowledge too quickly obsolete. Alternatively, external candidates are likely to be favored in companies that are performing poorly, in young companies experiencing a high rate of growth, and in organizations where greater numbers of external members sit on the board of directors. Preferences for external candidates also may occur when change rates in industry environments require rapid upgrading or refreshing of leader human capital. In typical instances, however, the circumstances of most organizations will suggest a varying mix of internal and external candidates for the range of executive positions.

External recruitment sources include executive search firms, electronic or Internet-based searches, and personal networking. In 1998 Daniel DeVries noted that executive search firms aid executive selection by facilitating the process for both potential candidates and hiring firms. Search firms will help companies define position responsibilities and corresponding candidate competencies. They will also recruit and identify candidates who best fit position characteristics. Executive search firms can help candidates understand the dynamics within the hiring company and coach them through several critical stages of the selection decision process. Many executive search firms, as well as human resource departments in major corporations, use the Internet as a source of executive recruitment. Although the canvassing of active candidates may occur through job boards, companies and search firms may use searches of company records and online directories to identify candidates who are not actively searching for new executive positions but may be approachable or persuaded to consider a position change. A third strategy of executive recruitment is for existing company executives to pursue their social networks and personal contacts for executive position candidates.

Internal executive recruitment generally rests on the succession planning and executive development programs established by companies to grow the pool of high-potential executives. If development programs are linked to the anticipated strategic considerations of the organization, they can produce a strong pool of

potential candidates. Even when strategic concerns are likely to shift (as when the company operates within a dynamic organizational environment), executive development that emphasizes the ability to manage change and uses a breadth of developmental experiences can produce sizable numbers of suitable candidates.

EXECUTIVE ASSESSMENT

Some strategies used to assess candidates for lower-level managerial positions have been extended to executive selection, although with limited success. For example, assessment centers, used with mixed effectiveness in lower-level managers, have been used less extensively with executives. However, research has shown ratings of managerial potential, established in part through assessment centers and structured interviews, have predicted long-term promotion levels, including to executive ranks. Executive assessment strategies have focused on identifying the candidate's past performance effectiveness and the human capital and competencies a candidate can bring to the position. Some assessment approaches examine how well the candidate might handle simulated executive work situations.

Companies typically assess past performance effectiveness through biographical data (résumés), references, structured interviews, and, in some instances, multisource surveys and interviews (in which data come from peers, supervisors, subordinates, and self). Each of these strategies carries some strengths and weaknesses. Biographical data sources and references can exhibit a positive bias and achievement inflation. Interviews can also result in positive image management by the candidate. However, structured interviews that ask candidates to describe past critical incidents and key performance episodes have yielded more success in identifying the candidate's displayed competencies. In her review Howard noted that multisource assessment can be more effective when source ratings are coupled with interviews conducted by executive coaches. Using measures of past displayed competencies can be problematic for executive selection, though, when strategic considerations argue for new or different sets of executive competencies.

Companies also use a range of individual difference measures to assess the personal qualities candidates possess at the time of recruitment. Measures of conceptual capacity, cognitive ability, and tacit knowledge have exhibited some success in predicting executive performance. Companies have also used personality measures

in their executive assessment. Taken together, these measures can provide a significant although still limited prediction of likely executive success.

Another assessment strategy involves presenting executive candidates with simulated executive leadership scenarios and observing exhibited behavior and decisions. These simulations and work sample tests, typically organized as part of an assessment center, have the advantage of measuring present competencies and, if carefully structured, can provide an assessment of how executive candidates would respond to performance scenarios dictated by future or alternate strategic considerations.

Most companies use a combination of methods to assess executive candidates, although interviews and references remain the most prominent assessment strategies. Cognitive ability, personality, multisource assessment, and assessment centers are less widely used for executive selection. However, such assessments constitute a significant part of executive development programs used to produce succession pools of internal candidates.

EXECUTIVE SELECTION DECISIONS

The capabilities of the executive candidate represent one factor in the selection decision. At higher organizational levels, an increasing number of contextual and strategic factors can influence such decisions. The decision makers, typically CEOs and boards of directors, have little knowledge of personnel selection procedures and somewhat limited experience in making executive selection decisions. However, some research shows that leaving executive selection, especially executive succession programs, primarily in the hands of human resource professionals can result in less effectiveness. In his review, DeVries noted that instances of successful executive selection, senior line managers, CEOs, and directors tend to take a more holistic and contextual approach to selection decisions.

Some researchers such as Rob Silzer in 2002 have argued that executive selection decisions should reflect the strategic and organizational context of the position. Different strategic challenges will require different mixes of executive competencies. For example, strategic change and innovation will require executives who have strong visioning and change management skills. Alternatively, executives who have strong industry knowledge, financial acumen, and social capital are likely to be more suitable for strategies that emphasize

accruing the financial benefits of high organizational performance in a fairly stable environment.

The top management team (TMT) represents another contextual factor that influences executive decisions. The selected executive needs to display values and core beliefs that are similar to those of the CEO and other TMT members. Alternatively, executive selection decisions can rest on what talents and capabilities possessed by candidates are different from those in the existing TMT, thereby expanding the collective human capital at the top of the organization. The acceptance of new executives with ideas and strengths that differ from those of existing TMT members will depend, however, on the perception that they share the core values and long-term strategic goals of the TMT.

SUMMARY

Effective executive selection decisions are most likely to emerge from a process and system that adapts best practices in personnel selection to the recruitment, assessment, and selection of executive candidates. Yet these best practices must also be applied with serious consideration of the strategic, cultural, and social context of the organization as a whole. The recent surge in research on executive selection within industrial and organizational psychology provides significant promise for uncovering these best practices and understanding the contextual factors that drive their utility.

—Stephen J. Zaccaro

See also Attraction–Selection–Attrition Model; Employee Selection; Prescreening Assessment Methods for Personnel Selection; Selection: Occupational Tailoring; Selection Strategies; Uniform Guidelines on Employee Selection Procedures

FURTHER READING

- DeVries, D. L. (1993). *Executive selection: A look at what we know and what we need to know*. Greensboro, NC: Center for Creative Leadership.
- Howard, A. (2001). Identifying, assessing, and selecting senior leaders. In S. J. Zaccaro & R. J. Klimoski (Eds.), *The nature of organizational leadership: Understanding the performance imperatives confronting today's leaders* (pp. 306–346). San Francisco: Jossey-Bass.
- Sessa, V. I., Kaiser, R., Taylor, J. K., & Campbell, R. J. (1998). *Executive selection: A research report on what works and what doesn't*. Greensboro, NC: Center for Creative Leadership.

- Silzer, R. (2002). Selecting leaders at the top: Exploring the complexity of executive fit. In R. Silzer (Ed.), *The 21st century executive: Innovative practice for building leadership at the top* (pp. 77–113). San Francisco: Jossey-Bass.
- Snow, C. C., & Snell, S. A. (1992). Staffing as strategy. In N. Schmitt & W. C. Bormna (Eds.), *Personnel selection in organizations* (pp. 305–346). San Francisco: Jossey-Bass.
- Zaccaro, S. J. (2001). *The nature of executive leadership: A conceptual and empirical analysis of success*. Washington, D.C.: American Psychological Association.

EXIT SURVEY (EXIT INTERVIEW)

Effective management of human capital provides a means for increasing productivity and reducing costs. The relationship between retention and profitability is clear—fewer turnovers translate to less expense for the organization. Leading organizations understand this fact and track employee attitudes and feedback across the entire employment life cycle (recruitment and on-boarding → integration → departure). These organizations strive to understand why individuals join, stay, and leave their company, so they can engage in superior human capital planning.

Although a great deal of research has been conducted on employee opinion and attitude surveys, relatively little focus has been devoted to exit surveys. This is somewhat surprising, given that the creation of a rigorous exit measure builds an organization's capability to understand why talent is leaving, what might have prevented them from leaving, and their attitudes toward the organization.

A number of considerations apply when creating or augmenting an existing exit survey process—namely, the target population, the content of the survey, the administration method, the likely response rate, and the reporting requirements.

POPULATION

Most exit surveys are sent only to employees who are voluntarily leaving the organization, the belief being that voluntary turns are considered regrettable losses. If an organization has limited resources to monitor or implement an exit survey, it might consider limiting the survey process to a select employee population

(e.g., employees identified as key talent). If your organization chooses to target (or omit) a particular group, you must be sure that the group can be clearly defined and that the survey is consistently administered to the population selected. Otherwise, the door is open to legal concerns around inconsistent or discriminatory treatment.

SURVEY CONTENT

In most cases, an exit survey is designed to gather information as to how the employee perceived his or her compensation, benefits, working conditions, opportunities for career advancement, workload, manager quality, and work–life balance, as well as the relationships between coworkers and supervisor.

An exit survey is typically a combination of multiple-choice, agree–disagree, and open-ended questions. There is great value in ensuring that any attitude or opinion questions included in the exit survey parallel those asked via internal surveys (see Table 1). In this way, the organization can compare responses obtained from stayers and leavers to gain an understanding of what truly differentiates them.

Ultimately, the content chosen for the survey should reflect the culture and values of the organization and provide information useful to enhance recruiting, retention, and employee engagement efforts. One cautionary note regarding open-ended questions: Former employees often have a great deal of feedback about the company, coworkers, management, and so forth. Unless your organization has the resources to regularly read, categorize, and address issues raised, it is recommended that only closed questions be used.

ADMINISTRATION METHOD

There are essentially three options for administering an exit survey: paper-and-pencil, Internet, and phone interviews. A paper-and-pencil survey is typically sent by mail 30 to 60 days after a person leaves the organization. The benefit of this process is that it is administratively efficient from the respondent's perspective—he or she completes the short survey and returns it via a stamped, addressed envelope. The major drawback is the administrative resources needed to create the mailing and capture the information once it is received. Scannable forms reduce the burden, but it is still an administratively cumbersome activity.

Table 1 Example Linkages Between Internal and Exit Survey Questions

<i>Internal Employee Survey Question</i>	<i>Corresponding Exit Survey Question</i>
I am compensated fairly (base salary, bonus).	I was compensated fairly (base salary, bonus).
I am confident I can achieve my career goals at ABC Company.	I could have achieved my career goals at ABC, if I had chosen to stay.
The amount of work I am expected to do is reasonable.	The amount of work I was expected to do was reasonable.

Table 2 Pros and Cons Associated With Different Administration Methods

<i>Administration Method</i>	<i>Pros</i>	<i>Cons</i>
Paper-and-pencil	Administratively efficient for the user	Administratively cumbersome for the organization
Internet	Automated gathering and processing of information	Administratively cumbersome for the user—access not readily available
Phone interview	Potential for greater engagement than with other methods and affords opportunity to address concerns	May be viewed as invasive, time-consuming, or expensive

Internet-based exit surveys offer the benefit of online data collection. The main drawback has to do with accessibility. As the employee is asked to complete the survey after leaving the organization, access to the Internet may not be readily available, and the former employer will typically not have a personal e-mail address for the employee. Anecdotally, our experience suggests that the benefits of a paper-and-pencil survey outweigh the administrative ease of an Internet-based survey. We have seen marked improvement in our response rates after moving from an Internet-based to a paper-based survey.

An interview approach to exit surveys should not be confused with an exit interview. (*Exit interview* typically refers to an interview that occurs with an employee before he or she departs the organization.) Although phone interviews are not as common as an Internet or paper-based survey, some organizations have chosen to administer their questions via telephone. The benefits are that the information gathering process is more engaging and that concerns can be addressed directly. The drawback is that a former employee might find the phone interview too invasive. Table 2 summarizes the benefits and drawbacks of each administration option.

In addition to identifying *how* the survey should be administered, you must also determine *who* should manage or administer the survey. Most organizations choose to have an outside vendor administer the survey and process the information. Typically, a vendor can manage the process more efficiently and at a lower cost than if the process was managed in-house. In addition to cost and efficiency benefits, a vendor can also serve as a middle person between the organization and the former employee. More specifically, the vendor can obtain candid or sensitive information from the former employee and feed it back to the organization after all identifying information has been removed.

RESPONSE RATES

As with any survey, you must design the survey and communications in such a way as to maximize responding. A low response rate will call into question the accuracy and generalizability of the survey findings and greatly limit the extent to which you can cut the data to provide insights at a business unit or function level. One recommendation is to keep the survey short; keep it to one page if possible. There is a difference between what you *want* to measure and what

you *need* to measure to meet your objectives—focus only on what you need to know.

You might also consider providing an incentive. For example, you could offer the chance to win a valued prize in a drawing for individuals who complete the survey. Using a vendor to manage the process allows for the individual to enter the drawing and still maintain the former employee's anonymity.

Another innovative technique that has been used is to appeal to the values of the individual. One organization offers a donation to a prominent charity for each exit survey that is returned. Thus, the respondent is helping the organization as well as helping a good cause.

REPORTING

When creating an exit survey process, it is important to clearly identify (a) what information needs to be reported; (b) how often the information needs to be reported; and (c) who will have access to the information. To maximize the usefulness of the survey, the information should be easily accessible to all key stakeholders. There are generally three options: (a) The vendor provides all reports; (b) a center of excellence within the company creates and distributes information; or (c) a reporting tool is created that allows key stakeholders to access information to meet their specific needs. Based on our experience, we recommend the third option. Exit survey information is most useful when it is being analyzed to address or provide clarity to a specific business issue—allowing access to the individuals who need it means the data can be used to inform decision making in a timely manner.

A well-created exit survey can be a powerful tool for gathering important information relative to reasons why valued employees are leaving the organization. Gathering this information is not without difficulties. Ensuring you have a meaningful response rate, are receiving candid responses, and are maintaining an efficient process while gathering actionable information to inform decision making are just a few of the challenges involved. Nonetheless, the time and investment are worth it if you truly hope to engage in superior human capital planning.

—Stephen Dwight, Linda Leonard,
and Darin Wiechmann

See also Withdrawal Behaviors, Turnover

FURTHER READING

- Corporate Leadership Council. (2003, September). *Exit interview processes*. Catalog No. CLC1174AK9.
- Giocalone, R. A., Elig, T. W., Ginexi, E. M., & Bright, A. J. (1995). The impact of identification and type of separation on measures of satisfaction and missing data in the exit survey process. *Military Psychology, 7*(4), 235–252.
- Giocalone, R. A., Knouse, S. B., & Montagiani, A. (1997). Motivation for and prevention of honest responding in exit interviews and surveys. *The Journal of Psychology, 131*(4), 438–448.
- Weathers, P. L., Furlong, M. J., & Solorzano, D. (1993). Mail survey research in counseling psychology: Current practice and suggested guidelines. *Journal of Consulting Psychology, 40*(2), 238–244.

EXPATRIATES

Expatriates are employees who go overseas to accomplish a job-related goal. To remain competitive in the world marketplace or to obtain new marketing opportunities, multinational companies (MNCs) are sending increasing numbers of expatriates on international assignments. In fact, recent research estimates that more than 250,000 Americans currently are serving as expatriates on international assignments. This number is expected to continue to increase with further economic globalization.

There exist several characteristics shared by expatriates. Foremost, expatriates are expected to accomplish assignments in a different country or culture. This change typically introduces expatriates and their families to new living and working environments. A second characteristic of expatriates is that their international assignments are usually complex in nature. For example, many MNCs expect the expatriates to open a new market, transfer skills, and build good public relations with local organizations and medias. Because of the complexity of these assignments, most expatriates tend to be senior managers whose jobs involve a high degree of responsibility. In fact, expatriates' performances can directly affect the success of their respective MNCs' competitive standing in the global marketplace. A third characteristic of expatriates is that they are usually expected to complete their assignments in a predesignated time period (usually ranging from 6 months to 5 years). After this time period, expatriates are sent back to their home country

and assigned to a new position, a process termed *repatriation*.

BENEFITS FOR EXPATRIATES

To compensate for the disadvantages expatriates and their families may face while on international assignment, most MNCs' compensation policies are quite generous. The typical compensation package offered to expatriates includes one or more of the following: overseas premiums, cost-of-living allowances, housing allowances, children's education allowances, hardship allowances, car allowances, and home leave allowances. Further, performance-based bonuses, as well as seniority bonuses, are common, and exchange risk and taxation differences are usually taken into consideration. The total compensation package offered to expatriates could be equal to several times the salary package in the home country for the same position. This shows the considerable costs associated with expatriate assignments. Although the average onetime cost for relocating an expatriate overseas is \$60,000, supporting an expatriate working on an international assignment may cost more than \$220,000 annually.

Being well compensated is not the only benefit for expatriates. Gaining international experience can enhance one's career. Numerous researchers have noted that many successful expatriates are subsequently promoted during repatriation. Further, more and more MNCs are sending their high-potential candidates for senior leadership positions on international assignments as part of their career development. Success in the expatriate assignment often then becomes part of the selection process into higher-level positions. This process seems to be well understood by expatriates, and researchers have documented that expatriates expect to be promoted on successful completion of their assignments.

CRITERIA OF EXPATRIATE SUCCESS

An expatriate's job performance on international assignments and whether the expatriate returns to his or her home country before the assignment contract expires (i.e., premature return) are two criteria often used to evaluate expatriate success. These two criteria clearly reflect the fact that expatriate success means effective and timely completion of the international assignment.

Expatriate Job Performance

The multidimensionality of expatriate job performance is well accepted by researchers. A typical expatriate job performance model usually includes the following intercorrelated components:

- *Establishing and maintaining business contacts.* Identification, development, use and maintenance of business contacts to achieve international assignment goals
- *Technical performance.* Fulfillment of specific task requirements on the international assignment
- *Productivity.* Volume of work produced by the expatriate
- *Working with others.* Proficiency in working with others (i.e., local workers and other expatriates), assisting others in the organization
- *Communicating and persuading.* Oral and written proficiency in gathering and transmitting information; persuading others
- *Effort and initiative.* Dedication to one's job; amount of work expended in striving to do a good job
- *Personal discipline.* The extent to which counterproductive behaviors at work are avoided
- *Interpersonal relations.* The degree to which the expatriate facilitates team performance and supports others in the organization and unit
- *Management and supervision.* Proficiency in the coordination of different roles in the organization
- *Overall job performance.* Composite of all dimensions of expatriate job performance described in previous points

Expatriate Premature Return

Expatriates are typically expected to complete international assignments in a predesignated time period. Adhering to this time frame is usually critical for two reasons. First, the time frame likely involves critical timing of the introduction of new products or services in the global market. Second, as mentioned, tremendous annual costs accrue to the organization to support such employees. Therefore, expatriate premature return usually indicates failure on the international assignment, which results in high-accrued costs and potential risk concerning global competitiveness for the organization. For expatriates, premature return is more than simply changing or quitting a job—it is a relocation that brings them back to cultures and environments with which they are familiar. Compared with the 5% average domestic turnover rate, expatriate

premature return rates can be extremely high (e.g., from 16% to 40%).

PREDICTORS OF EXPATRIATE SUCCESS

There are two types of predictors that associate with expatriate success. One type, *proximal predictors* (i.e., international adjustment variables), directly relates to expatriate success. The other type, *distal predictors*, indirectly affects expatriate success through proximal predictors.

Proximal Predictors

Research on expatriates has identified three variables as proximal predictors of expatriate success: general adjustment, interaction adjustment, and work adjustment. *General adjustment* refers to expatriates' comfort associated with various nonwork factors such as general living conditions, local food, transportation, entertainment, facilities, and health care services in the host country. *Interaction adjustment* refers to expatriates' comfort associated with interacting with host country nationals, both inside and outside of work. *Work adjustment* refers to expatriates' comfort associated with the assignment job or tasks.

A wealth of data has supported direct relationships between these three international adjustment variables and both expatriate job performance and premature return. Expatriates with higher levels of these types of adjustment are more likely to have high levels of job performance and are less likely to return to the home country early.

Distal Predictors

Five categories of distal predictors of expatriate success have been identified by meta-analytical research. They are *anticipatory factors*, *individual factors*, *job factors*, *organizational factors*, and *non-work factors*.

Anticipatory factors are related to predeparture expatriate preparations for the upcoming assignment. These factors include the expatriate's language ability (fluency in the host country language) and previous overseas assignments (prior experience in living and working abroad). Expatriates with better language ability have higher levels of interaction adjustment and work adjustment. Expatriates with more previous

experience generally have higher levels of general adjustment and interaction adjustment.

Individual factors are personal requirements for effectiveness in the overseas environment. These factors include the expatriate's self-efficacy (i.e., beliefs in one's own ability to execute plans of action) and relational skills (i.e., skills that facilitate the formation of interpersonal ties). Higher self-efficacy is related to higher levels of interaction adjustment and work adjustment. Better relational skills are related to higher levels of all three kinds of international adjustment.

Job factors are features of the work environment over which the expatriate has little or no control. These factors include role clarity (i.e., exact understanding of position requirement), role discretion (i.e., decision-making autonomy), and role conflict (i.e., incompatible cues regarding job expectations). Research has supported relationships between all of these job factors and expatriates' work adjustment. Expatriates experience higher levels of work adjustment when the role clarity and role discretion are high, and they experience lower levels of work adjustment when the role conflict is high.

Organizational factors are features of the overseas or parent company's policies and culture. In an expatriate context, the most important organizational factors are coworker support (i.e., social support from coworkers) and logistical support (i.e., assistance from the parent company with respect to day-to-day aspects of living). Expatriates who experience higher coworker support have higher levels of work adjustment. Expatriates who experience higher logistical support have higher levels of general adjustment and interaction adjustment.

Nonwork factors are features of the expatriate context that are not in the job domain. These factors include family adjustment (i.e., how well one's family adapts to the overseas environment) and cultural novelty (i.e., the discrepancy between host and home cultures). Higher family adjustment has been found to lead to higher levels of all three kinds of international adjustment, whereas higher cultural novelty has been found to lead to lower levels of all three kinds of international adjustment.

SUMMARY

Because of economic globalization, the past two decades have seen a steady growth of expatriate research. Literature in this area supports two

conclusions: (a) Expatriate success is best evaluated via expatriate job performance and premature return; and (b) expatriate adjustment is of great functional importance in expatriate assignments.

—Mo Wang

See also Globalization; Job Performance Models; Theory of Work Adjustment

FURTHER READING

- Aycan, Z. (1997). Acculturation of expatriate managers: A process model of adjustment and performance. In Z. Aycan (Ed.), *New approaches to employee management* (Vol. 4, pp. 1–40). Greenwich, CT: JAI Press.
- Bhaskar-Shrinivas, P., Harrison, D. A., Shaffer, M. A., & Luk, D. M. (2005). Input-based and time-based models of international adjustment: Meta-analytic evidence and theoretical extensions. *Academy of Management Journal*, *48*, 257–281.
- Kraimer, M. L., & Wayne, S. J. (2004). An examination of POS as a multidimensional construct in the context of an expatriate assignment. *Journal of Management*, *30*, 209–237.
- Shaffer, M. A., Harrison, D. A., Gilley, K. M., & Luk, D. M. (2001). Struggling for balance amid turbulence on international assignments: Work–family conflict, support, and commitment. *Journal of Management*, *27*, 99–121.
- Sinangil, H. K., & Ones, D. S. (2001). Expatriate management. In N. Anderson, D. S. Ones, H. K. Sinangil, & C. Viswesvaran (Eds.), *Handbook of industrial, work and organizational psychology* (Vol. 1, pp. 424–443). London: Sage.
- Takeuchi, R., Yun, S., & Tesluk, P. E. (2002). An examination of crossover and spillover effects of spousal and expatriate cross-cultural adjustment on expatriate outcomes. *Journal of Applied Psychology*, *87*, 655–666.
- Yan, A., Zhu, G., & Hall, D. T. (2002). International assignments for career building: A model of agency relationships and psychological contracts. *Academy of Management Review*, *27*, 373–391.

EXPECTANCY THEORY OF WORK MOTIVATION

Among the most influential theories of work motivation to appear during the second half of the 20th century in Western psychology and organizational behavior was, in fact, a body of theories that were all variants of an expected-value formulation. In a

nutshell, these theories held in common the premise that the motivational force a person would feel toward a particular choice (or position or alternative) was a joint, multiplicative function of the individual's beliefs about the expected value of the outcomes that the choice alternative would bring about, multiplied by the perceived probability that the outcome would result from selecting that choice (or position, or alternative). These models assume that an individual would form beliefs and perceptions about all (or at least some) of the most salient alternatives available at any choice point and select to act in accordance with the alternative that yields the highest subjective expected utility, or payoff.

A few key elements of the model must be emphasized. (We have acknowledged that a variety of expectancy theory models are available. For ease of description, however, we will refer to them as a collectivity, in the singular case.) First, notice that expectancy theory is a *within-person decision-making model*: the individual chooses to behave in accordance with the alternative that she or he associates with the highest subjective expected utility. It was never intended to be predictive of differences *across* individuals in terms of the choices they make.

Second, note the perceptual nature of the major parameters of the model. It is referred to as *expectancy* theory for a good reason. The major parameters are all perceptual and based on the individual's beliefs. Naturally, in any case, the person's perceptions may be inaccurate or his beliefs may be false. The nature of these various beliefs and perceptions, accurate or otherwise, determines the motivational force toward any particular decision alternative.

Third, the elements of the model are combined in the mind of the individual multiplicatively. Therefore, if a given decision alternative has no positive outcomes associated with it in the mind of the person, this zero value will result in a nullification of the force associated with that decision alternative. The same would occur if the person sees no likely connection between selecting an alternative and the receipt of the outcome.

A PRELIMINARY WORKING EXAMPLE

So, for example, if Sally is considering job offers from two prospective employers (a large grocery store and a small florist), and having regular time off for travel is important to her, she will consider the expected value of time off (which should be constant for her as

she considers the two job offers) as well as the odds, in her mind, of receiving regular time off under either of the two employment relationships. If the florist tells Sally that it is important that their staff be available 7 days a week and on call when business increases sharply, she may believe that the likelihood of getting time away from the flower store is small. If, on the other hand, the union contract held by the employees at the large grocery store guarantees holidays and generous vacation periods for its members, Sally would perceive (assuming she had researched the comparative time-off provisions of the two organizations carefully) that her chances of getting time for travel would be higher if she were to accept the unionized grocery clerk position. By the formulation of the expectancy theory model, the vacation-oriented considerations would contribute positive motivational force toward selecting the grocery store.

But, of course, Sally would likely have many other things to consider in addition to her vacation desires. She may also be quite concerned about the comparative pay levels offered by the two stores, the proximity of the two jobs to her apartment, the physical demands placed on her by the two jobs, her chances to learn a trade or occupation, and also the nature of the supervision under which she would have to work. In the same way that Sally had perceptions and beliefs about the vacation issues related to the two alternatives, she would have beliefs about the expected value to her of the pay levels, proximity factor, physical demands, career possibilities, and supervisory conditions associated with the two jobs.

Perceptions about expected value of outcomes such as these are referred to as *valences* (e.g., the expected value associated with the chance to learn a trade may be very high for Sally; in the lexicon of the theory, it would be said that career advancement holds high valence for Sally). It is the expected value—valence—that matters in contributing to motivational force, not the real value. In this case, learning a trade may, in fact, not turn out to be of value for Sally, even though at the time she is facing her job dilemma she believes it to be important. In summary, Sally would consider the expected value (or valence) associated with a range of work-related outcomes as she considers the two job alternatives. Presumably, the valence associated with any one of these outcomes would be constant across the alternatives, although some versions of the theory allow for other parameters in the model to influence valence beliefs.

Sally would also form beliefs about the probable connection between accepting the job at the grocery store and receiving certain levels of these outcomes. So, for example, the hourly pay at the grocery store may be considerably higher than at the small, independent flower store. In such a case, the terms of the theory would say that accepting the job at the grocery would be *instrumental* for earning high pay, whereas taking the job at the florist would not be instrumental for high pay. Given that high pay holds high valence for Sally and that she believes (correctly or otherwise) that high pay would be associated with the grocery job but not with the flower job, the high instrumentality belief, multiplied subjectively in her mind by the high valence for pay, would make a potent motivational force in favor of electing to join the grocery clerks' union. But Sally would consider the odds of attaining the other outcomes, as well, were she to select either the florist or the grocer. The theory assumes that Sally will subjectively consider the valences of all the outcomes of interest to her, each multiplied subjectively by her subjective beliefs (or instrumentality beliefs) of attaining these outcomes at both the flower store and the grocery, and be more highly motivated to select the store that, in her mind, represents the higher aggregate of the products of her valence and instrumentality beliefs.

Notice that it is possible that a single consideration could trump the analysis. For example, if the grocery store job requires Sally to travel to work at one of its many outlets on 2 hours' notice on a given day, she may decide that it is not feasible for her to take the grocery clerk position, given that she does not own a car, public transportation is scarce, and the stores are widely dispersed across the large city in which she lives. Meanwhile, the florist, whose small shop is located a block from Sally's apartment, appears very attractive on the proximity dimension. According to the theory, the very high negative valence (i.e., expected negative value of travel time to work) may sweep the decision, swamping the subjective expected utility represented by the (valence \times instrumentality) beliefs contributed by the other factors in Sally's decision model (pay levels, time off for vacations, and so on).

REVIEW OF TERMINOLOGY

To summarize, *valence* is the expected value of an outcome associated in the mind of the individual with a choice alternative. The strength of this parameter

varies as a function of the person's values and needs and can be estimated on the basis of personal experience, vicarious experience, or simple hunch. Valences can range from highly positive (often calibrated as +1.0 in statistical tests of the model); through indifference, or no expected value (calibrated as 0.0 mathematically); to highly negative, or aversive (calibrated as -1.0). Again, the person's valence for an outcome may or may not be an accurate estimate of true value to him or her of that outcome, but it is the valence that matters.

Instrumentality is the subjective probability in the mind of the person that an act (such as selecting a job at a store, joining the army, marrying another person, or working hard on the job) will lead to a particular outcome. Different approaches calibrate expectancies different ways. Preferable approaches are those in which expectancy is conceived of as ranging from 0.0 (which implies that there is no expectation in the mind of the individual that an act will result in a particular outcome—for example, Sally may legitimately see no likely connection between working for the florist and being able to travel on the spur of the moment), to 1.0, which implies that the person sees a 100% chance that an act will result in an outcome. In our example, Sally would be wise to see such high expectancies for crosstown travel on foot and by bus, as well as membership in the clerks' union, if she were to accept the job at the grocery chain.

Some versions of the theory explicitly add a component referred to as *expectancy*. In these versions, expectancy is the perceived probability (again, in the mind of the decision maker) that making any particular choice is possible. Here is an example: If Henry is trying to decide whether to pursue a grade of A in his math class, he may have subjective beliefs about whether attaining an A is possible, given his low aptitude for calculus and geometry. He may believe that even if he worked day and night, his mind is just not made for mathematical concepts, so there is no sense in trying for an A and wasting time and effort that could be used to gain good grades in other courses. If Henry firmly believes that an A in math is not possible (i.e., in his mind, the probability that effort would result in an A is 0.0), Henry would not bother to try for the A. Sally, the math whiz who knows she can get an A, would have an expectancy estimate of 1.0. So she would likely pursue that high mark. In these models, the expectancy factor (which ranges from 0.0 to 1.0) is conceptually multiplied by the aggregate of the

products that resulted in Henry's mind from the positive and negative outcomes of earning an A, each multiplied by the probabilities that the A would, in fact, get him those outcomes (such as Sally's admiration, a chance for a scholarship, etc.).

MULTIPLICITIES OF OUTCOMES

To this point, we have discussed extrinsic outcomes in the decision models of our examples, Sally and Henry. *Valence-instrumentality-expectancy* theories (which is the preferred term here) make room for the inclusion of intrinsic outcomes such as feelings of achievement, self-esteem, and self-actualization. They also include negative outcomes, as we saw in the case of Sally, who considered the crosstown travel for the grocery chain as aversive.

SUCCESSSES AND FAILURES OF THE THEORY

Valence-instrumentality-expectancy (VIE) models have enjoyed considerable success in the prediction of many within-individual choice situations in a variety of disciplinary and problems areas, such as work motivation (how hard to work, which position to accept, whether to retire, etc.), marketing (which brand of product to buy), and many others. Researchers have made many errors over the years in testing VIE models, however. Some have attempted to measure a model's components with invalid scales. Others have attempted to use criterion variables other than individual choices among within-person alternatives, preferring instead to attempt to correlate predicted VIE composite scores with between-persons measures of criterion variables. Often the criterion variable has been a between-person measure of performance rather than effort, preference, or motivational force (the latter three being what the theory claims to be able to predict). Indeed, probably the most common "test" of VIE theories has been to validate hypothesized variances in individual work effort (even though performance has been used to operationalize effort).

CRITICISMS, VARIATIONS, AND ASSESSED VALUE

Many have criticized VIE models on the grounds of the requirements they assume for human rationality. These critics argue that no person is as rational as

these models assume, taking into account multiple outcomes at each decision point and making judgments about the valences and expectancies and instrumentalities associated with each outcome. Some point out that habits and impulses frequently trump rational behavior, making valence, instrumentality, and expectancy perceptions and beliefs irrelevant.

Notwithstanding the validity of the criticisms of the inherent assumptions made by VIE models, and despite the mixed record of empirical support the theory has produced in more than 40 years, VIE models have proven robust and highly useful in many theoretical and applied settings, particularly when tested using valid measures and operationalized as within-person decision models rather than between-persons models, using appropriate criterion measures. Moreover, VIE models have given birth to many variations that have included learning loops and insights into the processes through which estimates of the major parameters are formed and modified over time and with experience by individuals. But interest in VIE models has flagged in recent years, in large measure because they seem to have demonstrated their value and because two generations of critics, scholars, and researchers have exhausted the possibilities for new refinements, new applications, and fresh criticisms. Nevertheless, and on balance, these models are highly regarded and are expected to continue as members in good standing of the family of useful theories of work motivation.

—Craig C. Pinder

See also Intrinsic and Extrinsic Work Motivation; Motivational Traits; Need Theories of Work Motivation; Reinforcement Theory of Work Motivation; Self-Concept Theory of Work Motivation; Work Motivation

FURTHER READING

- Latham, G. P., & Pinder, C. C. (2005). Work motivation theory and research at dawn of the 21st century. *Annual Review of Psychology*, *56*, 485–516.
- Miner, J. B. (2003). The rated importance, scientific validity, and practical usefulness of organizational behavior theories: A quantitative review. *Academy of Management Learning and Education*, *2*, 250–268.
- Pinder, C. C. (1998). *Work motivation in organizational behavior*. Upper Saddle River, NJ: Prentice Hall.
- Pinder, C. C. (in press). *Work motivation in organizational behavior* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum.
- Vroom, V. (1964). *Work and motivation*. New York: Wiley.

EXPERIMENTAL DESIGNS

The validity of inferences stemming from empirical research in industrial and organizational psychology and allied disciplines is a function of a number of factors, including research design. *Research design* has to do with the plan, structure, or blueprint for a study. The literature indicates that among the components of such a plan are (a) the experimental design type (i.e., randomized experiment, quasi-experiment, and non-experiment); (b) the study setting (e.g., created for the purpose of doing research); (c) the numbers and types of study participants; (d) the way in which the variables considered by the study are operationally defined; and (e) the techniques that will be used to analyze the data produced by the study. The focus here is on the randomized experiment. It differs in important ways from both nonexperimental and quasi-experimental design types.

Prior to considering the nature of randomized experiments, we consider several issues concerning the validity of inferences stemming from empirical research. Note that the same issues apply not only to randomized experiments but also to quasi-experiments and nonexperiments.

FACTORS AFFECTING THE VALIDITY OF RESEARCH-BASED INFERENCES

The overall correctness of inferences (e.g., research-based conclusions, recommendations for practice) stemming from a study is a function of its design and the manner in which it is actually conducted. Four facets of validity are critical: construct validity, statistical conclusion validity, internal validity, and external validity, as noted by Thomas Cook and Donald Campbell in 1979, and by W. R. Shadish, Cook, and Campbell in 2002.

Construct Validity

Construct validity is a function of the degree of correspondence between the constructs dealt with by a study and their realizations. It has to do with not only the operational definitions of variables (e.g., manipulations, measures), but also the empirical realizations of other features of a study (e.g., types of participants, research settings). Construct validity

inferences are threatened by a number of factors, including inadequate preoperational definitions of constructs, study procedures that lead participants to guess a study's hypotheses and behave in ways that confirm them, operational definitions that underrepresent focal constructs, and a lack of correspondence between the type of participants in a study and the way the participants are labeled by a researcher.

Statistical Conclusion Validity

Statistical conclusion validity has to do with the correctness of inferences about relations between variables that stem from the results of statistical tests. Among the factors that threaten this facet of validity are testing statistical hypotheses with data that violate relevant assumptions (e.g., homogeneity of variance), implementing treatments unreliably within study conditions, conducting research in settings having random irrelevancies (e.g., fluctuations in noise, temperature, illumination), and sampling too few units (e.g., participants) to provide for adequate statistical power in hypothesis testing.

Internal Validity

Internal validity is the degree to which inferences about causal connections between variables are correct. Among the factors that detract from the validity of such inferences are history, maturation, instrumentation, testing, selection, and mortality.

External Validity

External validity deals with the correctness of inferences about the generalizability of a study's findings to and across populations of settings, participants, time periods, and so forth. External validity is threatened by such factors as interactions between settings and treatments, interactions between history and treatments, and interactions between selection and treatments.

DEFINING ATTRIBUTES OF RANDOMIZED EXPERIMENTS

Randomized experiments have four major characteristics. Taken together, these serve to differentiate randomized experiments from both quasi-experiments and nonexperiments.

Manipulation of Variables

In randomized experiments, the researcher manipulates (as opposed to measures) the values of the study's independent variables (e.g., X_1, X_2, \dots, X_j). In theory, there is no limit on either (a) the number of variables that might be manipulated in any given study or (b) the number of levels of each of the manipulated variables. In practice, however, experiments have relatively small numbers of *conditions*—that is, unique combinations of independent variables and levels of such variables. One reason for this limitation is that the greater the number of conditions, the more difficult it is to conduct the experiment. Another reason is that statistical power considerations militate against experiments having large numbers of conditions. Yet another reason is that the theories or models that guide research often consider only a limited set of the assumed causes of a study's dependent variables. Nevertheless, a requirement of a randomized experiment is that there must be at least two levels of one (or more) independent variable(s). However, contrary to what many appear to believe, there is no requirement that there be any control group, including a nontreatment control group. For example, a study dealing with the effects of variations in job design on job satisfaction could contrast relatively low and high worker autonomy conditions. There would be no need for an autonomy control condition. However, the manipulated levels of worker autonomy would have to differ enough to produce changes in measured levels of the study's dependent variable (i.e., job satisfaction).

Randomized experiments are often of the factorial variety. In factorial experiments, there are two or more independent variables and each such variable has at least two levels. For example, the just described job design study could be modified to make it factorial by adding a second independent variable, such as task variety. A major advantage of a factorial study is that it allows for testing both the main and interactive effects of independent variables on a study's dependent variable(s).

One of the important reasons for manipulating the levels of independent variables is that doing so ensures that assumed causes occur before assumed effects. This temporal precedence is vital to the internal validity of research.

Random Assignment of Units to Conditions

In randomized experiments, research units (e.g., individuals, groups) are randomly assigned to conditions. This randomness is critical because it serves to greatly enhance internal validity. The major reason for this enhancement is that when a sufficiently large number of units have been randomly assigned to study conditions, these conditions will be highly alike with respect to any and all variables prior to the time independent variables are manipulated. As a consequence, the posttreatment levels of dependent variables across conditions will be a function of the study's manipulations, as opposed to initial differences in such variables across the same conditions.

Measurement of Dependent Variables

The effects of the study's manipulations are assessed through measures of dependent variables. In the case of research involving human participants, the measures can focus on such outcomes as attitudes, beliefs, intentions, psychological states, and behaviors. Among the types of measures that might be used are observations of behaviors, questionnaires, ability tests, and physiological measures.

In many experiments it is valuable to assess the degree to which the manipulations have had desired effects on study participants. Such assessments use measures known as *manipulation checks*. For example, in the job design study described previously, a researcher could use questionnaires to assess differences in participants' beliefs about the amount of discretion they had over the way the job was performed in the relatively low and high autonomy conditions. Manipulation checks are important in interpreting the results of a study, especially when its manipulations fail to produce expected changes in the values of dependent variables. In such cases, manipulation check data can be used for internal analyses, as noted by Elliot Aronson, Phoebe C. Ellsworth, J. Merrill Carlsmith, and Marti H. Gonzales in 1990.

Control Over Extraneous or Confounding Variables

Randomized experiments that are well designed and properly conducted provide for high levels of control over any and all factors that might influence the

values of dependent variables other than the manipulations. There are several strategies for achieving such control. One is to make experimental conditions equivalent to one another in terms of all factors other than the manipulations to which participants are exposed. Another is to ensure that in the course of participating in the experiment, participants are not differentially exposed to extraneous influences (e.g., environmental events).

RESEARCH SETTINGS VERSUS EXPERIMENTAL DESIGN TYPES

It is important to recognize the distinction between experimental design types and research settings. Design types include randomized experiments, quasi-experiments, and nonexperiments. All of these can be used in a variety of settings. Typically, research settings have been characterized as being of either the laboratory or field variety. However, the distinction between the laboratory and the field is not always clear, as observed by, among others, J. P. Campbell in 1986 and E. F. Stone-Romero in 2002. Thus, a better distinction involves a contrast between settings that are either (a) created for the specific purpose of doing research (special purpose setting) or (b) created for purposes other than research (non-special purpose setting). In general, special purpose settings exist for relatively short time periods, and they cease to exist when the study for which they were created has been completed. In addition, they are designed to ensure that independent variables can be manipulated effectively. As such, the literature indicates that they may have fewer features or elements than would be found in non-special purpose settings. Nevertheless, Elliot Aronson and colleagues wrote in 1990 that it is (a) vital that settings have *experimental realism* and (b) desirable that they have some degree of *mundane realism*. For example, a researcher interested in studying the effects of variations in task characteristics on task satisfaction could create a special purpose setting in either a university laboratory or a nonuniversity facility (e.g., a building in an industrial park). For such a study, it would be important to have tasks that were meaningful enough to have desired degrees of impact on research participants, thus ensuring experimental realism. However, it would not be important to have other elements that would be found in an actual organization (e.g., incentive systems, fringe benefits). Nevertheless, the greater the extent to which such

elements were part of the study's setting, the greater would be the mundane realism of the study.

The previously described task characteristics of a study also could be conducted in a non-special purpose setting (e.g., an actual work organization). However, it would typically be much more difficult to conduct the study in such a setting. One reason for this difficulty is that in most such settings it is very difficult to effect the changes in existing organizational arrangements (e.g., physical layout of facilities, assignment of workers to jobs, pay and fringe benefits provided workers). Thus, experiments in non-special purpose settings typically have lower levels of control over extraneous or confounding variables than do experiments performed in special purpose settings, and internal validity is more suspect in settings of the former than the latter variety. However, studies in non-special purpose settings typically have higher levels of mundane realism. Often, this serves to bolster their external validity.

—Eugene F. Stone-Romero

See also Nonexperimental Designs; Quasi-Experimental Designs

FURTHER READING

- Aronson, E., Ellsworth, P. C., Carlsmith, J. M., & Gonzales, M. H. (1990). *Methods of research in social psychology* (2nd ed.). New York: McGraw-Hill.
- Berkowitz, L., & Donnerstein, E. (1982). External validity is more than skin deep: Some answers to criticisms

of laboratory experiments. *American Psychologist*, 37, 245–257.

- Campbell, J. P. (1986). Labs, fields, and straw issues. In E. A. Locke (Ed.), *Generalizing from laboratory to field settings: Research findings from industrial-organizational psychology, organizational behavior, and human resource management* (pp. 269–279). Lexington, MA: Lexington Books.
- Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for field settings*. Boston: Houghton Mifflin.
- Fromkin, H. L., & Streufert, S. (1976). Laboratory experimentation. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 415–465). Chicago: Rand McNally.
- Kerlinger, F. (1986). *Foundations of behavioral research* (3rd ed.). New York: Holt, Rinehart & Winston.
- Runkel, P. J., & McGrath, J. E. (1972). *Research on human behavior: A systematic guide to method*. New York: Holt, Rinehart & Winston.
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton Mifflin.
- Stone-Romero, E. F. (2002). The relative validity and usefulness of various empirical research designs. In S. G. Rogelberg (Ed.), *Handbook of research methods in industrial and organizational psychology* (pp. 77–98). Malden, MA: Blackwell.

EXPLORATORY FACTOR ANALYSIS

See FACTOR ANALYSIS

F

FACTOR ANALYSIS

Factor analysis is a statistical procedure for describing the interrelationships among a number of observed variables. Factor analysis is used to measure variables that cannot be measured directly, to summarize large amounts of data, and to develop and test theories. There are two broad categories of factor analysis: exploratory and confirmatory. Exploratory factor analysis techniques have a much longer history than confirmatory factor analysis techniques. Differences in the approaches lead to different uses (e.g., theory development versus theory confirmation).

PURPOSES

Factor analysis has three fundamental purposes. First, it is useful for measuring constructs that cannot readily be observed in nature. For example, we cannot hear, see, smell, taste, or touch intelligence, but it can be inferred from the assessment of observable variables such as performance on specific ability tests. Factor analysis is also helpful in the development of scales to measure attitudes or other such latent constructs by assessing responses to specific questions. Second, factor analysis is useful for summarizing a large amount of observations into a smaller number of factors. For example, there exist thousands of personality descriptors in the English language. Through factor analysis, researchers have been able to reduce the number of distinct factors needed to describe the structure of personality. Third, factor analysis is useful for providing evidence of construct validity (e.g., factorial, convergent, and discriminant validity). For

example, if certain observable variables are theoretically related to one another, then factor analysis should demonstrate these theoretical relationships, simultaneously demonstrating that the same variables are reasonably uncorrelated with variables from other latent factors. All three of these uses of factor analysis can be employed in the development and testing of psychological theories.

BASIC FACTOR MODEL

The basic factor analysis problem takes a number of observable variables and explains their interrelationships in a manner that is analogous to a regression equation. The common factor model is a regression equation in which the common factors act as predictors of the observed X variables. The basic factor model is depicted in Equation 1.

$$X = Lf + u \quad (1)$$

In this equation, X is the matrix of observed variables, L is the matrix of factor loadings or regression weights, f is the matrix of common factors, and u is the matrix of residuals. The goal is to explain the interrelationships among the X variables by the common factors, f , and the residual error terms, called *uniqueness*. The variance in X is partitioned into common and specific components. Unlike regression, however, the predictors, f , are unknown.

To provide a fictional example of this problem, suppose a number of supervisors are asked to rate the relevance of six personality characteristics to effective job performance by subordinates. The characteristics assessed are *organized*, *systematic*, *careless*, *creative*,

Table 1 Hypothetical Correlation Matrix of Observed Variables

Variable	1	2	3	4	5	6
1. Organized	1.00					
2. Systematic	.72	1.00				
3. Careless	-.63	-.55	1.00			
4. Creative	.00	.00	.00	1.00		
5. Intellectual	.00	.00	.00	.56	1.00	
6. Imaginative	.00	.00	.00	.48	.42	1.00

NOTE: These are hypothetical correlations based on imaginary supervisory ratings of "how important are these characteristics in an employee."

Table 2 Factor Pattern Matrix With Communalities and Uniqueness for Hypothetical Data

Observed Variable	Factor 1 Conscientiousness	Factor 2 Intellect	Communality (h^2)	Uniqueness ($1 - h^2$)
1. Organized	.90	.00	.81	.19
2. Systematic	.80	.00	.64	.36
3. Careless	-.70	.00	.49	.51
4. Creative	.00	.80	.64	.36
5. Intellectual	.00	.70	.49	.51
6. Imaginative	.00	.60	.36	.64
Sum of squared loadings	1.94	1.49		
Proportion of variance	$1.94/6 = .32$	$1.49/6 = .25$	$.32 + .25 = .57$	$1 - .57 = .43$

NOTE: Variance in each observed variable is 1; therefore, coefficients can be interpreted as standardized (i.e., in z-score form). Data are fictional for illustrative purposes only.

intellectual, and *imaginative*. Table 1 depicts the hypothetical correlation matrix for these variables. The factor analysis problem is to explain the relationships among these variables with fewer than six underlying latent factors. *Organized*, *systematic*, and *careless* are all correlated with one another, but they are not correlated with *creative*, *intellectual*, and *imaginative*. Likewise, *creative*, *intellectual*, and *imaginative* are all correlated with one another, but they are not correlated with *organized*, *systematic*, and *careless*. There are two sets of correlations reflecting two underlying factors.

Table 2 depicts the factor pattern matrix for these variables and the corresponding latent factors. The pattern coefficients in Table 2 (columns 2 and 3) are the correlations of the observed variables with the factors. Different pattern or loading matrixes will present different types of correlations (e.g., Pearson correlations, partial correlations).

The communality (h^2) in column 4 of Table 2 represents the variance that the variable has in common

with the factors it represents. The communality is analogous to a squared multiple correlation in regression. The uniqueness in column 5 represents the variance specific to a variable and not accounted for by the factor. Uniqueness is analogous to the residual variance in the observed variable after accounting for the factors. The six fictitious variables represent two unobservable factors, each factor accounting for 36% to 81% of the variance in the observed variables.

In addition to the variance associated with the observed variables, the factor analysis solution describes the variance in the factors themselves. The sum of the squared loadings (SSL) for a set of variables describes each factor's variance. Before any transformation in the factor loadings has taken place, these SSLs are called *eigenvalues*. Ideally, a small number of factors will account for a large amount of the variance in the observed variables. Table 2 shows that the factors account for 32% and 25%, for a total of 57% of the variance in the observed variables. The remaining

43% of the variance in the observed variables is not common to the factors.

EXPLORATORY FACTOR ANALYSIS

Typically, the goal of exploratory factor analysis (EFA) is to let the data determine the interrelationships among a set of variables. Although a researcher using EFA may have a theory relating the variables to one another, there are relatively few restrictions on the basic factor model in an EFA. This type of analysis has been useful in theory development and debate for more than a century.

Exploratory factor analysis is particularly appropriate in the early stages of theory development and in the early stages of scale or test development. First, EFA is useful in data reduction when interrelationships among variables are not specified beforehand. A researcher using EFA makes use of inductive reasoning by taking a number of observations and developing theory from those observations. In the example of high-performing employee characteristics, six personality variables were ultimately reduced to two factors. For subsequent analyses, then, only two variables need be discussed rather than the six original variables. Data reduction is particularly useful in alleviating the concerns of multicollinearity (correlations that are too high) among a set of predictors. A second benefit of EFA is the ability to detect a general factor. When several specific cognitive ability tests are factor analyzed, one general factor tends to emerge, along with several specific factors. In the assessment of intelligence, for example, all ability tests correlate to some extent with the general factor of intelligence, or *g*.

Finally, EFA is particularly useful in scale or test development because it allows the researcher to determine the dimensionality of the test and detect cross-loadings (correlations of variables with more than one factor). Cross-loadings are generally not desirable. In scale development, it is advantageous to have items that relate to only one factor. For the previous example, the three variables representing *conscientiousness* do not cross-load onto *intellect* and vice versa.

CONFIRMATORY FACTOR ANALYSIS

The goal of confirmatory factor analysis (CFA) is to test theoretically derived hypotheses given a set of data. The basic factor model of Equation 1 is still relevant, but certain restrictions are imposed given the

particular theoretical model being tested. For example, from the previous example, one could use CFA to impose restrictions on the factor pattern so that no cross-loadings are permitted. Developed during the 1960s, CFA is a newer statistical development than EFA (developed in 1904).

Confirmatory factor analysis is particularly useful in a deductive reasoning process. Specific hypothesis testing is possible when using CFA. For example, a researcher may address the statistical significance of individual factor loadings. In the previous example, given the relatively small correlation, one could determine with statistical certainty the degree to which the observed variable, *imaginative*, is correlated with the latent factor, *intellect*.

With CFA, it is possible to test the hypothesis that two factors versus only one factor (or any other numeric combination) underlie a set of data. In EFA, researchers rely on rules of thumb and intuition, which can lead the researcher astray, but in CFA, models can be explicitly compared through null hypothesis statistical testing. Another use of CFA is to assess the equivalence of parts of the basic factor model within a given data set. For example, one might hypothesize that all of the observed variables for *intellect* are equally related to *intellect*. With CFA, the equivalence of these relationships can be tested by imposing constraints on the loadings in the basic factor model (i.e., *L* in Equation 1).

It is also important to determine whether the results of a factor analysis are similar across demographic groups. Confirmatory factor analysis permits tests of invariance—that is, the equivalence of factor structure, loadings, uniqueness—across different groups (e.g., ethnic, gender, cultural) of individuals. A researcher may be interested in knowing whether the same hypothetical factor structure would emerge if responses from supervisors of manufacturing workers were compared with responses from supervisors of service workers. It may be the case that the observed variable do not relate to the latent factors in the same manner for the two groups. For example, the observed indicator *systematic* may be less related to the factor *conscientiousness* for service workers than for manufacturing workers. In a CFA that is testing for equivalence of factor loadings, a researcher can test the hypothesis that the correlations from the two groups are the same or different.

Confirmatory factor analysis has greater flexibility in control than EFA. With CFA, some factors may be

specified as *oblique* (correlated with one another), whereas others are specified to be *orthogonal* (uncorrelated with one another). Within a single EFA, the factors are interpreted as either oblique or orthogonal but not a combination of the two. In addition, CFA allows the researcher to flexibly impose additional constraints subject to theory (e.g., allowing correlated uniqueness). However, a benefit of EFA is that no such theoretical constraints or specifications are needed. Therefore, if none exist, then EFA may be a better choice.

—Thomas D. Fletcher

See also Cognitive Abilities; Construct; Personality; Reliability; Validation Strategies; Validity

FURTHER READING

- Gorsuch, R. L. (2003). Factor analysis. In J. A. Schinka & W. F. Velicer (Eds.), *Handbook of psychology: Research methods in psychology* (Vol. 2, pp. 143–164). Hoboken, NJ: Wiley.
- Hurley, A. E., Scandura, T. A., Schriesheim, C. A., Brannick, M. T., Seers, A., Vandenberg, R. J., & Williams, L. J. (1997). Exploratory and confirmatory factor analysis: Guidelines, issues, and alternatives. *Journal of Organizational Behavior*, *18*, 667–683.
- Lance, C. E., & Vandenberg, R. J. (2002). Confirmatory factor analysis. In F. Drasgow & N. Schmitt (Eds.), *Measuring and analyzing behavior in organizations: Advances in measurement and data analysis* (pp. 221–254). San Francisco: Jossey-Bass.
- Preacher, K. J., & MacCallum, R. C. (2003). Repairing Tom Swift's electric factor analysis machine. *Understanding Statistics*, *2*, 13–43.
- Thompson, B. (2004). *Exploratory and confirmatory factor analysis: Understanding concepts and applications*. Washington, DC: American Psychological Association.
- Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods*, *3*, 4–69.

FAMILY AND MEDICAL LEAVE ACT

The Family and Medical Leave Act (FMLA), which is intended to balance the demands of the workplace with the needs of families, became effective for most employers in August 1993. The passage of the FMLA

represented a legislative reaction to dramatic changes in the U.S. workforce that had taken place over the previous 40 years. During that period, the number of female workers in the civilian labor force increased by more than 200%. In addition, the American population is aging, leading some analysts to predict that an increasing percentage of workers will have some caregiving responsibility for an older family member. The number of single-parent households has also increased substantially as a result of increases in the number of unwed mothers and higher rates of separation and divorce. At the time of its passage, between 40% and 50% of the nation's workforce was estimated to be covered by the FMLA.

COVERAGE

Private-sector employers are covered by the FMLA if they are engaged in an industry or activity affecting commerce *and* if they employ 50 or more employees at a single work site or 50 or more employees at a group of work sites within a 75-mile radius for each working day during 20 weeks of the preceding or current calendar year. Contractual bargaining agreements that have arbitration clauses do not preempt claims under the FMLA. Public agencies—that is, federal and state governments, political subdivisions of the states, and private secondary and elementary schools—also are covered without regard to the number of employees.

LEAVE ELIGIBILITY

The major provision of the FMLA is that an *eligible employee* may take up to 12 weeks of unpaid leave during a 12-month period, to be used for specifically designated medical or family-related reasons. An eligible employee is an individual who has been employed for at least 12 months and has worked at least 1,250 hours during the previous 12-month period. If a husband and wife work for the same employer, only a total of 12 weeks of leave may be taken between them.

The circumstances under which the requested leave must be granted include (a) the birth of a newborn child, (b) the placement of a child with the employee for adoption or foster care, (c) the employee's own serious health condition, or (d) the serious health condition of a member of the employee's immediate family (spouse, son, daughter, or parent). The employer may require the employee—or the employee may

elect—to substitute family leave, vacation leave, or accrued paid personal leave for part of the 12-week period. Continuation of health insurance coverage must be provided by the employer during the period of leave, and the employee is entitled to restoration of his or her original position or an equivalent position after returning from leave. Having one's job restored after returning from leave is the predominant claim filed and litigated under the FMLA.

SERIOUS HEALTH CONDITION

A *serious health condition* is defined as an illness, injury, impairment, or physical or mental condition requiring inpatient care or continuing treatment by a health care provider, as well as any period of incapacity resulting from prenatal care or pregnancy. Whether a condition qualifies as a “serious” health condition is frequently litigated, and the determination is fact intensive; generalizations, therefore, are extremely speculative. For example, if the presentation is sufficiently severe, upset stomach (ulcer) or carpal tunnel syndrome may qualify as a serious health condition. On the other hand, an employee's heart arrhythmia or high blood pressure may not qualify as a serious health condition if the employee's doctor clears the employee for work and medical treatment can be obtained without missing work.

In one case, the termination of an employee who had been absent from work for four days to care for a child with an ear infection was not found to be in violation of the FMLA because the child's illness was not considered a serious health condition. In contrast, in another case, a teacher's mother who had fallen, leaving her incapacitated and unable to care for her own basic needs for several days (a condition compounded by other chronic health conditions), was considered to have suffered a serious health condition. Cosmetic or voluntary treatments that are not medically necessary may qualify if they require inpatient hospital care. Several diagnoses, none of which alone is a serious health condition but which are temporally linked, may rise to the level of a serious health condition when taken together.

The employer may require that the employee support a request for leave with certification from the health care provider of the employee, spouse, child, or parent on whose behalf leave is being requested. The employer also may require an opinion from a second provider, at the employer's expense. Conflicting opinions may be resolved—again, at the employer's

expense—by the opinion of a third health care provider, jointly approved by the employee and employer. The employer may request recertification under limited circumstances.

TIMING OF REQUESTED LEAVE

Under some circumstances, leave may be taken intermittently, in separate blocks of time from one hour to several days for medical appointments or treatment. Leave may also be taken on a reduced leave schedule, that is, a reduction in the number of working hours in a workday or workweek—for example, from full-time to part-time—if the employee and the employer agree. If intermittent leave or a reduced leave schedule is requested by the employee because of his or her own health condition or that of a family member, the employer may require the temporary transfer of the employee to an alternative position with equivalent benefits and pay. This option is available only if the need for intermittent leave is foreseeable. The employee is required give the employer 30 days or more notice before the requested leave is to begin, if the need for the leave is known ahead of time. The employee is not required to ask specifically for FMLA benefits. If the employer has notice that the employee might qualify, the employer has a duty to inform the employee that FMLA coverage might apply. Implementing regulations require the employer to provide information on FMLA rights and responsibilities to the employee, either in an employee handbook (if one is provided) or other written guidance.

ENFORCEMENT

For federal employees, the FMLA is enforced by the Office of Personnel Management. For private employers, the FMLA is enforced by the Wage and Hour Division of the U.S. Department of Labor. The administrative complaint procedure established by the Labor Department is not mandatory. Either the Labor Department or private individuals may bring an action in federal court for alleged FMLA violations. Generally, remedies are limited to lost wages (which may be doubled if it is found the employer did not act in good faith) and equitable relief, such as reinstatement or promotion. In a 2003 decision, the U.S. Supreme Court held that state government sovereign immunity provided by the Eleventh Amendment had been properly abrogated by Congress when the FMLA was enacted. The Court

held that a history of gender-based discrimination was sufficient to survive a heightened standard of review. As a result, public employers may now be sued by employees for monetary damages, as well as for equitable or injunctive relief.

OVERLAP WITH THE AMERICANS WITH DISABILITIES ACT

In some respects, the FMLA expands the rights provided under the Americans With Disabilities Act (ADA). Leave for medical conditions may be given as a reasonable accommodation under the ADA, although such accommodation is limited in several ways. First, under the ADA, an employee must be able to perform the “essential functions of the job” in order to be entitled to leave as a reasonable accommodation; this is not a requirement under the FMLA. Second, under the ADA, an individual must be disabled within the meaning of the statute; the Supreme Court has addressed the question of what qualifies as a disability. On the other hand, under the FMLA, the employee need only show the presence of a serious health condition, a less onerous burden. The Supreme Court has not yet had occasion to interpret the FMLA definition of serious health condition. Third, under the ADA, an employer may assert undue hardship in denying a requested accommodation and is not obligated to provide the employee with his or her preferred accommodation. Finally, if the employee qualifies for a reasonable accommodation of leave under the ADA, the time limitations of the FMLA may not apply, even though the leave is designated as FMLA leave. Problems arise for the employer when the employee does not specifically designate a request for leave as FMLA leave or as an accommodation under the ADA. Under such conditions, the employer must review all requests for leave under both the FMLA and the ADA.

—Donald L. Zink

See also Americans With Disabilities Act

FURTHER READING

Family and Medical Leave Act. 29 C.F.R. § 825.100 *et seq.* (1993). Retrieved February 16, 2006, from <http://www.dol.gov>

Family and Medical Leave Act. 29 U.S.C. § 2601 *et seq.* (1993). Retrieved February 16, 2006, from <http://www.law.cornell.edu/uscode>

King, N. J. (1999). The family medical leave act: An ethical model for human resource policies and decisions. *Marquette Law Review*, 83, 321–366.

FEEDBACK

Feedback is information that individuals receive regarding their performance and consists of a message that a sender conveys to a recipient. Feedback can motivate and guide effective behaviors as well as prevent ineffective behaviors. Thus, feedback can lead to positive behavior change and enhanced performance, and it can boost self-awareness and self-confidence. However, the ability of feedback to accomplish these goals depends on several factors. Employees vary in their receptivity to feedback, and this is influenced by characteristics of the source of the feedback, the nature of the message, and characteristics of the feedback recipient. In fact, some types of feedback can lead to negative reactions, such as job dissatisfaction, anger, or decreased effort. Factors that can improve the effectiveness of feedback are discussed here.

FEEDBACK DELIVERY

Feedback can come from a variety of sources, including supervisors, peers, direct reports, and clients. Employees are most receptive to feedback from sources who have high credibility. Sources are viewed as more credible when they are trustworthy and reliable. Moreover, feedback providers who have expertise related to the feedback will be perceived as more credible. In other words, even though the message may be valid, if it is not delivered by a credible source, the recipient may discount the feedback.

There are a number of ways to create a more effective feedback message. For example, feedback is most effective when it is specific and delivered on an ongoing basis. Avraham Kluger and Angelo DeNisi’s *feedback intervention theory* emphasizes that it is crucial to provide the correct level of feedback because feedback directs attention to how well an individual is meeting a particular goal. For example, feedback can be given at the self level, which then directs attention to the self (e.g., self-esteem). This type of feedback should generally be avoided because it may detract cognitive resources from the focal task. Feedback can also be task-focused, meaning that attention is focused

on the gap between current performance and a performance standard. Finally, feedback can be given at the task-learning level. This level involves the specific behaviors and actions that are necessary to perform the task. Kluger and DeNisi recommend that feedback be provided at the task level, but such feedback must include adequate information about how performance can be enhanced. Effective feedback should focus on controllable factors and include specific examples. Feedback is more effective when it is focused on the future rather than a rumination of the past. Furthermore, people are more likely to pay attention to feedback about an event that is unfamiliar, uncertain, and important.

Another characteristic of the feedback message that influences an employee's receptivity is the sign (either positive or negative) of the feedback. In general, positive feedback is more accurate and more accepted than negative feedback. Negative feedback may be viewed as less accurate and useful and may generate an emotional reaction. However, research has not consistently shown that negative feedback is ineffective. An important meta-analysis by Kluger and DeNisi found that feedback effectiveness does not depend on whether the feedback is positive or negative. Thus, it is important to consider this issue when giving feedback. Furthermore, employees who receive negative feedback may need different follow-up activities.

On the other hand, research has shown that the feedback recipient's expectations about the feedback play an important role in determining his or her reaction. For example, the discrepancy between self-ratings of performance and supervisor performance ratings may influence reactions above and beyond the feedback's sign. Moreover, a series of cognitive reactions occur after receiving feedback, such as perceptions of the feedback's accuracy or value. Feedback providers can control the way feedback is presented and should take the necessary steps to enhance its perceived accuracy. This research suggests that an individual's reaction to feedback is not overwhelmingly driven by the feedback's sign and that other factors also play an important role. Furthermore, negative feedback that is perceived as constructive and helpful for improving performance is often very well received.

FEEDBACK REACTIONS

Individual differences may affect an employee's receptivity to feedback and whether the feedback will

be used to improve performance. For example, employees who are focused on learning how to improve their performance (i.e., learning goal orientation) are more welcoming and receptive to negative feedback than are individuals who are focused on appearing competent (i.e., performance goal orientation). In addition, individuals who are high in conscientiousness and self-efficacy are more motivated to use feedback, whereas those who are high in anxiety and external locus of control may be less motivated to use feedback. Moreover, employees who are flexible, conscientious, agreeable, and emotionally stable tend to respond positively to feedback.

Because individuals may have negative reactions to feedback, feedback providers must be prepared to deal with recipients' defensive reactions, especially to negative feedback. Feedback providers should understand that change may unfold slowly as feedback recipients move through the stages of change. For example, the individual must first be aware that change is needed. Thus, feedback is important because it tells the employee that he or she is not meeting a particular standard. Second, the individual must prepare for change and work on a development plan with the supervisor. Next, the employee needs to take action to make the change. This may involve developmental activities such as specific job assignments or customized training. Finally, the individual must sustain the change. It is important for the feedback provider to understand the stages of change because each stage may require a different type of intervention.

Contextual factors such as the feedback culture or feedback environment of the organization also influence the way feedback is received. A positive feedback environment, which includes source availability, promotion of feedback seeking, and feedback quality, can affect the way an employee receives, processes, and uses feedback. The feedback environment can also influence employees' affective commitment, job performance, organizational citizenship behavior, and perceptions of politics.

A developmental intervention called *360-degree feedback* is often used to coach employees or to identify strengths to build on and weaknesses to improve. This tool is a mechanism for providing employees with feedback from a variety of sources, such as supervisors, subordinates, coworkers, and customers. Some evidence suggests that it can increase perceptions of others' competence and decrease perceptions of development needs. This tool should provide an

opportunity to include open-ended comments and other qualitative feedback, and it should center on competencies for development.

—Paul E. Levy, Corrie E. Pogson, and Samantha Chau

See also Feedback Seeking; Performance Appraisal; Performance Feedback; 360-Degree Feedback

FURTHER READING

- DeNisi, A., & Kluger, A. N. (2000). Feedback effectiveness: Can 360-degree appraisals be improved? *Academy of Management Executive*, 14(1), 129–139.
- Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, 119(2), 254–284.
- London, M. (2003). *Job feedback: Giving, seeking, and using feedback for performance improvement* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum.
- London, M., & Smither, J. W. (2002). Feedback orientation, feedback culture, and the longitudinal performance management process. *Human Resource Management Review*, 12, 81–100.

FEEDBACK SEEKING

In 1983, S. J. Ashford and L. L. Cummings challenged our traditional understanding of feedback in organizations. Until that time, feedback had been viewed primarily as a managerial resource that could be used to direct the behavior of employees toward desired goals. However, Ashford and Cummings's research shifted the focus of feedback from the giver to the receiver, describing feedback as a resource that can be elicited by employees when they experience uncertainty about how well they are performing. Since the publication of this seminal work, the idea that employees have some degree of control over the feedback they receive has become recognized and widely accepted. Feedback is no longer seen only as an organizational tool that can be used by a supervisor but as a resource that can be *managed* by any member of an organization, such as an employee. Feedback seeking occurs when employees purposefully monitor their work environment for performance information or ask others (such as supervisors or coworkers) for information about their performance.

FEEDBACK-SEEKING STRATEGIES

The basic human need to know how well one is performing is well-documented, and it is the basis for research and management practice in the areas of job design, motivation, and performance management. According to the feedback-seeking literature, when individuals are uncertain about how they are performing, they will engage in *feedback-seeking behavior*. Desiring information about how their performance is being perceived, they do not simply wait for feedback to be given to them; rather, they engage in active strategies to acquire that information on their own (and to reduce uncertainty).

Two different feedback-seeking strategies may be used, one direct and one indirect. The first strategy, referred to as *inquiry*, involves using direct verbal requests for performance information. For example, the employee may approach a supervisor or a coworker and ask, “What did you think about the proposal I pitched in the meeting yesterday?” The indirect method of seeking feedback, referred to as *monitoring*, involves scanning the organizational environment for information about how well one is performing. Monitoring tactics include listening to conversations, observing the performance or reactions of others, or using indirect questions to third parties to prompt feedback from relevant parties such as coworkers or managers. Although the obvious motivation to engage in feedback-seeking behavior is to acquire performance information and reduce uncertainty, there are other motivations as well, including ego defense and enhancement and impression management.

MOTIVATIONS TO SEEK FEEDBACK

Instrumental

The first motivation to seek feedback is instrumental. In the absence of feedback, employees will actively seek information that helps them evaluate how well their performance-related behaviors are contributing to important organizational goals. Employees use inquiry and monitoring as methods not only to determine which goals are important but also to evaluate how well their own performance is stacking up against these goals. Feedback seeking is most prevalent at times of uncertainty, such as when individuals are new to an organization and trying to “learn the ropes” and in situations of high role ambiguity.

Ego Defense and Enhancement

Because feedback is laden with positive or negative information and emotion, and because it comes from sources of greater or lesser influence, it can either threaten or enhance an employee's ego. Much of our self-concept comes from the feedback we receive from others; therefore, there is a natural human motivation to enhance and defend the ego in social settings. The need to maintain a positive self-image causes employees to pursue opportunities to maximize positive information and to minimize negative information about themselves. Research on feedback seeking reveals that employees tend to seek feedback when they believe they have performed well in order to verify their self-image or enhance their ego. On the other hand, when they believe that they have performed poorly, they are less likely to seek feedback and may even actively avoid it. This allows employees to minimize damage to their self-concept. The desire to seek ego-enhancing information and to avoid ego-threatening information is motivated not only by the desire for self-verification but also by the desire to make a positive impression on others.

Impression Management

Though workers sometimes are not sure of the quality of their performance, there are other times when they *are* sure that they have performed well. Several studies show that feedback-seeking behavior is often used as an impression-management strategy when individuals believe that their performance has been favorable and want others to notice. When the motive is to manage impressions, employees use feedback-seeking behavior not to *obtain* performance information but rather to *convey* or highlight performance information. When they believe that the act of feedback seeking and the resulting feedback elicited will be image enhancing, they will seek feedback from powerful others, usually their supervisors. They may inquire about their performance in exactly the same way they do when they are uncertain—for example, “What did you think of the proposal I pitched in the meeting yesterday?”—but this time believing that the proposal was brilliant and wanting to hear positive feedback about it.

When managers respond to the inquiry, they not only acknowledge that a strong performance was turned in but also experience a positive affective

response to the performance. Employees, then, succeed in making their good results salient, which, in turn, results in a positive impression on their managers. Thus, individuals tend to seek feedback shortly after a particularly good performance to highlight their success and to elicit positive reactions from their supervisors. The results of several studies support the idea that supervisors develop favorable impressions of individuals after delivering positive feedback and that individuals seem to be aware of this, thus increasing the motivation to use feedback-seeking behavior to make positive impressions.

On the other hand, employees have been shown to actively avoid feedback when they have performed poorly to reduce the chances that their supervisors will notice and, in turn, provide negative feedback. In particular, when supervisors react to poor performance with punitive, public, or overly emotional responses, employees learn to engage in active strategies such as concealing, hiding, or physical avoidance, so that a negative impression is not made.

Contextual Issues

There are many targets for feedback seeking available to employees, including managers, coworkers, employees, and customers. Research indicates that of all of these sources, employees place more importance on managerial feedback, presumably because managers have more direct control over formal performance evaluation and the distribution of rewards. Employees who have considerate and supportive managers are more likely to seek feedback than those who have leaders who react harshly and emotionally to bad news. In addition to leader characteristics, several other contextual conditions have been found to affect feedback-seeking frequency, including organizational norms for feedback seeking, perceived organizational support, and cultural differences in the appropriateness of feedback seeking.

At play in these different contexts is the extent to which there are “costs” associated with the act of feedback seeking, such as appearing weak or incompetent. For example, if a task is not going well and the employee is unsure of how to proceed, feedback seeking, though it may provide instrumental value, may also cause the supervisor and coworkers to believe that the employee is not competent to complete the assignment. Thus, the risk of inquiry might outweigh the benefits of the feedback in the employee's mind.

When the costs of inquiry are too high, individual performers may forego seeking feedback even though it could help them to improve their performance. Instead of approaching their managers, employees may choose instead to monitor the organizational environment for feedback or seek feedback from less threatening targets. Recent research indicates that poor performers may actively avoid feedback through strategies that minimize the chances that their poor performance will be discovered and that they will receive negative feedback.

FUTURE DIRECTIONS FOR RESEARCH ON FEEDBACK-SEEKING BEHAVIOR

Research on feedback-seeking behavior has been conducted for more than 20 years. Much has been learned, and the topic has gained more importance in an age in which knowledge workers go about their tasks in ambiguous environments, perhaps separated from peers, subordinates, and managers by geography, workspace, time, or culture. Many workers report receiving little or no feedback about their performance and may be more motivated than ever to seek out the information that they crave. Several aspects of feedback seeking have emerged as avenues for research in the literature, such as (a) how virtual workers seek feedback, (b) how feedback seeking occurs in cross-cultural settings, (c) the particular patterns of feedback seeking used by top managers, (d) the effects of learning goal orientation versus performance goal orientation on feedback-seeking behavior, and (e) the proactive strategies that poor performers use to avoid feedback from their managers. The continued interest in these topics ensures that the literature on feedback-seeking behaviors will continue to develop and provide us with meaningful insights into the fascinating cognitive, emotional, and behavioral processes of acquiring knowledge about one's performance.

—Sherry Moss

See also Feedback; Performance Feedback; 360-Degree Feedback

FURTHER READING

Ashford, S. J., Blatt, R., & Vande Walle, D. (2003). Reflections on the looking glass: A review of research on feedback-seeking behavior in organizations. *Journal of Management*, 29(6), 773–799.

Ashford, S. J., & Cummings, L. L. (1983). Feedback as an individual resource: Personal strategies of creating information. *Organizational Behavior and Human Performance*, 32, 370–398.

Moss, S. E., Valenzi, E. R., & Taggart, W. (2003). Are you hiding from your boss? The development of a taxonomy and instrument to assess the feedback management behaviors of good and bad performers. *Journal of Management*, 29(4), 487–510.

Northcraft, G. B., & Ashford, S. J. (1990). The preservation of self in everyday life: The effects of performance expectations and feedback context on feedback inquiry. *Organizational Behavior and Human Decision Processes*, 47, 42–64.

Sully de Luque, M. F., & Sommer, S. M. (2000). The impact of culture on feedback-seeking behavior: An integrated model and propositions. *Academy of Management Review*, 25, 829–849.

FLEXIBLE WORK SCHEDULES

A flexible work schedule, also known as a *flextime schedule*, grants employees some freedom in deciding what time of day they will arrive at and leave from work. For example, an employee may prefer to work from 7:00 a.m. to 3:00 p.m. one day of the week and from 10:00 a.m. to 6:00 p.m. on another day. The exact administrative rules of flextime schedules vary greatly across companies, but when flextime schedules are put into place, employers usually create a band of core time during which each employee must be present (normally 9:00 or 10:00 a.m. to 2:00 or 3:00 p.m.). For example, a flexible work schedule in which all employees must be present from 10:00 a.m. to 3:00 p.m. would have five core hours. Employees are free to arrive before the core start time and leave after the core finish time, but typically, there is a limit as to how early employees can arrive and how late they can stay. For example, an employer may dictate that employees cannot start before 7:00 a.m. and cannot stay past 9:00 p.m.

Another important characteristic that may vary widely among flexible work schedule arrangements concerns the degree of carryover. Some organizations do not permit any carryover of hours (i.e., the employee must work eight hours per day), whereas others permit carryover on a weekly basis (i.e., no requirement for eight hours per day, but employees

must work 40 hours per week), and a few organizations even allow monthly carryover.

Recent surveys of the American workforce indicate that more than 25% of employees have the ability to change their daily work starting and ending times, and this number is increasing every year. Much of the increased offering or use of flexible work schedules is the result of societal changes (e.g., increasing numbers of women in the workforce, dual-career households). One can theorize that these changes have increased employee demands for flexibility in their work schedules so that they can better balance their work and family lives. Thus, flextime schedules are becoming more popular, and an increasing number of employees are making use of them.

However, a review of the literature reveals that certain segments of the population do not have access to flexible work schedules because of the industry they work in or the type of employment that they have (e.g., part-time versus full-time). For example, flextime schedules are used almost exclusively in non-manufacturing organizations. This may be attributable to the fact that a flextime schedule is more difficult to implement in continuous process operations such as assembly lines. Individuals who work part-time in any type of industry are much less likely to have access to flexible work schedules. Given that manufacturing and part-time jobs are less likely to offer flexible work schedules, it is not surprising to find that employees who are female, less educated, and non-White are also less likely to have access to flexible work schedules in the United States.

PERCEIVED BENEFITS OF FLEXIBLE WORK SCHEDULES

The reasons for the popularity of flexible work schedules are many and diverse but generally include a combination of personal, organizational, and societal gains that are presumed to derive from allowing workers to more effectively balance their personal lives with the demands of work. For example, the presumed positive effects of flexible work schedules include reduced commuter congestion, increased customer or client service, broadened work opportunities for employees, reduced amounts of work-family conflict, and better utilization of recreational and service facilities.

Several theoretical models are useful for describing how flexible work schedules affect important outcomes.

The *work adjustment model* has been used to explain how flextime schedules influence employees' attitudes and behaviors. This model suggests that a high correlation between an employee's abilities and the ability requirements of the job should lead to high role performance. Furthermore, a high correlation between an employee's needs and the reinforcement system of the work environment should lead to more positive job attitudes. Work adjustment is high when individuals fulfill their work and role requirements and when the organization simultaneously fulfills the needs of the individual.

Another theoretical model that can be used to explain the effects of flexible work schedules is the *job characteristics theory*. This model is based on the belief that the core characteristics of a job (e.g., autonomy, task identity) induce positive psychological states, which, in turn, lead to positive outcomes such as job performance and job satisfaction. For example, a flextime schedule should positively affect employees' sense of autonomy, thereby increasing job satisfaction. Using these models, several theoretical arguments can be made about the effect of flexible work schedules on some of the most important organizational outcomes: productivity and performance, absenteeism, and job satisfaction.

Using the work adjustment model, it can be hypothesized that flexible schedules allow employees to make more efficient use of their circadian rhythms (the normal 24-hour physiological cycle) and may decrease the amount of work-arrival-related stress that employees experience. Employees who make more efficient use of their circadian rhythms should experience a higher correlation between their abilities and the ability requirements of the job. Research on person-job fit supports the idea that congruence between the individual and the job environment leads to higher performance. Although the results of research on the relationship between job stress and job performance are mixed, it seems safe to assert that if reduced job stress leads to a reduction in negative reactions, then job performance can be expected to increase.

The implementation of a flextime schedule also gives employees more job autonomy. The job characteristics theory predicts that increased job autonomy should lead to increased job performance. Indeed, the research supports this relationship. In sum, with respect to productivity and performance, the introduction of a flexible work schedule can be expected to have positive effects.

Additionally, flexible work schedules should have an effect on employee absenteeism. Organizational attendance should increase as the amount of discretionary time increases. Employees working in an organization that offers a flextime schedule can more easily respond to work and nonwork conflicts, which can subsequently reduce employee stress; the research has linked decreased employee stress to decreased absenteeism. Motivation to attend work may also be enhanced by increased organizational loyalty and job satisfaction, which result from the implementation of a flexible schedule. Furthermore, it has been suggested that employees may no longer misuse their sick leave because they can adjust their time of attendance. Empirical studies support the hypothesis that attendance is positively affected by the availability of a flextime schedule, and organizations have reported dramatic drops in absenteeism. In sum, research and theory support the assertion that the introduction of a flexible work schedule will lower absenteeism.

Using the job characteristics theory, it can also be hypothesized that the introduction of a flextime schedule should lead to more positive job attitudes (e.g., job satisfaction). For example, employees' need for autonomy can be met by the introduction of a flextime work schedule; indeed, research has found that increased job autonomy is positively linked to job satisfaction. In sum, the introduction of a flextime work schedule can be expected to lead to increased job satisfaction and, more specifically, to satisfaction with one's work schedule.

REVIEW OF FLEXIBLE WORK SCHEDULE RESEARCH

Two comprehensive examinations of the flextime literature have been conducted. These narrative reviews concluded that the introduction of flextime work schedules has a consistent and almost exclusively positive effect on work-related attitudes and productivity. However, the effect of flextime schedules reported in the literature is still highly variable and ranges from little or no to substantial positive change. A quantitative review of the literature (i.e., meta-analysis) found that flexible work schedules have positive effects on employee productivity, job satisfaction, satisfaction with work schedule, and employee absenteeism. However, the size of these effects is significantly different from one variable to the next. For example, the effect associated with absenteeism is significantly larger

than that for productivity, and the smallest effects are seen for job satisfaction and for satisfaction with work schedule. This result is consistent with the hypothesis that flexible work schedules are more likely to influence attendance and retention than to directly affect worker effectiveness and attitudes.

The mixed results in the literature may point to the existence of factors that moderate the relationship between flexible work schedules and outcome measures. The same quantitative review mentioned found that several moderators exist. Specifically, flextime work schedules demonstrate positive effects on work-related outcome criteria for general employees, but they have no effect for professionals and managers. This finding suggests that alternative work schedules are unlikely to benefit those who already have a high degree of job autonomy. Flextime flexibility (measured by core hours) was also found to moderate the positive effects of flexible work schedules—that is, the positive effects seem to diminish as the number of core hours becomes smaller. This finding indicates that the positive outcomes expected from a highly flexible schedule may be offset by the extra control required to monitor the number of hours that employees work. Furthermore, it is possible that the increased flexibility may become more of an inconvenience for employees than a benefit. The meta-analysis also found that over time, the positive effects of flexible work schedules diminish.

Other research has found that employees' level of role conflict—that is, competing requirements between two roles, such as being an employee and a mother—also acts as a moderator and affects the way that individuals respond or are attracted to companies that offer flexible work schedules. Specifically, the study found that individuals with high role conflict are attracted to companies that offer flexible work schedules, but this is not the case for individuals with low role conflict. This suggests that individuals react differently to the introduction of a flexible work schedule, and this, in turn, affects the impact (on factors such as job satisfaction) that might be expected. For example, if an organization has many employees who do not experience role conflict, then the impact of a flexible work schedule would be expected to diminish.

SUMMARY

The narrative and quantitative reviews of the literature indicate that flextime schedules have primarily

positive effects on organizational outcomes. However, the literature also suggests that organizations will have varying degrees of success with flexible work schedules depending on the variables they are trying to influence (e.g., absenteeism versus productivity). Furthermore, organizations need to carefully examine the work that is being done by employees to determine the degree of interdependence among jobs. Offering too much flexibility to employees with highly interdependent jobs may lead to unexpected and unwelcome outcomes. Finally, the findings of the meta-analysis suggest that the positive effects of flexible work arrangements decrease over time; therefore, companies must realize that some of the benefits of flexible work schedules may be temporary.

—Boris B. Baltes and Lindsey M. Young

See also Compressed Workweek; Job Design; Job Rotation; Job Sharing; Shiftwork; Telecommuting

FURTHER READING

- Baltes, B. B., Briggs, T. E., Huff, J. W., Wright, J. A., & Neuman, G. A. (1999). Flexible and compressed workweek schedules: A meta-analysis of their effects on work-related criteria. *Journal of Applied Psychology, 84*, 496–513.
- Golembiewski, R. T., & Proehl, C. (1978). A survey of empirical literature on flexible workhours: Character and consequences of a major innovation. *Academy of Management Review, 3*, 837–853.
- Pierce, J. L., Newstrom, J. W., Dunham, R. B., & Barber, A. E. (1989). *Alternative work schedules*. Needham Heights, MA: Allyn & Bacon.
- Rau, B. L., & Hyland, M. M. (2002). Role conflict and flexible work arrangements: The effects on applicant attraction. *Personnel Psychology, 55*, 111–136.
- Thierry, H., & Meijman, T. (1994). Time and behavior at work. In H. C. Triandis, M. D. Dunnette, & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 4, 2nd ed., pp. 341–413). Palo Alto, CA: Consulting Psychologists Press.

that is designed to obtain perceptions about a defined area of interest in a permissive and nonthreatening environment. It can be used to explore a multitude of issues, and it is a very popular technique in the worlds of both market research and psychology. Although there is much to be said about focus groups, given their widespread use, three topics will be emphasize here: (a) focus group basics, (b) other important factors, and (c) applications of focus groups.

FOCUS GROUP BASICS

When conducting a focus group, four key factors must be considered: (a) the process, (b) the content, (c) group composition, and (d) data analysis.

With respect to process, a focus group ideally should consist of 10 to 12 people, although it certainly can be smaller or much larger. As Janine Waclawski and Steven Rogelberg (2002) note, it is typically led by a facilitator who asks the research questions and is assisted by a scribe who takes notes. It is vital that the focus group be led by both a facilitator and a scribe; one person alone cannot sufficiently manage the group, ask questions, probe for additional information, and capture session notes in real time. Although it is often tempting to consider streamlining the process to have one person performing both roles, this is not advisable under any circumstances. The duration of the focus group generally runs from one to two hours. In terms of location, a place where people feel that they can talk freely is best. This will lead to a better quality of data. For the most part, an offsite conference room is preferred. This typically engenders an environment of openness and fosters candid communication. These factors are critical to the success of a focus group.

According to some, including Krueger, the focus group can be as structured or unstructured as the facilitator desires. However, Waclawski and Rogelberg indicate that this is not considered best practice. Focus groups tend to run most smoothly and produce higher-quality data when the content of study is determined well in advance of the session. To accomplish this, most facilitators develop and use what is known as a *discussion guide*. This is a document that contains a scripted introduction to the session, the specific research questions to be posed to the group, and the session close. The introduction is important because it sets the tone and ground rules for the focus group. It typically contains a welcome statement; an introduction to the topic of the focus group; an introduction

FOCUS GROUPS

Focus groups are one of the fundamental qualitative data-collection tools used by industrial and organizational psychologists. According to R. A. Krueger (1994), a focus group is a carefully planned discussion

to the facilitator, scribe, and participants; and rules regarding the confidentiality of the data and the ultimate use of the results. The majority of the discussion guide focuses on the questions for the meeting and appropriate probes for follow-up.

No matter how well scripted the questions are, there is always some degree of fluidity and unexpectedness that occurs during the focus groups. This is normal and part of what makes this method of data collection so rich. The session close typically consists of a reiteration of confidentiality and the purposes for which the data will be used, as well as contact information for the facilitator.

Group composition is very important, and there are two options to consider: whether to select homogeneous (similar) or heterogeneous (mixed) participants. Homogeneous groups consist of participants who are similar on a set of dimensions that are viewed as critical to the results of the focus group. These are factors such as age, gender, education level, socioeconomic status, ethnicity, or geographic location. Conversely, heterogeneous groups consist of a mixture of participants who vary on these key dimensions. Although there has been considerable debate over the years as to which approach is better, current thinking supports the notion that homogeneous groups are preferable, as noted by Waclawski and Rogelberg. Quite simply, groups with similar participants yield more focused results, which is, after all, the purpose of the focus group. Furthermore, when a study is carefully constructed, a combination of different homogeneous groups will produce a heterogeneous mixture of participants.

The most common approach to analyzing focus group data is content coding. This consists of transcribing all of the notes from the focus group session, identifying major themes or content areas that are present in the data, and counting the frequency of responses for each theme (see Rebecca Morris's 1994 piece, cited in Further Reading, for an in-depth discussion of this process).

OTHER IMPORTANT FACTORS TO CONSIDER

On the surface, the conduct of the focus group and the analysis of focus group data may seem simple in comparison to other methods of research (i.e., those of a more quantitative nature). However, because focus groups are qualitative and somewhat subjective in nature, there are many nuances involved in mastering

this method of inquiry that can significantly influence the outcomes. In particular, the level of skill of the facilitator is crucial. An untrained or poorly trained facilitator will introduce experimenter bias, at best, and at worst, render the research completely invalid. For example, by directing the responses of the participants (as opposed to a more objective approach of teasing out responses), failing to solicit input from more introverted participants (allowing some strong members of the group to dominate), or allowing the group to go off on unproductive tangents, a poor facilitator can greatly affect both the session and the resulting data.

Maintaining consistent conditions across focus groups is also important to minimize unwanted error resulting from the effects of differing contexts. Using the same facilitator (or checking for interrater reliability when this is not feasible), the same discussion guide, and the same meeting setup is important to ensure similar experiences across focus groups. In the end, the details, no matter how small, are very important.

APPLICATIONS OF FOCUS GROUPS

Focus groups have many applications in the field of industrial and organizational psychology. They can be used either as a stand-alone research method or as an add-on to other methods. Focus groups are often used alone when the researcher wants to study a topic in depth with a group of individuals who can provide significant insight beyond what a traditional survey offers. They are often used to collect data on participant attitudes or opinions about a particular topic or a set of related topics. For example, an organization might conduct a focus group to assess its employees' level of satisfaction with its current benefits program, to find out whether employees trust senior management, or even to look at employees' attitudes and opinions about the recognition they receive for doing their jobs.

At other times, focus groups are used in conjunction with surveys (typically after the fact) to explore issues that were unearthed by the survey but not explained in sufficient detail to satisfy the researcher or to answer the research question at hand. Unlike a survey, the focus group enables an open dialogue between the researcher and participants, allowing important issues to be explored in depth. In this way, focus groups can be very useful, especially if the survey does not contain

any write-in or open-ended questions or if the results of the survey are unclear in some regard.

All in all, whether they are used alone or in conjunction with other research methods, focus groups are an extremely important applied research tool.

—Janine Waclawski

See also Organizational Surveys; Qualitative Research Approach; Survey Approach

FURTHER READING

- Krueger, R. A. (1994). *Focus groups: A practical guide for applied research* (2nd ed.). Thousand Oaks, CA: Sage.
- Morris, R. (1994). Computerized content analysis in management research: A demonstration of advantages and limitations. *Journal of Management*, 20, 903–931.
- Waclawski, J., & Rogelberg, S. G. (2002). Interviews and focus groups: Quintessential organization development techniques. In J. Waclawski & A. H. Church (Eds.), *Organization development: A data-driven approach to organizational change*. San Francisco: Jossey-Bass.

FRAME-OF-REFERENCE TRAINING

The appraisal of individual work performance occurs in some form or fashion in nearly every organization. Because these appraisals are typically used to provide feedback to employees and to make administrative decisions regarding promotions, bonuses, training, or termination, the quality of performance appraisals is an important issue in both research and practice. A number of approaches to ensuring the high quality of performance appraisal ratings have been researched and used in practice, including different types of performance appraisal instruments, methods, and rater training programs. Although many rater training programs have been developed, the program that has proved most effective in improving the quality of performance appraisal ratings is *frame-of-reference* (FOR) training. This method is designed to train raters (e.g., supervisors) to accurately assess a ratee's (e.g., subordinate's) performance according to the standards espoused by the organization. Here, we will explore what FOR training is, how it compares with other types of rater training, its effectiveness at improving the quality of

performance ratings, and research and practice issues related to FOR training.

FOR TRAINING DEFINED

One of Several Rater Training Programs

Several distinct rater training programs have been developed over the years, all with the goals of reducing rating errors and increasing rater accuracy. *Rater error training* has the explicit goal of decreasing common rater errors or biases (e.g., leniency or severity, halo, first impression, central tendency) by informing raters of these errors and how to avoid them. *Rater variability training* is similar in intent, with an emphasis on ensuring that the variability in ratings assigned corresponds to the variability in actual performance levels.

The early 1980s saw a shift away from training raters to avoid the types of errors just described to training based on a more proactive and direct emphasis on accuracy. This shift was partly the result of findings that suggested that training raters merely to avoid rating errors sometimes led to decreases in accuracy. Earlier forms of these training programs had included *rater accuracy training* and *behavioral observation training*, wherein much of the emphasis was on improving raters' detection, perception, observation, and recall (i.e., memory) of specific performance behaviors. These types of training programs encouraged the recording of behaviors to facilitate later recall and rating judgments. Another direct predecessor of FOR training was *performance dimension training*, which relied primarily on defining the important elements of performance for the raters. However, FOR training goes beyond this approach to provide an in-depth understanding of the organization's theory of performance, developed through interactive discussion, practice, and feedback.

Components of FOR Training

The main objective of FOR training is to provide raters with the knowledge and skills necessary to accurately rate performance according to an agreed-upon frame of reference. Through an interactive process, FOR training is designed to eliminate idiosyncratic standards held by raters and to replace them with a common frame of reference to be used in rating.

The FOR training process consists of four components. First, the trainees (i.e., performance raters) are familiarized with the target theory of performance through an informational presentation. This theory of performance, defined by the organization and therefore unique to the organization and to a particular job, includes the important dimensions (e.g., quality of work, taking initiative) that constitute the performance domain and their definitions. The rating scale to be used—a behaviorally anchored rating scale, or BARS—is usually presented at this time.

Second, trainees engage in a discussion of “critical incidents,” or specific ratee behaviors that indicate different effectiveness levels (e.g., high, average, or low) on each performance dimension, with reference to the BARS that contain these specific critical incidents as anchors at different scale points. For example, trainees might be told that if a ratee has no defects in his or her production, that is indicative of a *high* performance level on the quality-of-work dimension; if a ratee always waits to be told what to do at the beginning of his or her shift, that is indicative of *low* performance on the taking-initiative dimension.

Third, trainees are given practice rating using this new frame of reference. Specifically, trainees usually view several videotaped vignettes of ratees and rate the practice ratees on each performance dimension discussed in the training. Fourth and finally, trainees engage in a discussion of these practice ratings and receive feedback on the accuracy of their practice ratings (compared with expert scores).

Frame-of-reference training normally occurs over several hours within small groups (i.e., 5–12 trainees). In addition to the economic pragmatics of training more than one rater at a time, the presence of other trainees in a learning or performance situation is believed to increase attention level and motivation, and trainees can compare their practice ratings with those of the other raters, in addition to the expert ratings.

Effectiveness of FOR Training

Several research studies have examined the effectiveness of FOR training at improving performance rating accuracy, both in its own right and compared with other rater training programs. This research revealed strong and consistent evidence that FOR training is effective in this regard and, compared with other rater training programs, results in the largest overall increase in rating accuracy.

RESEARCH ON FOR TRAINING

With the effectiveness of FOR training established, research in this area primarily considers four major issues: (a) the extension of FOR training to other contexts; (b) the examination of underlying mechanisms that explain why FOR training is so effective; (c) the examination of which components of FOR training are most important to its effectiveness; and (d) possible boundary conditions on the effectiveness of FOR training. Each of these areas is briefly reviewed here, along with their corresponding implications for the use of FOR training in organizations.

First, regarding the extension of FOR training to other contexts, researchers have used FOR training in assessment centers with a great deal of success. Assessment centers are an in-depth assessment technique used to evaluate candidates (often managerial candidates) for hiring or promotion. Assessors observe and then rate candidates on different performance dimensions across a number of exercises. Providing FOR training to these assessors was found to result in assessment center ratings that were more reliable, accurate, and valid than other types of assessor training.

Second, one stream of research seeks to understand why FOR training is so effective at improving rating accuracy. Proposed explanations that have received some empirical support speculate that FOR training leads to deeper levels of processing of the material, better recall for specific performance behaviors, more accurate online impression formation, and systematic changes in the content of impressions formed of ratees (making their impressions more abstract and target referent) and that it requires raters to think seriously about the meaning of performance.

Third, because the FOR training protocol comprises several components, one stream of research has attempted to isolate which of these components is most important for improving rating accuracy. For example, the FOR training procedure can be broken down into the informational presentation alone (the dimensions and behaviors that indicate various effectiveness levels), the informational presentation plus practice (but with no feedback), and the informational presentation plus practice and feedback. Because this stream of research is still in its infancy, however, no unequivocal conclusions can be drawn about the most crucial components of FOR training or the possible synergies among them.

Fourth, although the vast majority of FOR training research supports the conclusion that it is effective at improving rating accuracy, some research has begun to recognize and examine possible boundary conditions on this effectiveness. For example, training effectiveness may depend on the extent to which a rater's performance theory is at odds with the theory espoused by the organization and taught in training. Differences in theory may create cognitive interference or motivational challenges for raters in training. In addition, although most research has found that FOR training results in accuracy improvements regardless of the specific accuracy index used (e.g., elevation, differential elevation, differential accuracy, or stereotype accuracy), other researchers have found that FOR training is more (or less) effective for some accuracy components than others. Such differential effects may have important implications for the use of FOR training in practice. Finally, the examination of FOR training and evidence regarding its effectiveness has been largely contained to laboratory (experimental) settings. The politics and pragmatics surrounding the appraisal of performance in real organizations may present another boundary condition on the effectiveness of FOR training.

—Deidra J. Schleicher and Rebecca A. Bull

See also Performance Appraisal; Performance Appraisal, Subjective Indexes; Performance Feedback; Physical Performance Assessment

FURTHER READING

- Bernardin, H. J., Buckley, M. R., Tyler, C. L., & Wiese, D. S. (2000). A reconsideration of strategies in rater training. *Research in Personnel and Human Resources Management, 18*, 221–274.
- Schleicher, D. J., & Day, D. V. (1998). A cognitive evaluation of frame-of-reference rater training: Content and process issues. *Organizational Behavior and Human Decision Processes, 73*, 76–101.
- Schleicher, D. J., Day, D. V., Mayes, B. T., & Riggio, R. E. (2002). A new frame for frame-of-reference training: Enhancing the construct validity of assessment centers. *Journal of Applied Psychology, 87*, 735–746.
- Sulsky, L. M., & Day, D. V. (1994). Effects of frame-of-reference training on rater accuracy under alternative time delays. *Journal of Applied Psychology, 79*, 535–543.
- Woehr, D. J. (1994). Understanding frame-of-reference training: The impact of training on the recall of performance information. *Journal of Applied Psychology, 79*, 525–534.
- Woehr, D. J., & Huffcutt, A. I. (1994). Rater training for performance appraisal: A quantitative review. *Journal of Occupational and Organizational Psychology, 67*, 189–205.

FREE RIDING

See SOCIAL LOAFING

G

GAINSHARING AND PROFIT SHARING

Gainsharing (GS) and profit sharing (PS) are two pay-for-performance systems used by organizations to reward workers for increased performance at the group, unit, or organization level (Rynes, Gerhart, & Parks, 2005). The ultimate goals of GS and PS plans are improving specific aspects of organizational productivity and improving employee attitudes relating to justice, collaboration, and teamwork. Successful group-, unit-, and organizational-level pay-for-performance plans incorporate the concept of *common fate*. Common fate is integral to the management of performance at the group, unit, and organizational level (Werther, Ruch, & McClure, 1986). The performance of an organization is seen as a direct function of the combined efforts of all its members. The margin of success for an organization, then, comes from replacing the adversarial relationship between management and employees with cooperation and collaboration. Workers who feel they have a stake in the company make contributions to the success of the company.

Gainsharing rewards employees for increases in efficiency on some important organizational criteria such as decreasing wastefulness and increasing productivity (Lawler, 1981). The typical GS plan is designed, using one of a number of formula variants, to be implemented within one facility such as one factory. Higher levels of performance are achieved through the involvement and participation of employees in some form of suggestion system (Lawler, 1981, 1988; Masternak, 1997). The two components,

monetary reward for improved efficiency and the use of participative management, are the defining components of a GS plan.

Profit sharing rewards employees for increases in organizational profits (Kruse, 1993). All PS plans have a formula specifying how a fixed percentage of organizational profits are divided among employees. Employee compensation is based substantially on the profitability of the company during some fixed time period. The typical PS plan is designed, using a number of formula variants, to be implemented within an entire corporation.

Both GS and PS plans have been shown to be effective. GS plans have been shown to result in labor cost savings of approximately 29% (Lawler, 1988). Rynes et al. (2005) write that PS plans, with a payout based on meeting a profitability target—such as return on assets (ROA) or return on investment (ROI)—have been shown to have a median effect of +4.4% and a mean effect of +7.4% on the criteria being used in the PS plan.

The most important difference between GS and PS plans is that the two types of pay-for-performance plans use different types of criteria to evaluate changes in performance for reward purposes. GS uses criteria that are focused on the internal efficiency of the organizational unit in which the plan is being implemented. For example, a GS plan may determine that the historical labor cost to produce one *widget* in the plant is \$5.00. Employees receive a bonus for lowering the cost of production of that widget. If the employees, through their suggestions and changes in work behavior, lower the labor cost to produce to \$4.50 per widget, the employees are rewarded for this

decrease in labor cost through the established GS formula. The criteria chosen for use in GS plans should be those which the employees of the organization may directly influence through changes in their behavior, or suggestions made, in the workplace. GS plans work only in situations where the inputs of employees are actually influential, and also in labor systems as opposed to capital-intense systems (Kim, 1999).

Lawler (1988) wrote that the mechanism by which GS plans increase organizational performance is proposed to be that GS plans

- establish the belief that rewards are based on improvement in performance on the organizational criteria being measured;
- establish ways for employees to influence organizational performance as measured by the reward system;
- provide feedback about organizational performance to employees; and
- create opportunities for employees to learn how to contribute to organizational performance.

Profit sharing plans use criteria that are focused on the external effectiveness of the corporation. The additional compensation received by employees is based on criteria (such as change in stock price, ROA, or ROI, which may be more related to factors outside the control of the organization than to the efforts of the employees of a company. For example, widget production may be linked to the cost of a raw material, *X*, which is required to produce the widget. If the price of *X* rises, the company may not be able to pass all the cost of this rise to its customers and profits will fall. If the price of *X* decreases, the company may be able to keep the widget price for consumers at the same level, and more profit is generated. In each case, however, the efforts and inputs of the company's employees are irrelevant to the amount of profit generated. The mechanism through which PS plans improve performance is, therefore, less clear than for GS plans. In fact, PS plans may not be appealing to some employees because they do not know how their behavior contributed to the profits of the company (Stack, 1996; Kraizberg, Tziner, & Weisberg, 2002).

This leads to a second important difference between GS and PS plans. Gainsharing programs always are implemented in conjunction with some form of participative management (e.g., a suggestion

system), whereas PS plans usually do not have a participative system associated with them (Lawler, 1988). This may be the result of the way PS plans allocate additional compensation. Employees have less input in PS plans because they are being rewarded for changes in externally focused criteria that are not under their control.

One decision that must be made during the planning and implementation process is related to choice of the variant to be used whether a GS or PS plans is being considered. Variants differ on both the degree of participation by employees and the formula to be used in GS plans (Bazerman & Graham-Moore, 1983; Welbourne, Balkin, & Gomez-Mejia, 1995). There is no clear distinction among the GS variants such as Scanlon, Rucker, or Improshare plans for effectiveness. Similar problems exist for choice of appropriate variant in the implementation of PS plans (Kruse, 1993). For PS plans, however, the variants deal more with the way employees are compensated. There are three basic forms of PS plans. First, PS plans may provide cash (employees have their share of profits added directly to their paychecks at quarterly or annual intervals). Second, PS plan profits may be deferred (the profit share amount is put into a pension trust for the employee and received by the employee on retirement). Finally, PS plans may provide both cash and deferred benefits in some combination. Kruse (1993) wrote that the variant of PS chosen is related to the effectiveness of the program. Cash plans are more effective than the other forms of plans in improving employee perceptions of teamwork and collaboration in a company.

One key variable in the development of perceptions of common fate critical to the success of a pay-for-performance program at the group, unit, or organizational level is the size of the organizational unit in which the plan is implemented. The size of the facility covered by a GS plan is usually small (Lawler, 1981). According to White (1979), GS plans such as the Scanlon Plan can be implemented without size limiting possible success for companies of up to 600 employees. In a review of the Shultz study, Schuster (1983) found that only 3 out of 21 companies using GS plans had 1,000 or more employees and the median number of employees per company was 201 to 500. Kruse (1993) wrote that these numbers are similar to those found for PS plans. Average productivity increases are larger for smaller companies: The highest improvements in PS plans are found for

companies smaller than 775 employees (Rynes et al., 2005).

An interesting paradox exists in the study of the effects of both GS and PS programs on organizational performance. Lawler (1988) wrote that moderators of the success of GS plans include a climate of trust between labor and management; and Kim (1999) noted that success depends on whether or not the company is financially sound and able to make reward payments. Similarly, PS plans work better in companies that have shown an increase in stock price over the preceding two years (i.e., are generating a profit) (Kruse, 1993).

Lawler (1988) suggested that if companies are high on the two moderators listed for GS, they will not stand to gain a lot from implementing a GS plan. It is likely that this proposal holds for PS plans as well. Therefore, one key issue that remains to be resolved for both GS and PS plans is whether the GS or PS plan is a cause of organizational performance or an effect of organizational performance (Lawler, 1988; Kruse, 1993).

—Daniel J. Svyantek

See also Compensation; Team-Based Rewards

FURTHER READING

- Bazerman, M., & Graham-Moore, B. E. (1983). PG formulas: Developing a reward structure to achieve organizational goals. In B. E. Graham-Moore & T. L. Ross (Eds.), *Productivity gainsharing: How employee incentive programs can improve business performance* (pp. 40–61). Englewood Cliffs, NJ: Prentice Hall.
- Kim, D.-O. (1999). Determinants of the survival of gainsharing programs. *Industrial and Labor Relations Review*, 55(1), 21–42.
- Kraizberg, E., Tziner, A., & Weisberg, J. (2002). Employee stock options: Are they indeed superior to other incentive compensation schemes? *Journal of Business and Psychology*, 16(3), 383–390.
- Kruse, D. L. (1993). *Profit sharing: Does it make a difference?* Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- Lawler, E. E. (1981). *Pay and organization development*. Reading, MA: Addison-Wesley.
- Lawler, E. E. (1988). Gainsharing theory and research: Findings and future directions. *Research in Organizational Change and Development*, 2, 323–344.
- Masternak, R. (1997). How to make gainsharing successful: The collective experience of 17 facilities. *Compensation and Benefits Review*, 29, 43–52.
- Rynes, S. L., Gerhart, B., & Parks, L. (2005). Personnel psychology: Performance evaluation and pay for performance. *Annual Review of Psychology*, 56, 571–600.
- Schuster, M. (1983). Forty years of Scanlon Plan research: A review of the descriptive and empirical literature. *International Yearbook of Organizational Democracy*, 53–71.
- Stack, J. (1996). The problem with profit sharing. *Inc.*, 96(18), 67–69.
- Welbourne, T. M., Balkin, D. B., & Gomez-Mejia, L. R. (1995). Gainsharing and mutual monitoring: A combined agency-organizational justice interpretation. *Academy of Management Journal*, 38, 881–899.
- Werther, W. B., Ruch, W. A., & McClure, L. (1986). *Productivity through people*. St. Paul, MN: West.
- White, J. K. (1979). The Scanlon Plan: Causes and correlates of success. *Academy of Management Journal*, 22, 292–312.

GAY, LESBIAN, AND BISEXUAL ISSUES AT WORK

Gay, lesbian, and bisexual (GLB) individuals are physically and emotionally attracted to individuals of their own gender. These individuals compose a substantial proportion of the workforce (estimates range from 5%–15%) but face unique challenges because of their sexual orientation. Consequently, researchers and practitioners in industrial/organizational (I/O) psychology have begun to develop frameworks for considering GLB issues in the workplace, investigating challenges facing GLB employees, and discussing strategies for the equitable and effective management of sexual orientation diversity.

A STIGMA FRAMEWORK

Although a GLB identity is a positive and proud identity for some people, it is often deemed a devalued social identity in the larger societal context. Consistent with a conceptualization of stigma, GLB individuals are targets of negative stereotypes, social isolation, and discrimination. Accordingly, we use stigma theory and research to understand the experiences of GLB individuals at work. In fact, many of the issues facing GLB employees emerge as a function of the stigmatization of homosexuality in contemporary American society.

There are a number of dimensions on which stigmas are categorized, including three that are particularly important characteristics relevant to understanding the GLB stigma: controllability, concealability, and fear of contagion. First, controllability refers to the fact that the stigma of homosexuality is largely perceived to be a volitional choice and a controllable condition. Across stigmas, perceived responsibility is associated with negative attitudes and increased discrimination toward those who are stigmatized—particularly increased hostility, decreased sympathy, and motivations to avoid.

Second, the concealability of the GLB stigma refers to the fact that most GLB individuals can choose to conceal or reveal their sexual orientation. Given the fact that most gay and lesbian employees can *come out of the closet*, they face disclosure dilemmas in the workplace. They must decide if, when, how, and to whom they should disclose their orientation. Some decide not to disclose to anyone, whereas others decide to disclose to a trusted few or to everyone. Unfortunately, sometimes GLB individuals report being *outed* or having their identities disclosed without actually choosing to do so themselves. For the most part, the concealability aspect sometimes necessitates that individuals spend a great deal of energy and preoccupation managing their identity, and such a situation contributes to challenges for GLB employees and their organizations.

Third, fear of contagion refers to the fact that many people perceive that the GLB identity is threatening. Those interacting with GLB individuals face the possibility of being stigmatized (and perceived as GLB themselves) simply for associating with GLB individuals. In addition, because of its historical linkage with HIV-AIDS, the GLB orientation is perceived to be a contagious one possibly resulting in disease and even death. Given these associations, many individuals prefer to sever ties with GLB individuals.

There are individual differences that lead some employees and organizations to display particularly negative attitudes and behaviors against gay men and lesbians. In general, women tend to be more accepting of the GLB identity than men; and as a result, women are much less likely to show prejudice and discriminate. In addition, people who are more conservative and religious are also more likely to discriminate against gay men and lesbians. The stigma framework and the association of homosexuality with controllability,

concealability, and contagion helps I/O psychologists examine the challenges faced by GLB employees and their organizations.

GLB CHALLENGES AT WORK

In considering GLB issues in the workplace, it is important to examine the challenges that organizations face as well as the issues that affect GLB employees on a personal level. As bearers of social stigma, GLB employees are likely to face discrimination. Because discrimination on the basis of sexual orientation remains legal, there are few legal actions that GLB employees can take when they face stigmatization. In fact, there have been some highly publicized and recent instances of individuals losing their jobs (e.g., those in the military, leaders of churches, leaders of children's groups such as the Boy Scouts) when their sexual orientation is revealed. Fortunately, many of these sanctions are now being challenged in the court system, and some local and city ordinances are trying to combat such discrimination. In fact, research suggests that because of pressure toward political correctness and genuine attitude change, discrimination toward GLB individuals is typically manifested in subtle, rather than overt, behaviors. That is, instead of blatantly discriminatory actions, sexual orientation discrimination may take the form of negative nonverbal behaviors including decreased eye contact and increased interpersonal distance and social isolation.

In addition to discrimination, GLB individuals face the challenge of the *disclosure dilemma*. GLB employees who elect to disclose their sexual orientation in their workplace may fear the possibility of becoming the targets of harassment. Moreover, they may fear that such disclosure could even lead to the termination of their employment. However, when GLB employees elect to keep their sexual orientation a secret, they might face other possible negative outcomes. Research suggests that the stress of keeping their personal lives secret at work may negatively affect employees' levels of stress, immune systems, and loyalty to their organizations. Therefore, GLB employees face a double-edged sword in their decision to conceal or disclose their sexual orientation. Even when the challenge of disclosure is overcome, GLB employees have to negotiate the integration of their work and nonwork lives. For example, openly gay employees must decide whether to bring their partners to company social functions, to display their

partners' photos on their desks, or even to discuss weekend plans with coworkers and supervisors. These decisions are persistent, salient challenges facing GLB individuals at work every day.

From the perspective of organizations that employ GLB individuals, additional challenges arise. Broadly, organizations must decide how to manage sexual orientation diversity. Specifically, organizations and organizational leaders must examine the formal policies and informal organizational climate for GLB issues. Organizations must decide whether to introduce formal policies that support GLB employees or ignore sexual orientation as a diversity characteristic in organizational policies. In addition, organizations must determine the extent to which they will work toward creating a supportive informal climate for sexual orientation diversity. The consequences of formal and informal efforts to support sexual orientation diversity create additional challenges.

On the one hand, when organizations elect to include sexual orientation in nondiscrimination policies, they must be prepared to encounter employees who are unwilling to accept or comply with those policies. On the other hand, failure to include such policies may result in dissatisfied GLB employees, high turnover rates, and potential litigation. Successful implementation of sexual orientation diversity programs and policies will likely depend on top management support and employee buy-in. Further, although such formal policies might protect GLB employees from overt forms of discrimination, organizations may still face the challenge of eliminating subtle, interpersonal forms of discrimination. Thus efforts to reduce GLB discrimination in the workplace must be developed and evaluated carefully.

IMPROVEMENT STRATEGIES

There are clearly strategies individuals and organizations can adopt to reduce GLB discrimination. Ideally, the burden of reducing discrimination should not be on the victims but, rather, should live with the stigmatizers themselves. However, it is important to note that GLB individuals, their coworkers, and the organizations of which they are a part can engage in behaviors that can alter the course of prejudice. At the individual level a growing body of research has shown that disclosing one's GLB status can be a beneficial strategy but only given certain conditions. For example, research suggests that organizational climates that are

supportive, waiting a delayed period of time before disclosing, and ensuring some degree of coworker support are hugely predictive of positive *coming out* experiences. Other research shows that employers may be particularly likely to stigmatize GLB employees when little is known about them other than their GLB status. Thus GLB individuals who try to individuate themselves or who provide employers and coworkers with a body of information (that is typically unrelated or counter to GLB stereotypes) and reveal their strengths and skills as employees can allay others' inclinations to discriminate. Another strategy that GLB individuals might use is to compensate for the prejudice that they believe others will show toward them. Compensation typically involves verbal behaviors such as listening skills and nonverbal behaviors, including eye contact and nodding, that focus on conversational maintenance and continuation, all of which also attempt to put interaction partners at ease.

At the organizational level, there are a number of strategies that institutions can adopt to reduce discrimination toward GLB employees. Many strategies involve the implementation of formal GLB-related policies. For example, institutions that adopt same-sex partner benefits, diversity training programs with a focus on appreciation for sexual orientation diversity, diversity officers, GLB support groups, and antidiscrimination policies are all more likely to result in more satisfied GLB employees. Such formal steps are also likely to lead to a more accepting informal climate. Research reveals that much discrimination occurs at the interpersonal level and the institution of formal policies likely sends a clear message to employees about the culture and the message that interpersonal discrimination is not tolerated. Moreover, because much of the discrimination does occur at the interpersonal level, it is important to promote supervisor and coworker support of GLB employees. Such support has been shown to be particularly likely to result in more favorable outcomes for GLB employees.

CONCLUSION

GLB issues are, and will continue to be, important to organizations. It is hopeful that as more employees disclose their sexual orientation identities and as more organizations implement supportive policies, pressure on lobbyists and lawmakers will eventually afford GLB individuals with liberties and legal rights that are

now denied to them. To some extent, great strides have already been taken to reduce the stigmatization of GLB individuals. One important example of such change is the removal of homosexuality as a disorder from the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV)*. Researchers and practitioners should build on this growing body of knowledge and use it to work toward allowing GLB individuals full and nondiscriminatory participation in society. When managed equitably and effectively, diversity, in all its forms, can benefit both employees and their organizations.

—Michelle R. Hebl, Eden B. King,
and Charles L. Law

See also Diversity in the Workplace; Diversity Training

FURTHER READING

- Crocker, J., Major, B., & Steele, C. (1998). Social stigma. In D. T. Gilbert & S. T. Fiske (Eds.), *The handbook of social psychology, Vol. 2* (4th ed., pp. 504–553). New York: McGraw-Hill.
- Griffith, K., & Hebl, M. (2002). Acknowledgment of sexual orientation in the workplace. *Journal of Applied Psychology, 87*, 1191–1199.
- Hebl, M., Foster, J. M., Mannix, L. M., & Dovidio, J. F. (2002). Formal and interpersonal discrimination: A field study examination of applicant bias. *Personality and Social Psychological Bulletin, 28*, 215–225.
- Herek, G. M. (2000). Sexual prejudice and gender: Do heterosexuals' attitudes toward lesbians and gay men differ? *Journal of Social Issues, 56*, 251–266.
- Ragins, B. R. (2004). Sexual orientation in the workplace: The unique work and career experiences of gay, lesbian, and bisexual workers. *Research in Personnel and Human Resources Management, 23*, 37–122.
- Ragins, B. R., & Cornwell, J. M. (2001). Pink triangles: Antecedents and consequences of perceived workplace discrimination against gay and lesbian employees. *Journal of Applied Psychology, 86*, 1244–1261.

GENERALIZABILITY THEORY

An important criterion on which psychological measures are judged is the degree to which their scores reflect persons' true standing on an attribute of interest, such as cognitive ability and conscientiousness. Measurement theories recognize that scores on a

measure reflect at least two components: a *true* component and an *error* component. Although theories differ in terms of the way they define these components, the degree of relation between them, and the types of error on which they focus, they all share a concern for measurement error. Generalizability theory (G-theory) is a measurement theory that provides methods for estimating the contribution of multiple sources of error to scores and quantifying their combined effect with a single index—a generalizability coefficient (G-coefficient).

FUNDAMENTALS OF G-THEORY

At the root of G-theory is the idea that the variability in persons' scores because of error (i.e., *error variance*) can be partitioned into components, each reflecting a different source of error. For example, in attempting to measure a person's level of interpersonal skill using an interview, error might arise from

- the specific question asked, such as differences in how interviewees interpret the question;
- the specific interviewer conducting the interview, such as differences in the familiarity of the interviewer with each interviewee; and
- the particular occasion on which the interview was conducted, such as the mood of the interviewee on the day of the interview.

All the differences noted previously could influence a person's interview score for reasons that have nothing to do with the person's interpersonal skills. By taking a fine-grained approach to examining error, G-theorists gain critical insight into the factors that decrease the quality of their measures.

Partitioning Variance in G-Theory

Within G-theory, variance in scores is typically partitioned through analysis of variance (ANOVA). The type of ANOVA conducted follows from the *measurement design*, which describes how a given attribute is measured. G-theorists describe measurement designs in terms of *facets of measurement*—the set of measurement conditions under which data on the *objects of measurement* (the entities being measured) are gathered. Continuing with the interview example, facets of measurement might include questions, interviewers, and occasions; whereas the objects of measurement would be interviewees. In

G-theory, facets and objects of measurement serve as *factors* in an ANOVA model that is used to generate estimates of their contributions (as well as their interactions' contributions) to variance in scores.

Defining True Variance and Error Variance in G-Theory

Estimates of variance attributable to the object of measurement, facets, and their interactions are often referred to as *variance components*. The variance component associated with the object of measurement is interpreted as an estimate for *true* variance—the amount of variability in scores that is attributable to differences between objects of measurement such as interviewees on the attribute of interest including interpersonal skill. G-theorists refer to such variance as *universe score variance*. Whether a particular variance component is interpreted as error depends on the types of inferences the researcher wants to draw regarding the objects of measurement and the facets of measurement across which the researcher wants to generalize scores.

To illustrate this dependence, consider the interview example discussed earlier. If inferences are restricted to the relative ordering of interviewees on interpersonal skill, only those sources of variance that lead to different orderings of interviewees on interpersonal skill would be defined as error. In G-theory such error is referred to as *relative error*. Relative error is evidenced by interactions between the objects such as interviewees and facets including questions and interviewers of measurement. For example, the larger the interviewee-by-question interaction, the more the relative ordering of interviewees on interpersonal skill differs depending on the question asked. When error is defined in relative terms, G-coefficients reflect the consistency with which the objects of measurement are ordered on the attribute of interest across facets such as interview questions, interviewers, and occasions. Technically, a G-coefficient is defined as the ratio of universe score variance to universe score variance plus error variance, and it ranges from 0 to 1.

Alternatively, someone might wish to make inferences about persons' true standing on some attribute compared with a fixed standard such as a cut score or performance standard. Such absolute comparisons are labeled *criterion-referenced* comparisons. In this case any source of variation causing an observed score to differ from a true score would be defined as error. In

G-theory this type of error is referred to as *absolute error*. Absolute error includes not only interactions between of the objects and facets of measurement but also *main effects* of the facets (e.g., variation in mean interpersonal skill scores across questions because of differences in question difficulty). Facet main effects do not contribute to relative error because they do not affect the relative ordering of objects of measurement; rather they only affect the distance between objects' observed scores and true scores. When error is defined in absolute terms, G-coefficients (often called *phi-coefficients* when error is defined in absolute terms) reflect an estimate of absolute agreement regarding the standing of the objects of measurement on the attribute of interest across facets of measurement.

Decisions regarding which sources of variance are defined as error also depend on the facets across which the researcher wishes the scores to generalize. Returning to the interview example, to generalize interpersonal skill scores across questions, any inconsistency in the relative ordering of interviewees (or in mean score differences, if absolute error is a concern) across questions would be considered error.

Although the aforementioned example describes generalizing across a single facet (i.e., questions), there may be a need to generalize across other facets as well, such as interviewers. When considering two or more sources of error, there is the potential for interactions between the sources. For example, an interviewee's interpersonal skill score may depend not only on the question used to assess interpersonal skill but also on the specific interviewer who rated the interviewee's response to that question such as an interviewee-by-question-by-interviewer interaction.

Limitations in Measurement Designs

A key insight made clear by G-theory is that not all measurement designs allow researchers to estimate the sources of error that may be of concern to them. For example, assume that in implementing the interview described previously, the same interviewer conducts one interview with each interviewee. Although error may arise from the particular interviewer used, as well as the particular occasion on which the interview was conducted, it is not possible to estimate the contribution of these sources of error to observed interview scores based on this measurement design. To determine whether the relative ordering of interviewees on interpersonal skill differs across

interviewers or occasions, obtain ratings for each interviewee from multiple interviewers on multiple occasions. Thus the fact that this particular measurement design only involved one interviewer and a single administration of the interview prevents assessing the generalizability of interview scores across interviewers and occasions.

The measurement design in the aforementioned example is also problematic in that the estimate for true variance in interpersonal skill (if variance in observed interview scores were decomposed) partially reflects variance arising from the interviewee-by-interviewer and interviewee-by-occasion interactions. To eliminate the variance attributable to these interactions from the estimate of true variance requires multiple interviewers to rate each interviewee on multiple occasions. Thus just because a given measurement design prohibits estimating the impact of a source of error on observed scores does not imply that the error is eliminated from a measure. Indeed, the error is still present but *hidden* from the researcher's view and, in this example, inseparable from the estimate of true variance.

G-THEORY AS A PROCESS

When introduced by Lee J. Cronbach and his colleagues more than 40 years ago, the application of G-theory was conceptualized in terms of a two-step process for developing and implementing a generalizable measurement procedure. The first step in the process is to conduct a *generalizability study* (*G-study*). The purpose of the G-study is to gather data on a given measure using a measurement design that allows the researcher to generate estimates of all error sources of concern (and therefore avoid limitations raised in the previous section). With such estimates, the researcher could estimate what the generalizability of the measure would be under various potential measurement conditions. For example, based on findings from the G-study, researchers could estimate the number of observations needed for each facet of their measurement design (e.g., number of questions, interviewers, occasions) to achieve a desired level of generalizability in their measure. The second study, called a *decision study* (*D-study*), would involve implementing the measurement procedure identified via the G-study to gather data on the persons for whom decisions are to be made.

Although practical constraints often obviate this two-stage approach, it can have substantial value for

improving industrial/organizational (I/O) research. Specifically, it forces researchers to give forethought to, and acquire knowledge of, the sources of error that are of concern to them in their measures. With such knowledge researchers can take steps to improve measurement procedures by identifying where refinements might have the most impact (targeting the largest sources of error) prior to having to implement their measure to make real decisions (e.g., whom to hire, whom to promote). In other words, G-theory offers a clear process for building improved measures.

—Dan J. Putka

See also Classical Test Theory; Construct; Experimental Designs; Reliability; Validity

FURTHER READING

- Brennan, R. L. (2001). *Generalizability theory*. New York: Springer-Verlag.
- Cronbach, L. J., Gleser, G. C., Nanda, H., & Rajaratnam, N. (1973). *The dependability of behavioral measurements: Theory of generalizability for scores and profiles*. New York: Wiley.
- DeShon, R. P. (1998). A cautionary note on measurement error corrections in structural equation models. *Psychological Methods*, 3, 412–423.
- DeShon, R. P. (2002). Generalizability theory. In F. Drasgow & N. Schmitt (Eds.), *Measuring and analyzing behavior in organizations: Advances in measurement and data analysis* (pp. 189–220). San Francisco: Jossey-Bass.
- Feldt, L. S., & Brennan, R. L. (1989). Reliability. In R. L. Linn (Ed.), *Educational measurement* (3rd ed., pp. 105–146). New York: American Council on Education and Macmillan.
- Shavelson, R. J., & Webb, N. M. (2001). *Generalizability theory: A primer*. Thousand Oaks, CA: Sage.

GENETICS AND INDUSTRIAL/ ORGANIZATIONAL PSYCHOLOGY

The idea that genetics may play a determining role in work behavior and work-related phenomena does not have a particularly long past in terms of actual research activity among industrial/organizational (I/O) psychologists. Whereas research in other domains of psychology convincingly have shown that human

behavior is influenced by genetic and biological characteristics of individuals, it was only within the past 10 years or so that researchers in the organizational domain have developed evidence that traits, attitudes, and behaviors relevant to the workplace also have a genetic component. There are essentially two streams of research that have pursued this issue. The first stream stems from I/O psychologists writing in the area of evolutionary psychology, where arguments are made that certain differences between individuals or classes of individuals have an evolutionary explanation. For example, several I/O psychologists have presented the argument that sex differences in power are caused by differences in the way men and women use influence behaviors in small groups and that these differences were sculpted in part by natural selection. Others have made the case that organizational processes and behavior have been developed via evolutionary history. Essentially, the argument is that through natural selection, sexual selection, and adaptation, a wide range of psychological phenomena (e.g., behaviors, attitudes, traits, decision-making styles, etc.) in humans and relevant to the workplace have evolved and can be explained via this genetic process. In fact, a special issue of the *Journal of Organizational Behavior* has been organized around the issues of evolutionary processes as they influence organizational phenomena.

A second stream of research has also been *evolving* over the past few years: the application of behavioral genetics methodologies to the study of workplace outcomes. Behavior genetics is essentially the exploration of the relative contributions of genetics and the environment to human behavior. Whereas evolutionary psychology is essentially theory based and provides logical explanations for why certain work phenomena may exist, the application of behavior genetics methodologies helps to provide *empirical data* for exploring the role of genetic and environmental factors in workplace phenomena.

BEHAVIOR GENETICS METHODOLOGIES

There are several research designs used in estimating the role of genetics by researchers in the behavior genetics arena. Most researchers use twins as their subjects by examining the similarities and differences between identical (or monozygotic) and fraternal (or dizygotic) twins. Because identical twins share 100%

of their genes in common and fraternal twins share an average of 50% of their genes, the greater similarity in identical twins than in fraternal twins on any measured variable is a sign that genetic influences are involved. This design assumes that the two twin types share approximately the same common environment in their early developmental lives; that is, that each twin pair experiences the same global family *treatments* such as income levels, books in the household, and similar treatment by mothers and fathers; and such factors did not produce greater similarity among the identical twins. Sophisticated statistical methods are now used to not only determine if variables are under some genetic control but also to estimate the proportion of variance attributable to genetic factors, as well as to common family and nonfamily environmental factors. Another design that is used, but rarely, is the use of identical twins who were separated at birth and raised apart. Because they were raised in different and independent environments, the similarity of such twins is also an indicator of genetic influence. Researchers also use adoption studies where the relative similarities of adopted children to their biological and adoptive family members are used to estimate genetic influences; however, this design has not been used by I/O psychologists as of yet. Results of studies employing these various methodologies typically report findings in the form a *heritability* value ranging from .00 indicating no variance in a variable explained by genetics to 1.00 where 100% of the variance is accounted for by genetics. (Obvious physical characteristics such as height and weight show high heritabilities and might be used as a *benchmark*.) Finally, research methods using path modeling techniques where the relationships between specified variables have been derived via meta-analytic procedures are now being used to derive heritability estimates.

BEHAVIORAL GENETICS RESEARCH AND ORGANIZATIONAL BEHAVIOR

Researchers in the I/O area have been interested in the role of genetics as they influence certain classes of constructs: traits, attitudes, values and interests, affect, and behaviors. Two reviews are available that provide more comprehensive information about research in these areas (Arvey & Bouchard, 1994; Ilies, Arvey, & Bouchard, in press). Following is a summary of these findings.

General Cognitive Ability (GCA)

Where estimates of genetic influences on general cognitive ability (GCA) in the reported literature vary considerably, there is little debate on whether such genetic influences exist. Estimates are that the heritability of intelligence falls somewhere between .50 and .80. There is also evidence that the heritability of IQ increases with age.

Personality

Numerous studies have been conducted on the heritability of different personality traits or dimensions. Industrial/organizational psychologists have been interested in personality traits as predictors of other work behavior and frequently have adopted a five-factor model of personality termed the *Big Five*. Research dealing with these Big Five factors show relatively high and consistent heritabilities. For example, using data and research reported in several behavioral genetics studies conducted in multiple countries, J. C. Loehlin (1992) estimated the heritabilities as .41, .49, .45, .35, and .38 for emotional stability, extraversion, openness to experience, agreeableness, and conscientiousness, respectively. Also, evidence for the heritability of affective traits has accumulated where heritabilities of .50 and .44 were found for the trait measurement of positive and negative emotionality.

Attitudes

An early application of behavioral genetics methods for estimating the heritability of job satisfaction was presented by Arvey, Bouchard, Segal, and Abraham (1989) using a sample of twins reared apart. Their data showed that genetic factors explained approximately 30% of the variance in job satisfaction scores, but this result did not go unchallenged. This finding was replicated later by Arvey and colleagues as well as other researchers.

Work Values

Research has also been conducted examining whether genetic factors are associated with work values. Results from one study showed that five value constructs (achievement, status, altruism, safety, and autonomy) had heritabilities ranging from .18 to .56, with a median of .38. The findings from this study have also been replicated.

Leadership

The issue of whether leadership is a function of genetics has been around for a long time—the famous *nature versus nurture* debate. Behavioral genetics methods have just begun to explore this issue scientifically. One group of researchers showed that a substantial proportion of the variance in transformational and transactional leadership is associated with genetic factors. A more recent study using a sample of more than 300 twin pairs estimated the heritability of occupational leadership achievement—that is, whether individuals were actually in formal positions of leadership—and found it to be around .30. Research around the issue of whether genetics interacts with specific environmental features to influence leadership is ongoing.

Performance Behaviors

There has been some research on the heritability of counterproductive work behaviors. One study using a male twin sample explored whether a scale called Censured Job Performance, consisting of items associated with counterproductive work behavior and low job performance (reprimands, probation, or performance-related dismissal), was heritable; the resulting heritability was .37.

MEDIATION AND INTERACTION MODELS

Most researchers using behavioral genetics methods and models agree that it is quite unlikely that any specific one gene, or even several, have a direct impact on work behavior; that is, they don't directly influence work attitudes or behavior. Instead, these researchers posit models where the genetic aspects of individuals may have more broad impact on attraction: avoidance patterns, which in turn, over time, help to shape more specific behavior and attitudinal dispositions. There has been some investigation into whether personality and cognitive variables mediate the relationships between genetic factors and other work phenomena such as leadership and job satisfaction. For example, one study examined whether the Big Five personality factors are primarily responsible (through mediation) for the genetic influences of job satisfaction using path analysis of meta-analytic correlations. Although the authors found that these factors mediated only 24% of the genetic variance in job satisfaction, the

affective traits of positive and negative emotionality mediated 45% of the genetic effect. These authors made the observation that broader and more abstract constructs seem to be more influenced by genetic factors than narrower and more specific constructs. More research of this nature is needed to further pin down just how genetic factors operate to influence work and organizational constructs.

Researchers in this area have also called for more investigation to determine with greater specificity which environmental factors influence organizational phenomena as well as whether there are important interactions between features of the environment that interact with genetic structures to effect work phenomena. This would be important information for I/O psychologists in terms of engineering environments that might have greater (or lesser) impact on individuals working in organizations.

SUMMARY

Although the study of genetics with regard to work-related phenomena is in an infant stage, research is accumulating at an increasing rate. Compared with what we knew 10 years ago, the frontier of this particular field is growing at a rapid pace. New methodologies and statistical models are being applied. Results from the established literature base make it clear that biological mechanisms and certainly genetic influences play a role in determining work behaviors in the form of personality, cognitions, attitudes, and the behavior of individuals in work settings.

—Richard D. Arvey and Remus Ilies

FURTHER READING

- Arvey, R. D., & Bouchard, T. J., Jr. (1994). Genetics, twins, and organizational behavior. In B. M. Staw & L. L. Cummings (Eds.), *Research in Organizational Behavior* (Vol. 16, pp. 47–82). Greenwich, CT: JAI.
- Arvey, R. D., Bouchard, T. J., Segal, N. L., & Abraham, L. A. (1989). Job satisfaction: Environmental and genetic components. *Journal of Applied Psychology, 74*, 187–192.
- Bouchard, T. J., Jr. (1998). Genetic and environmental influences on adult intelligence and special mental abilities. *Human Biology, 70*, 257–279.
- Bouchard, T. J., Jr., & Loehlin, J. C. (2001). Genes, personality and evolution. *Behavior Genetics, 31*, 243–273.
- Ilies, R., Arvey, R. D., & Bouchard, T. J., Jr. (in press). Behavioral genetics and organizational behavior:

A review and agenda for future research. *Journal of Organizational Behavior*.

Loehlin, J. C. (1992). *Genes and environment in personality development*. Newbury Park, CA: Sage.

GLASS CEILING

The glass ceiling has been defined by the U.S. Department of Labor as artificial barriers based on attitudinal or organizational bias that prevent qualified individuals from advancing upward in their organization into management-level positions. The concept of a glass ceiling was originally used to describe women's blocked opportunities within organizations and has also been applied to the experiences of ethnic minorities. It is commonly referred to as the barrier that cannot be seen or touched but has the effect of stopping women and minority members from reaching the top echelons of organizations. For example, there are increasing numbers of women and ethnic minority members in management in general. However, they are not proportionally represented in the top management positions.

Research on the glass ceiling spans many disciplines, including sociology, psychology, management, gender studies, and ethnic studies, just to name a few. The bulk of the early research focused on documenting and reviewing the status of White women's progress into management. Research, predominately in the form of reviews on the glass ceiling, began in the mid-1970s. These reviews addressed the question of why there were so few women in management positions within organizations. As the number of women in the labor force increased over time and women advanced into management ranks, the issue of concern became one of why there were so few women in top management positions.

Currently, the number of women in top management is still not proportional to their representation in management overall. The most recent Census of Women Corporate Officers and Top Earners conducted by Catalyst in 2002 found that women currently represent 15.7% of corporate officers in America's Fortune 500 companies. This was an increase from 12.5% in 2000 and 8.7% in 1995. Women compose 7.1% of the 496 chief financial officers (CFOs) and 16.1% of the 453 general counsels (GCs), an increase from the year 2000, when 5.6% of the CFOs were

women and 13.7% of the GCs were women. Despite the increased number of women in the upper echelons of Fortune 500 companies, the top earning corporate officers were predominately men; 95% ($n = 2,141$) were men, whereas 5.2% ($n = 118$) were women. Women were far less likely to be in line positions, meaning those positions with revenue-generating or profit and loss responsibilities that tend to lead to advancement and greater rewards, than men at 6.2% versus men at 93.8%. Women have made some progress in catching up with their male counterparts, but disparities in power and salary still exist, leading to the assumption of the existence of the glass ceiling for women.

In recent years, as ethnic minorities have entered into the ranks of management and in increasing numbers into the labor pool, it has been suggested that they also encounter a glass ceiling. For example, population statistics and research show that minorities have less access to well-paying jobs, have few opportunities for promotions, and are segregated into less prestigious occupations or niches within occupations. However, most research on the glass ceiling and minorities has focused predominately on African Americans, to the exclusion of other minorities. African Americans are currently the largest numerical ethnic minority in the United States and correspondingly has been the most studied minority group. Recently, it has been suggested that not all ethnic minorities encounter the same type of barriers because of differences in experiences specific to each ethnic minority group. For example, Asian Americans as a group currently have the highest educational attainment levels and are well represented in professional and technical fields. It has been suggested that they may encounter different types of barriers than African American minority members. More research focusing on other ethnic minority groups is needed to investigate these hypotheses.

There have been multiple theoretical perspectives offered to explain the disparities that lead to a perceived glass ceiling effect for women and minorities. Individual explanations such as human capital theory (Becker, 1975), work–family differences, and sex differences in leadership styles have all been proposed to explain the disparities in career outcomes. The idea that women and minorities possess less human capital (education, experience, etc.); have different priorities when it comes to work–family balance; or exhibit less

effective leadership styles, which results in slower advancement, has not been consistently supported by research. There is general consensus that these individual characteristics approaches are useful in explaining some aspects of inequality, but they are insufficient in accounting for the myriad factors leading to a glass ceiling for women and minorities.

Organizational factors such as exclusion from informal networks, less availability of powerful mentors, and lack of proper socialization have also been posited to explain differential career outcomes. These organizational factors have been shown to put women and minorities at a disadvantage in moving upward within an organization. Access to informal networks and mentors has been shown to be positively related to upward mobility, higher salaries, and more promotional opportunities. It has been found that women and minorities have less access to powerful mentors who are in positions to help them advance. In addition, women and minorities report exclusion from informal networks in organizations, which are pivotal in increasing visibility and building contacts. These organizational factors are viable reasons that lead to slower promotional rates for women and minorities and contribute to a glass ceiling effect.

There is also a structural barriers explanation for the glass ceiling effect. This focuses on the different facets of labor market discrimination, in which there are dual labor markets with minorities and women relegated to the peripheral labor market and White males dominating the core labor market. The core labor market is characterized by high wages, good fringe benefits, job security, and advancement opportunities. The peripheral market consists of lower paying, less desirable work of lower prestige and an absence of internal labor markets to facilitate upward mobility or long-term growth. It is thought that segregation of women and minorities into the peripheral labor market results in differential rates of advancement and rewards throughout their careers.

There is little argument that women and minority members are not as well represented at the highest levels of organizations as their numbers in management overall or the labor pool would predict. Recent years have witnessed gains made by women and minority members. Still, there seems to be evidence that a glass ceiling still exists for both women and minorities, but the exact causes and therefore a solution

are still undeterminable. Multiple factors at the individual, organizational, and structural levels seem to interact in forming a glass ceiling for women and minorities at this time.

—Tina T. Chen

See also Adverse Impact/Disparate Treatment/Discrimination at Work; Mentoring; Networking; Sexual Discrimination

FURTHER READING

- Cotter, D. A., Hermsen, J. M., Ovadia, S., & Vanneman, R. (2001). The glass ceiling effect. *Social Forces*, 80, 655–681.
- DiTomaso, N., & Smith, S. A. (1996). Race and ethnic minorities and white women in management: Changes and challenges. In J. Tang & E. Smith, *Women and Minorities in American Professions*. New York: State University of New York.
- Maume, D. J. (1999). Glass ceilings and glass escalators: Occupational segregation and race and sex differences in managerial promotions. *Work and Occupations*, 26, 483–509.
- Powell, G. N. (1999). *Handbook of gender and work*. Thousand Oaks, CA: Sage.

GLOBAL LEADERSHIP AND ORGANIZATIONAL BEHAVIOR EFFECTIVENESS PROJECT

The Global Leadership and Organizational Behavior Effectiveness project (GLOBE) is a multiphase, multi-method project designed in the early 1990s by Robert J. House to explore the relationships among societal culture, organizational culture, and leadership. An international team of more than 170 researchers has worked together for more than a decade on this project.

Many data sources were used to obtain information regarding organizational culture, societal culture, and leadership attributes and behavior. The primary data source was questionnaire responses completed by approximately 17,000 middle managers from 62 different societies. The middle managers worked at one of 825 organizations from one of three industries: financial services, food processing, and telecommunications. In addition to these questionnaire responses, information about culture and leadership was also collected using focus group meetings, media analyses, unobtrusive measures, and archival data.

The conceptual model driving GLOBE is shown in Figure 1.

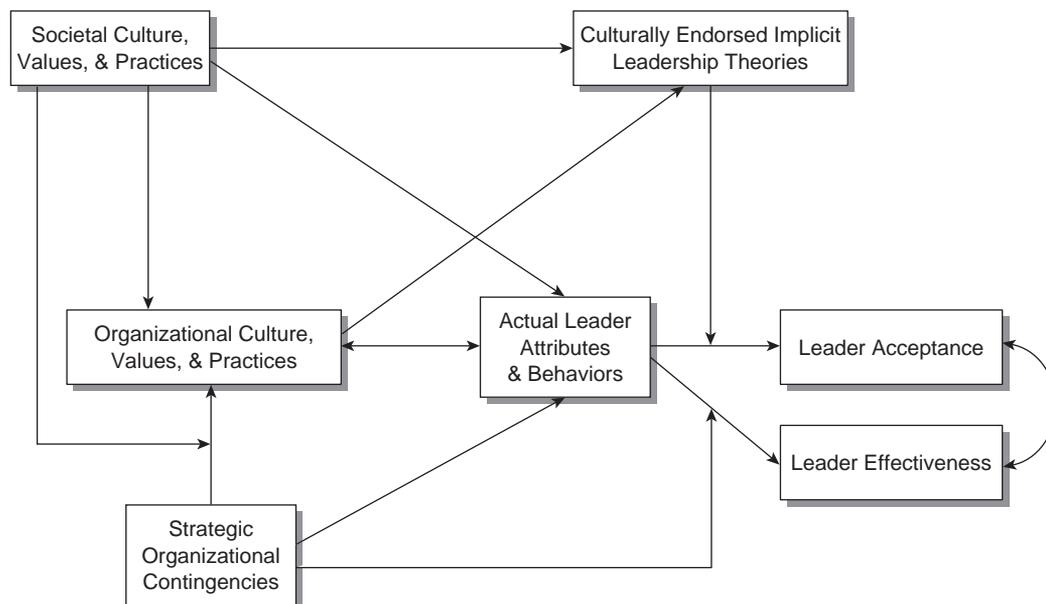


Figure 1 Conceptual Basis for the GLOBE Project

SOURCE: Adapted from House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*, p. 18. Thousand Oaks, CA: Sage. Reproduced with permission.

This model was developed by drawing on implicit leadership theory, value and belief theory of culture, implicit motivation theory, and structural contingency theory of organizational form and effectiveness. The central premise of this integrated model is that the attributes and entities that differentiate cultures from one another are predictive of organizational practices and leader attributes most frequently enacted and seen as effective in those cultures.

The first phase of the project focused on scale development. A total of nine societal culture dimensions and nine organizational culture dimensions were identified from the previous literature. In the GLOBE study, culture was defined as the shared motives, values, beliefs, identities, and interpretations or meanings of significant events that result from common experiences of members of collectives and are transmitted across generations. The nine dimensions of organizational and societal culture were as follows:

1. **Uncertainty Avoidance:** the extent to which members of an organization or society strive to reduce ambiguity by relying on established social norms, rituals, and bureaucratic practices
2. **Power Distance:** the degree to which members of an organization or society expect and agree that power should be stratified and concentrated at higher levels of an organization or government
3. **Institutional Collectivism (Collectivism I):** the degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action
4. **In-group Collectivism (Collectivism II):** the strength of ties within small groups like family and circle of close friends, and the organizations in which they are employed
5. **Gender Egalitarianism:** the degree to which an organization or a society minimizes gender role differences while promoting gender equity and equality
6. **Assertiveness:** the degree to which individuals in organizations or societies are assertive, confrontational, and aggressive in social relationships
7. **Future Orientation:** the degree to which individuals in organizations or societies engage in future-oriented behaviors such as planning, investing in the future, and delaying individual or collective gratification
8. **Performance Orientation:** the degree to which organizations or societies encourage and reward group members for performance improvement and excellence
9. **Humane Orientation:** the degree to which organizations or societies encourage and reward individuals for being fair, altruistic, friendly, generous, caring, and kind to others

For each culture dimension, separate scales assessing organizational culture and societal culture were developed. Further, for both the organizational and societal culture scales, separate items measuring current cultural practices (*as is*) and cultural values (*should be*) were developed. Thus 36 different culture scales were used in this study (i.e., nine organizational cultural practices scales, nine organizational cultural values scales, nine societal cultural practices scales, nine societal cultural values scales).

Leadership was defined as the ability to influence, motivate, and enable others to contribute toward the success of their organization. Respondents rated 112 different leadership attributes on the extent to which each attribute inhibits or facilitates outstanding leadership. These items were combined into 21 primary leadership scales which were summarized into six global dimensions. The global leadership dimensions are as follows:

1. **Charismatic/Value-Based Leadership.** Leader inspires, motivates, and expects high-performance outcomes from others based on firmly held core values.
2. **Team Oriented Leadership.** Leader emphasizes team building and implementing a common purpose or goal among team members.
3. **Participative Leadership.** Leader involves others in decision making and decision implementation.
4. **Humane Oriented Leadership.** Leader is supportive, considerate, compassionate, and generous.
5. **Autonomous Leadership.** Leader is independent and individualistic.
6. **Self-Protective Leadership.** Leader focuses on ensuring the safety and security of the leader.

The GLOBE leadership scales were developed to measure the implicit leadership beliefs shared by individuals in a culture. Thus these scales are called culturally endorsed implicit leadership theory (CLT) dimensions.

The second phase of GLOBE focused on testing a portion of the integrated model. In particular, the

relationships between societal culture, organizational culture, and the CLT leadership dimensions were tested. The following results were obtained:

- Some leadership attributes were universally endorsed. For example, being trustworthy, planful, dynamic, and communicative are examples of attributes universally rated as facilitating outstanding leadership.
- Some leadership attributes were universally rejected. For example, being asocial, irritable, egocentric, and dictatorial are examples of attributes universally rated as inhibiting outstanding leadership.
- Although some leadership attributes were universally endorsed or rejected, the majority of the attributes were culturally contingent. Overall, both organizational culture and societal culture were significantly related to the CLT leadership dimensions. Further, the cultural value scales predicted the CLT leadership dimensions better than the cultural practices scales. More specifically,
 - Performance orientation cultural values were positively associated with charismatic and value-based, team-oriented, participative, humane-oriented, and autonomous leadership and negatively associated with self-protective leadership.
 - Uncertainty avoidance cultural values were positively associated with self-protective, team-oriented, and humane-oriented leadership and negatively associated with participative leadership.
 - Future orientation cultural values were positively associated with humane-oriented, team-oriented, and charismatic and value-based leadership.
 - Power distance cultural values were positively associated with self-protective leadership and negatively associated with charismatic and value-based and participative leadership.
 - In-group collectivism cultural values were positively associated with charismatic and value-based and team-oriented leadership and negatively associated with self-protective leadership.
 - Institutional collectivism cultural values were negatively associated with autonomous leadership.

This phase of GLOBE also tested whether organizational practices were influenced by the broader societal culture. Consistent with the integrative model, organizational practices were found to be related to societal cultural values. However, the magnitude of this relationship was moderated by industry type. In particular, the practices of food services organizations were the most influenced, whereas the practices of financial organizations were the least influenced by the broader societal culture.

Data analyses on the third phase of the GLOBE project are currently being conducted. This phase was designed to test the contingency hypothesis between the culturally endorsed implicit leadership dimensions and actual leader behavior on leader acceptance and organizational effectiveness. The phase three data came from 20 different countries and consist of behavioral ratings of approximately 40 CEOs from each country. A fourth GLOBE phase is currently in planning.

To date, more than 100 articles, book chapters, and academic presentations have been authored describing aspects of the GLOBE project. The first book has been published, which describes the nature of the project, research strategies, and major findings (including House, Hanges, Javidan, Dorfman, & Gupta, 2004). Another book covering the more qualitative findings by Jagdeep Chokkar, F. C. Brodbeck, and House is expected to be published soon.

—Paul J. Hanges

See also Charismatic Leadership Theory; Cross-Cultural Research Methods and Theory; Implicit Theory of Leadership; Leadership and Supervision; Leadership Development; Organizational Culture

FURTHER READING

- Brodbeck, F. C., Frese, M., Akerblom, S., Audia, G., Bakacsi, G., Bendova, H., et al. (2000). Cultural variations of leadership prototypes across 22 European countries. *Journal of Occupational and Organizational Psychology, 73*, 1–29.
- Den Hartog, D. N., House, R. J., Hanges, P. J., Ruiz-Quintanilla, S. A., Dorfman, P. W., Javidan, P. W. et al. (1999). Culture specific and cross-culturally generalizable implicit leadership theories: Are the attributes of charismatic/transformational leadership universally endorsed. *Leadership Quarterly, 10*, 219–256.
- Gupta, V., Hanges, P. J., & Dorfman, P. W. (2002). Cultural clusters: Methodology and findings. *Journal of World Business, 37*, 11–15.
- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Thousand Oaks, CA: Sage.
- House, R. J., Hanges, P. J., Ruiz-Quintanilla, S. A., Dorfman, P. W., Javidan, M., Dickson, et al. (1999). Cultural influences on leadership and organizations: Project GLOBE. In W. H. Mobley, M. J. Gessner, & V. Arnold. (Eds.), *Advances in global leadership* (pp. 171–233). Stamford, CT: JAI Press.

- House, R. J., Javidan, M., Hanges, P. J., & Dorfman, P. W. (2002). Understanding cultures and implicit leadership theories across the globe: An introduction to Project GLOBE. *Journal of World Business, 37*, 3–10.
- Javidan, M., & House, R. J. (2001). Cultural acumen for the global manager: Lessons from GLOBE. *Organizational Dynamics, 29*, 289–305.

GLOBALIZATION

Globalization is the most significant change taking place in today's work environment. It connotes the economic interdependence among countries that develops through cross-national flows of goods and services, capital, know-how, and people. This entry covers mainly the organizational and human aspects of globalization.

Globalization has come into common use since the 1980s, reflecting technological advances and electronic communication that have made it easier to create economic interdependence across countries. Globalization is not just a recent phenomenon. But today commerce and financial services are far more developed and deeply integrated than they were in the past. The most striking aspect of this has been the integration of financial markets made possible by modern electronic communication.

Twenty-five years ago no one talked of *world economy*; the prevalent term was *international trade*, consisting of international trade and foreign investment. But today it has taken the form of a global economy, consisting of flows of information, technology, money, and people, and conducted via government organizations such as NAFTA (the North American Free Trade Agreement) and the European Community; global organizations, such as the International Standard Bureau (ISO) and the International Monetary Fund (IMF); and business corporations, such as multinational companies (MNCs) and cross-border alliances, mergers, and acquisitions. These interrelationships have enhanced participation in the world economy and have become the key to domestic economic growth and prosperity.

MYTHS ABOUT GLOBALIZATION

Global connotes a holistic, integrative strategy. There are some myths about globalization that need to be avoided:

- Globalization is simply a presence in other countries, without any connection between the activities across countries.
- Global strategy means doing things the same way everywhere.
- Globalizing means becoming a stateless organization with no national or community ties.
- Globalization requires abandoning country values.
- There is no need for integration when acquiring or merging with foreign companies.
- A global strategy must involve sales or operations in another country.

In fact, globalization is not about the preceding list. Rather, it is about global integration, and not about internalization.

GLOBAL ORGANIZATIONS

Multinational companies are the dominant players in the global business environment. Some researchers consider MNCs to be the most important institutions of modern societies, because they are more than just businesses. These companies shoulder a huge responsibility for generating wealth by continuously improving their productivity and competitiveness; and their responsibility for defining, creating, and distributing values makes these corporations one of society's principal agents of social change. Members of these organizations, although coming from different cultural backgrounds, have to share common goals and meanings and coordinate their activities to gain a competitive advantage for their company in the global market. The shared meaning and understanding of what it means to be a member of a global corporation, which crosses cultural borders, reflects the global corporate culture.

A GLOBAL CORPORATE CULTURE

Although each MNC may have its own unique organizational culture, global corporations share some common characteristics that reflect their being part of the global business environment. Global corporate values facilitate the adaptation of individuals and organizations to the global work environment.

Competition is a key characteristic of the global market. To gain a competitive advantage in the global market, companies must be performance oriented, emphasizing time to market, cost effectiveness, and customer satisfaction, while also being more

innovative. Furthermore, the global business context is characterized by rapid changes and high uncertainty. Therefore, companies must be *flexible and open to accept changes*. Global corporations need to coordinate and mobilize resources within and across geographical borders. Therefore, *high interdependence* is an important characteristic of global corporations. The high diversity of the global workforce increases awareness of cultural variations, and *acceptance of cultural diversity* has become crucial for effective cooperation across cultural borders. A major proportion of the work in the global environment takes place in global multicultural teams, where cultivating *trust* is critical for team accomplishments. In sum, the global corporate values emphasize competitive performance orientation; flexibility, adaptation to changes, and innovation; high coordination and interdependence; acceptance of diversity; and trust and transparency. The level of agreement on these values among corporate members from different countries is an indication for their being global rather than local values.

A distinction can be made between global and local managerial roles. The former are homogeneously shared by managers in different subsidiaries, including strategic planning, innovation enhancement, and adaptation to change, necessary to compete in the global business environment. Yet, local managerial roles are mainly related to social exchange: providing direction to employees and showing employee consideration. Local managerial roles are influenced by cultural values at the national level, such as power distance and individualism versus collectivism.

GLOBAL IDENTITY

Values are represented in the self, and they shape personal and social identity. The representation of global corporate values in the self, and the sense of belongingness to such corporations, lead to the emergence of *a global identity* as a new form of a person's identity. A person may hold multiple identities, reflecting belongingness to multiple groups. Therefore, a *global identity* does not necessarily compete with a *local-national identity*, which is a person's primary identity. Rather, individuals sample the relevant identity depending on the situation.

Global organizations evoke changes in the local work culture. For example, international trade imposes certain demands on local manufacturing organizations, such as meeting the quality standards

of the International Organization for Standardization's ISO-9000. Countries that want to become players in the global market need to adopt quality-oriented values that support the implementation of ISO-9000. Adoption of these values may change the local national and organizational cultures.

GLOBALIZATION AND CONVERGENCE

The question of whether globalization is leading toward a cultural convergence stirs hot debates. A major argument against cultural convergence is that traditionalism and modernity may be unrelated. Strong traditional values, such as group solidarity, interpersonal harmony, paternalism, and familism, can coexist with modern values of individual achievement and competition. However, research evidence such as that produced by Gili Drori, Yong Suk Jang, and J. W. Meyer points to some convergence in some areas. For example, firms trading globally are likely to imitate each other's practices to boost their own performance. Furthermore, international organizations set the normative expectations, and in this way they play a prime role as agents of world society. Finally, education and science are seen as setting the foundation for economic development, standardization of national practices, and institutionalization of environmental policies, leading toward convergence across countries.

GLOBALIZATION—GOOD OR EVIL?

The question of whether globalization is good or evil continues to be debatable. One of its disadvantages is the growing income gap between high- and low-income countries and the increased number of world citizens who live in poverty. There are fierce protests against globalization during the G8 summits. Strong opposition to globalization usually originates from developing countries that have been hurt by the destabilizing effects of globalization, including Central Asia and Eastern Europe, parts of Latin America, Africa, and parts of South Asia. In fact, fewer than 10% of the world's population are fully globalized. But there is also opposition in Western countries, triggered by significant loss of professional jobs as a result of off-shoring to low-wage countries (<http://www.imf.org/external/np/exr/ib/2000/041200.htm#II>).

Yet, on the positive side, as globalization has progressed, the quality of life and life expectancy have

improved significantly in virtually all countries, with the strongest improvement in the developed countries. The indexes of globalization have strengthened over the last two decades with respect to the following: *world trade* increased 10%, and more so in the newly industrialized economies, in Asia; *capital* movements, and in particular, flow of private capital to developing countries, increased significantly; *workers* moving from one country to another increased dramatically, and the foreign born proportion of labor forces around the world increased by approximately 50%; and the *spread of knowledge and technology* is increasing. Knowledge transfer is accelerated via multinational corporations and global alliances, and company Intranets and the free Internet provide access to knowledge of management techniques, as well as professional and technical know-how.

—Miriam Erez

See also Global Leadership and Organizational Behavior Effectiveness Project

FURTHER READING

- Drori, G., Suk Jang, Y., & Meyer, J. W. (in press). Sources of rationalized governance: Cross-national longitudinal analyses, 1985–2002. *Administrative Science Quarterly*.
- Earley, P. C., & Gibson, C. B. (2001). *Multinational work teams*. Mahwah, NJ: Lawrence Erlbaum.
- Erez, M., & Earley, P. C. (1993). *Culture, self-identity, and work*. London: UK: Oxford University Press.
- Erez, M., and Gati, E. (2004). A dynamic multilevel model of culture: From the micro-level of the individual to the macro level of a global culture. *Applied Psychology: An International Review*, 53, 583–598.
- Govindarajan, V., & Gupta, A. K. (2001). *The quest for global dominance*. San Francisco: Jossey-Bass.
- Leung, K., Bhagat, R., Buchan, N. R., Erez, M., & Gibson, C. B. (2005). Culture and international business: Recent advanced and future directions. *Journal of International Business Studies*, 36, 357–378.
- Schaeffer, R. K. (2003). *Understanding globalization: The social consequences of political, economic, and environmental change*. Lanham, MD: Rowan & Littlefield.

GOAL-SETTING THEORY

An employee's performance is a function of ability as well as motivation. Ability refers to a person's

knowledge and skill. Knowledge and skill alone do not lead to action. Motivation is the choice to exert effort and to persist, drawing on knowledge and skill, until a desired goal is attained. A typology for understanding motivation includes a person's needs, values, goals, affect, and performance.

Needs are physiological as well as psychological. They affect a person's survival and well-being. Hence, they explain why people take action. Examples of an individual's needs are food, sleep, pleasure, and self-esteem. Thus needs explain why certain broad categories of behavior are universal, but they do not take into account individual differences in the actions people take to satisfy their needs. These differences are reflected in a person's values.

Values refer to a broad tendency to prefer certain states of affairs over others, what the person considers good, desirable, or beneficial. Values reflect beliefs about what is important. For example, some people place far greater value on individualism than collectivism, or low power distance in the workplace than high power distance between leaders and workers. Needs affect action through their effect on values, and values affect a person's behavior through their effect on the person's goals. Goals define for the individual or group what constitutes an acceptable level of performance or direction of action. Thus goal setting has a positive effect on increasing a person's interest in a task in that it provides people with a sense of purpose. Goals engage people's values by challenging them to see how well they can do. Engaging values ensures goal commitment.

Edwin A. Locke and Gary P. Latham's goal-setting theory states that goals are the immediate precursors and regulators of much, if not most human behavior. The theory does not imply that a person must always be fully consciously aware of a goal for it to regulate behavior. But it does state that given that there is commitment to a goal, it remains in the periphery of consciousness as a reference point for guiding and giving meaning to subsequent psychological and physiological actions that lead to goal attainment.

Goals have two main attributes: content and intensity. Goal content is the object or result that is sought. It can vary quantitatively in that a person may have few or many goals. People can have short-term proximal goals in addition to a long-term distal goal, and their goals may be easy or difficult. Goals may also vary in specificity from a vague and abstract one, such as *do your best*, to a specific one, such as to decrease

costs by 20% within the next 12 months. Goals may also vary in type from a focus on a performance outcome to learning or discovering a specific number of processes or to those that are behavioral in nature.

Goal intensity refers to the determinants and effects of goal commitment on performance as well as the place of a given goal in a person's goal hierarchy. Goal content and intensity can be related. An intense psychological process might be involved in setting a clear, specific goal rather than a vague goal in a situation where a great deal of information has to be analyzed and integrated before a goal can be clearly formulated. Hence, setting a specific performance goal in this instance would be more intense than adopting a vague goal.

A core finding of more than 1,000 studies on goal setting is that higher goals lead to greater effort and persistence than easy goals, given that the person is committed to attaining them. With regard to affect, higher goals make self-satisfaction more contingent on a higher level of performance than easy goals. Moreover, high goals are usually seen as more instrumental in attaining valued outcomes than easier goals. People typically view their actions that fall short of their desired goal as unsatisfactory. When a person's self-efficacy—namely, task-specific self-confidence—is high, a negative self-evaluation usually leads to subsequent actions to eliminate the source of dissatisfaction, such as finding ways of improving subsequent performance. Action that leads to meeting or exceeding a goal results in positive appraisals. However, if a positive appraisal is followed by anticipation that attaining the same performance level again leads to a neutral or negative self-appraisal, the person is likely to set an even higher goal. In short, goals are the value standard by which people appraise their performance.

A second core finding of goal-setting theory is that goals that are specific and difficult lead to a higher level of performance than vague, abstract goals such as to *do your best*, even though the latter exhortation implies a high level of motivation. This is because the ambiguity inherent in an abstract goal allows people to give themselves the benefit of the doubt in evaluating their performance. Hence, a wide range of performance levels may be interpreted as aligned with the desire to *do one's best*. In contrast, a specific high goal makes explicit what constitutes an acceptable outcome.

These two core findings are seen in a wide spectrum of employees including loggers, factory workers,

production and marketing personnel, engineers, scientists, and college professors. These findings have been obtained in Australia, Canada, the Caribbean, Germany, Israel, Japan, and the United States. The performance characteristics studied include quantity and quality of work, production efficiency, time spent on task, profits, costs, job behavior, performance appraisal ratings, and survey returns. These findings apply to groups in addition to the individual.

Three motivational mechanisms explain how goals affect performance, namely, choice, effort, and persistence. A fourth mechanism is cognitive, namely, the discovery of appropriate strategies. With regard to choice, clear specific goals have two directional effects that are relatively automatic. First, they point a person toward goal-relevant activities and materials, and away from goal-irrelevant ones. Second, they activate stored knowledge and skills that an individual possesses that are perceived as relevant to the task.

Once the choice has been made, goals energize performance by motivating people to exert effort in line with the difficulty or demands of the goal. Holding a person's ability constant, scores of studies have shown that rate of performance is a linear function of goal difficulty. That is, given goal commitment, the higher the goal, the higher the performance.

Persistence is ongoing effort, typically assessed in the form of duration of time spent on an activity. High goals increase the probability that a person will continue to work for a longer period of time than is the case with a vague or easy goal.

These three mechanisms, choice, effort, and persistence, operate automatically once the person commits to a goal. When people have yet to acquire the knowledge or skill necessary to attain a specific high goal, a learning rather than a performance goal should be set. This is especially so on tasks for which minimal prior learning or performance routines exist, where strategies that were once effective suddenly cease to be so. If this is not done, setting a specific high-performance goal can actually lead to lower performance than urging people to do their best. This is because people feel pressure to perform well immediately before taking the time to explore systematically optimal ways to perform the task.

The primary distinction between a performance and a learning goal is framing the instructions. The instructions respectively associated with the two types of goal invoke two different domains, namely, motivation and ability. With a performance goal, as the name

implies, the goal is framed so that the focus is on the result. A search for information to attain the goal is neither mentioned nor implied because ability is a given. Performing effectively requires only the choice to exert effort and persist until the goal is attained. Similarly, with a learning goal, as the name implies, the goal is framed so that people focus on knowledge or skill acquisition—the search for and implementation of effective strategies. Thus a learning goal draws attention away from the end result. The focus instead is on discovering an appropriate process. Learning goals are particularly relevant in fast-changing organizational environments and industries that are prone to abrupt changes, and in which strategies once effective can quickly become obsolete. Relative to performance goals, they increase the probability that appropriate strategies will be discovered for mastering a task. In such instances, commitment to a learning goal has been found to be higher than for a performance goal. This is a result of goal intensity, namely the amount of thought or mental effort that goes into formulating a plan of action required of the former relative to the latter. Research is now needed to study under what conditions learning goals lead to learning, that is, the discovery of appropriate strategies or processes.

Behavioral goals, set based on a systematic job analysis, can obviate the need for a learning goal even though the task is complex for people. Behavioral goals are appropriate in relatively stable environments where the appropriate course of action is already known, and where end result variables are not easily measured for each individual, or the latter are affected by factors beyond the person's ability to control.

Among the ways to foster goal commitment is to have goals assigned by an authority figure, make the goals public, and increase the person's self-efficacy. Assigned goals lead to commitment because listening to the assignment without objection is itself a form of consent, and assigning the goal implies the person is capable of attaining it. This is particularly true when the person who assigns the goal is perceived as supportive and trustworthy. Making a goal public makes attainment an issue of integrity and thus binds a person more strongly to it than committing to it privately. This is because few people want to be subsequently seen by others as failures or hypocrites. Self-efficacy is people's judgment of how well they can execute courses of action required to deal with prospective situations. People with high self-efficacy set and commit to high goals. Obstacles and hurdles to overcome are

viewed as challenges and sources of excitement. People with low self-efficacy view the same obstacles and hurdles as concrete reasons for abandoning a goal.

Goal commitment can also be fostered by monetary incentives. There has been little research to date on optimal ways to design incentive plans to motivate people to try for high goals, and yet not become demotivated by getting close to the goal but not attaining it. Large incentives may also tempt some people to find ways to cheat.

Goal setting is effective regardless of whether the goal is self-set, participatively set, or assigned. Self-set goals are the core of self-management. Participatively set goals on tasks that are straightforward for people have sometimes been found to lead to higher goals than is the case when the goal is assigned by a supervisor. As noted earlier, the higher the goal, the higher the performance. Performance is equally high, as is commitment to the goal, when the assigned goal is as difficult as the one set participatively, the logic or rationale for the assigned goal is provided, and confidence is expressed in the employee's ability to attain it. On tasks that are complex for people, participatively set goals are preferable only to the extent that through discussion they lead to the discovery of better task strategies and an increase in self-efficacy regarding the application of these strategies.

Goals have an anticipatory, feed-forward effect by energizing action at the beginning of a work period. Regardless of the method used for setting a goal, feedback in relation to goal attainment is nevertheless critical. Feedback allows people to adjust their effort, persistence, and strategy with this information. One way to conceive of the relation between goals and feedback is as follows: Feedback tells people what is; goals tell them what is desirable. Feedback involves information; goals involve evaluation. Goals inform people as to what type or level of performance is to be attained so that they can direct and evaluate their actions and efforts accordingly. Feedback allows them to set reasonable goals and to track their performance in relation to their goals, so that adjustments in effort, direction, and strategy can be made as needed. To correct an old but not completely accurate axiom in organizational psychology, That which gets measured in relation to goals is done.

—Gary P. Latham and Edwin A. Locke

See also Incentives; Path-Goal Theory

FURTHER READING

- Latham, G. P., Locke, E. A., & Fassina, N. E. (2002). The high performance cycle: Standing the test of time. In S. Sonnentag (Ed.), *The psychological management of individual performance: A handbook in the psychology of management in organizations* (pp. 201–228). Chichester, UK: Wiley.
- Locke, E. A. (1978). The ubiquity of the technique of goal setting in theories of and approaches to employee motivation. *Academy of Management Review*, 3, 594–601.
- Locke, E. A. (2004). Linking goals to meeting incentives. *Academy of Management Executive*, 18, 130–134.
- Locke, E. A., & Latham, G. P. (1990/1996). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall. (Reprinted from *Motivation and leadership at work*, pp. 1–26, by R. M. Steers, L. W. Porter, & G. A. Bigley, 1996, New York: McGraw-Hill)
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57, 705–717.
- Locke, E. A., & Latham, G. P. (2005). Goal setting theory: Theory by induction. In K. Smith & M. Hitt (Eds.), *The Oxford handbook of management theory: The process of theory development*. New York: Oxford University Press.
- Seijts, G. H., & Latham, G. P. (2005). Learning versus performance goals: When should each be used? *Academy of Management Executive*, 19, 124–131.

GRAPHOLOGY

Graphology, or handwriting analysis, is sometimes used to assess personality or make inferences about specific attributes such as integrity. The underlying theory is that there are a number of structural characteristics of a person's handwriting that provide reliable indications of personality, including traits such as honesty or loyalty. There are serious questions regarding the validity of assessments provided by this technique; graphology is sometimes classified as a quasi-occult practice, comparable to astrology, palmistry, numerology, and other similar methods. Despite well-founded concerns about the validity of graphological assessments, this method is widely used, especially in Israel and France. In the United States several thousand employers are thought to use graphology in preemployment screening.

It is important to distinguish graphology from the practice of forensic graphoanalysis. Graphoanalysis is

a method for authenticating documents such as letters and signatures and is widely used in criminal investigations and in civil procedures including contested wills. Graphoanalysts do not attempt to draw inferences about the person based on handwriting; graphologists claim to be able to make such inferences.

THE GRAPHOLOGISTS' METHOD

Graphology involves an examination of a number of specific structural characteristics of a handwriting sample, such as letter shapes and sizes, which are used to make inferences about the writer. For example, in some systems of graphological analysis, the degree of slope in a person's letters is thought to indicate the extent to which a person is introverted versus extroverted. Computerized systems for handwriting analysis exist, but most graphological analyses are still done by individual graphologists. Graphologists typically insist that the handwriting sample for analysis must be spontaneous and that handwriting samples involving copying text from a book or writing a passage from memory do not yield a valid reading. The writing sample requested by a graphologist is often a brief autobiographical sketch or some other sort of self-description.

Graphologists claim that neither the content nor the quality of the writing sample, such as fluency and clarity of expression, influence their assessments and that their evaluations are the result of close examination of the features of letters, words, and lines in the sample. There are several reasons to believe that this claim is false and that even if graphologists try to ignore the content of the writing sample, their assessments are nevertheless strongly influenced by that content. First, several studies have shown that when the same biographical passages are examined by graphologists and nongraphologists, their assessments of individual examinees tend to agree, and graphologists are no more valid in their assessments than nongraphologists. Because nongraphologists presumably do not attend in a systematic way to the graphological features of the writing, but rather to the content of the stories, their ability to make assessments that are similar to and every bit as good as those made by professional graphologists strongly suggests that both groups are attending to the same material—specifically, the content of the writing samples. Indeed, studies by Gerson Ben-Shakhar and his colleagues have shown that predictions based solely on the content of the writing

sample are more valid than those obtained from professional graphologists. Second, when the content of passages is not biographical in nature (e.g., meaningless text or text copied from some standard source), graphologists seldom make valid predictions. If their predictions depended solely on the structural features of letters, the content of the passages should not make a difference.

VALIDITY OF GRAPHOLOGICAL ANALYSIS

In evaluating graphology, there are two separate questions that might be asked. First, how valid and reliable are the general predictions produced by a graphological analysis? For example, if graphology is used in personnel selection, we might ask the graphologist to predict who is more or less likely to perform well on the job. Second, how accurate are the specific assessments of particular personality traits? If graphology is used to measure specific traits, such as integrity, we might ask whether this method provides valid measures of that trait.

There is evidence that graphologists can make somewhat valid predictions of a job applicant's overall performance, but it is also clear that nongraphologists who examine the same material make equally valid predictions. This research suggests that there is little to be gained from attending to the purely graphological aspects of the writing sample.

The available evidence also casts doubt on graphologists' ability to make even the most general assessments of individuals, or at least to do a better job than nongraphologists given the same materials. It is notable that graphologists refuse to predict some easily verifiable characteristics of writers, such as their gender, something untrained individuals can do with considerable accuracy. There is no reason to believe that graphological assessments of specific characteristics such as honesty and integrity are accurate or valid.

ACCOUNTING FOR THE CONTINUING APPEAL OF GRAPHOLOGY

Numerous studies of graphology show that assessments of personality made on the basis of examination of the structural characteristics of handwriting samples are neither valid nor valuable. The underlying theory—that specific personality characteristics are reliably translated into specific characteristics of a person's handwriting such as the size of letters, the

degree of slant, or other common graphological signs—is simply wrong. Given its questionable status, how can someone account for the continuing popularity of graphology?

There are several potential explanations for the continuing popularity of graphology. First, the idea that handwriting reveals character is ancient and can be traced at least as far back as the Roman Empire, and the assumption that graphology *should* work has long been common in Western civilization. Second, proponents of this method claim that graphology provides what virtually every manager wants—a window into the minds of the employees. Third, it is a potentially unobtrusive method. For example, it is common to ask job applicants to provide a brief biographical statement, which can easily be subjected to graphological analysis.

Although it remains an important part of many selection systems, there is no justification for using graphology to make important decisions about individuals.

—Kevin R. Murphy

See also Counterproductive Work Behaviors; Integrity Testing; Selection Strategies

FURTHER READING

- Bar-Hillel, M., & Ben-Shakhar, G. (1986). The a priori case against graphology. In B. Nevo (Ed.), *Scientific aspects of graphology* (pp. 263–279). Chicago: Charles C Thomas.
- Ben-Shakhar, G., Bar-Hillel, M., Blum, Y., Ben-Abba, E., & Flug, A. (1986). Can graphology predict occupational success: Two empirical studies and some methodological ruminations. *Journal of Applied Psychology, 71*, 645–653.
- Ben-Shakhar, G., Lieblich, I., & Bar-Hillel, M. (1982). An evaluation of polygraphers' judgments: Review from a decision theoretic perspective. *Journal of Applied Psychology, 67*, 701–713.
- Murphy, K. (1993). *Honesty in the workplace*. Monterey, CA: Brooks/Cole.

GRAVITATIONAL HYPOTHESIS

The gravitational hypothesis is a theory that suggests that workers will gravitate, or move, to jobs that match their cognitive ability. Cognitive ability,

generally speaking, is a person's cognitive capacity or general mental capability that determines how quickly that person can process and understand concepts and ideas. It is believed to be stable once a person reaches adulthood. According to the gravitational hypothesis, one driver of workers' movement across jobs is their general cognitive ability such that high-ability workers gravitate toward jobs with high cognitive demands and low-ability workers gravitate toward jobs with low cognitive demands. Said another way, workers gravitate to work that they can adequately perform.

Clearly, there are many potential drivers of worker mobility across jobs, but this theory focuses on general cognitive ability in particular. Because cognitive ability is unchanging, workers must move to jobs where they can achieve the best match between their abilities and the cognitive demands of the job. Thus cognitive ability, mobility, and person–job match are all dimensions of the theory.

COGNITIVE ABILITY, MOBILITY, AND PERSON–JOB MATCH

Although the context within which workers are moving, the labor market or the market where workers find work and organizations find employees, was a focus of mobility researchers for years, the gravitational hypothesis placed a lens specifically on workers' characteristics. The state of the labor market, such as whether jobs were plentiful or not, was a key contextual factor for the frequency and type of worker mobility. Frequency is the rate or speed with which workers move across jobs in the labor market. Type of mobility is the direction of movement: upward, downward, or lateral. In some research, type of mobility is determined by the change in the salary of the work. An upward move denotes a move to a job with a higher salary than the job held previously, a downward move denotes a move to a job with a lower salary than the job held previously, and a lateral move denotes a move to a job with the same salary as that held previously. In a labor market where jobs are plentiful, workers are expected to move more frequently and have greater opportunities to move to work with higher wages. The worker's characteristics played a decidedly *backseat* role in the mobility process.

The gravitational hypothesis suggested that worker characteristics, specifically general cognitive ability, should play a more central role in understanding the mobility of workers in the labor market. Moreover,

type of mobility should relate directly to whether or not workers gravitate to work that matches their cognitive ability level. Upward moves suggest a move to work of greater cognitive demands than the work held previously. Downward moves would suggest a move to work of lesser cognitive demands and lateral moves would suggest a move to work of the same cognitive demands compared with the job held previously. Although higher salaries were always preferred over lower ones, this conceptualization of mobility type requires a more complicated calculus to determine whether one move would be preferred to another. Both worker cognitive ability and job cognitive demands need to be considered and the match between them evaluated. Sometimes improving the match requires a move down in job demands and sometimes it requires a move up.

Sorting workers both up and down in terms of cognitive demands runs counter to many views of mobility as generally upward. Further, there are some theories, such as the *Peter Principle*, that suggest that workers will be promoted to the point above their competencies. The gravitational hypothesis argues that when workers find themselves in work beyond their capabilities, they are more likely to gravitate to work with lower cognitive demands than to either stay in the job or move further upward. That is, overemployment, work beyond worker capability, is more likely to lead to a shift downward in an effort to create greater parity between worker capability and job demands. Likewise, underemployment, work that is beneath worker capability, is believed to more likely lead to a shift upward to work that has higher cognitive demands. Whether the worker or the organization is the catalyst for change, such as if the worker quits or is fired, is not differentiated in the theory. Regardless of the direction of movement or the catalyst for the change (e.g., worker or organization), moves that improve the match between workers' cognitive ability and the work's cognitive demands are preferred according to this theory.

Thus the gravitational hypothesis suggests a dynamic model of person–job match. Person–job match, the match between person characteristics or desires and the demands or characteristics of the job, can be measured on a variety of dimensions. If a person desires a flexible schedule, finding a job that provides flexibility is considered a good match on this dimension. If a person has a preference for a certain type of workplace culture, finding an organization

with such a culture would be a good match on this dimension. The gravitational hypothesis focuses on one dimension of person–job match, the match between worker cognitive ability and work cognitive demands. It is important to note that a person may be seeking match on a variety of these dimensions simultaneously, making fully explicating the matching process difficult. Indeed, matching is a process, one that the gravitation hypothesis acknowledges directly. Gravitation is about movement or change, and the gravitational hypothesis is about movement that leads to improved match between worker ability and the cognitive demands of the work.

Originally, the gravitational hypothesis was developed by job analysis researchers who observed that workers with long job tenures were more likely to have the capability to meet the demands of the work, suggesting that match encouraged stability. Workers still seeking match were more likely to leave jobs and organizations. Indeed, research has found a common outcome of mismatch between workers and their work turnover. Other outcomes of mismatch are low satisfaction and performance. Thus achieving match between workers and their jobs is beneficial to both organizations and workers. A matched employee is more likely to be satisfied, to perform better, and to have long job tenure. The probability of match may be increased through careful recruiting and selection practices that allow both applicants and prospective employers the opportunity to share information that allows for assessment of match quality.

—*Steffanie L. Wilk*

See also Cognitive Ability Tests; Person–Environment Fit; Person–Job Fit; Person–Organization Fit; Recruitment; Theory of Work Adjustment

FURTHER READING

- McCormick, E. J., DeNisi, A. S., & Staw, J. B. (1979). Use of the Position Analysis Questionnaire for establishing the job component validity of tests. *Journal of Applied Psychology, 64*, 51–56.
- Peter, L. (1969). *The Peter Principle*. New York: Morrow.
- Wilk, S. L., Demarais, L. B., & Sackett, P. R. (1995). Gravitation to jobs commensurate with ability: Longitudinal and cross-sectional tests. *Journal of Applied Psychology, 80*, 79–85.
- Wilk, S. L., & Sackett, P. R. (1996). Longitudinal analysis of ability–job complexity fit and job change. *Personnel Psychology, 49*, 937–967.

GROUP COHESIVENESS

In trying to understand what makes work groups and teams effective, an important question for theory and practice is what keeps a group together, or what leads the members of a group to stay committed to the group? The term *group cohesiveness* (or *cohesion*) was coined by Leon Festinger and colleagues to refer to the social glue that binds group members together. Thus group cohesiveness refers to the resultant of all the forces acting on members to remain in the group or simply to group members' attraction to the group.

The concept of group cohesiveness has a wide appeal in research in applied psychology in such diverse areas as organizational behavior, social psychology, military psychology, sport psychology, educational psychology, and counseling. Much of this interest is inspired by the widely shared recognition that keeping groups together is important to the successful functioning of systems relying on group work. Aside from a concern with what leads group members to remain with a group, the interest in group cohesiveness is also inspired by the assumption that more cohesive groups function better, at least in part because members of more cohesive groups presumably are more willing to exert themselves on behalf of the group. Evidence for this proposition is mixed, however. To address this issue, Brian Mullen and Carolyn Copper (1994) integrated the results of many studies on the relationship between group cohesiveness and group performance. Their conclusion is that group cohesiveness may better be viewed as a construct with different aspect, and that the aspect of cohesiveness that has to do with group members' commitment to task performance and goal achievement is the most important in predicting group performance. Complementing these findings, more recent evidence suggests that whether group cohesiveness is conducive to group performance is contingent on the extent to which the group embraces high performance goals and norms. If not, high cohesiveness may in fact be associated with lower performance.

THE DIMENSIONALITY OF GROUP COHESIVENESS

Group cohesiveness has always been at least implicitly associated with a greater willingness of group members to exert themselves on behalf of the group

and therefore with increased group productivity and performance. Some issues complicate our understanding of the concept of group cohesiveness and its consequences, however.

A first issue is the measurement of group cohesiveness. The concept of group cohesiveness refers to the forces that bind individuals to the group or the attraction of group members to the group. The most common way to measure group cohesiveness, however, is to measure individual group members' attraction to other group members (i.e., rather than to the group). Interpersonal attraction may be an aspect of group cohesiveness, but it is not the only aspect of group cohesiveness and might not be the most important one. Indeed, the definition of group cohesiveness suggests that attraction to the group as a whole (i.e., rather than to individual members) is more central to the concept. Many studies of group cohesiveness may thus fail to capture important aspects of the concept.

A second issue follows from the first. Many researchers and practitioners alike tend to think of group cohesiveness as a one-dimensional construct, that is, a concept reflected in a single characteristic of the group. Theoretical considerations as well as a review of measurement practices suggest, however, that it may make more sense to think of group cohesiveness as a multidimensional construct—in other words, as a concept reflecting different aspects of the group. Interpersonal attraction between group members may be one of these aspects but not the only one. A second important aspect of group cohesiveness is cohesiveness as it flows from attraction to the group's goals and mission and commitment to the group's task. That is, group members may be attracted to the group because they value what the group is trying to achieve. A third aspect that may be important in the group's attraction to its members is the value to group members of being a member in the group, *per se*. Part of a group's attractiveness may flow from the group's prestige or from other factors that may render members proud of their membership in the group. As Mullen and Copper's (1994) review of the literature shows, these three aspects are represented in different studies of group cohesiveness, and the relationship between these different aspects is small enough to see them as separate aspects of group cohesiveness. Moreover, these different aspects are differently related to group performance.

GROUP COHESIVENESS AND GROUP PERFORMANCE

Mullen and Copper (1994) conducted a meta-analysis—a quantitative summary of the results of a number of empirical studies—of research on the relationship between group cohesiveness and group performance. Following from their review of the literature, they distinguished between interpersonal attraction, task commitment, and group pride as different parts of group cohesiveness. What they found was that task commitment was most strongly and most consistently (positively) related to group performance. In particular, the contribution of interpersonal attraction between group members turned out to be very modest at best—and could indeed even be negative. Group members' attraction to the group's goals and task thus seems to be the part of commitment that is most important in predicting group performance.

On the practical side, these findings suggest that attempts to boost work group performance by fostering cohesion will be relatively ineffective if they concentrate on building interpersonal attraction between group members, such as by organizing social events for the team, or by boosting group pride. Rather, such attempts are better focused on increasing group members' commitment to the group task and group goals; for example, this effect is often attributed to charismatic and transformational leadership.

An important caveat in this respect is that short-term group performance may be only one aspect of viable group functioning. For other aspects of group functioning, and perhaps also in the longer run, other aspects of group cohesiveness may play a more important role than suggested by Mullen and Copper's (1994) focus on relatively short-term task performance. There is, for example, research suggesting that the more social aspects of group cohesiveness such as interpersonal attraction may play a role in longer-term group viability. Arguably, although interpersonal attraction and group pride may not contribute much to group performance directly, they may be important in retaining valued members of the group, and thus for group performance in the longer run. We should be cautious in concluding from a narrow focus on proximal task performance that only certain aspects of group cohesiveness are important for effective group functioning.

It is important to realize, when it comes to the relationship between group cohesiveness and group

performance, that group performance may also affect group cohesiveness. Group cohesiveness may lead to group performance, but group performance may also lead to group cohesiveness. When a group performs well rather than poorly, this may render the group more attractive. Indeed, Mullen and Copper's (1994) analysis suggests that the effect of group performance on group cohesiveness might be twice as strong as the effect of group cohesiveness on group performance. This is not to say that group cohesiveness does not matter in engendering high performance, but it does caution research and practice in group cohesion and performance that observed correlations between cohesion and performance may reflect the influence of performance on cohesion more than the influence of cohesion on performance.

Another important issue in the relationship between group cohesiveness and group performance is that it is probably better to think of group cohesiveness as motivating a willingness to exert oneself on behalf of the group and not necessarily as motivating high group performance. That is, members of highly cohesive groups may be attracted and committed to their group and motivated to exert themselves in pursuit of what they perceive to be the group's interest, but they need not perceive high performance as being central to the group's interest. This is nicely illustrated in a study by Philip M. Podsakoff, Scott B. MacKenzie, and Michael Ahearne (1997). These researchers studied the relationship between the cohesiveness of work teams in a paper mill and team productivity. Specifically, they looked at the influence of the teams' commitment to organizational performance goals on the relationship between group cohesiveness and group productivity. What they found was that higher group cohesiveness was only associated with higher productivity when commitment to organizational performance goals was high. When commitment to performance goals was lower, group cohesiveness even tended to be negatively related to productivity. Other research obtained similar findings for the role of group norms—only when groups accepted high performance norms did cohesion positively predict performance. These findings suggest that organizations may thus only expect positive effects of high-group cohesiveness when groups embrace organizational performance goals and norms.

—Daan van Knippenberg

See also Group Decision-Making Quality and Performance; Group Development; Group Dynamics and Processes; Groups; Team Mental Model

FURTHER READING

- Festinger, L. (1950). Informal social communication. *Psychological Review*, 57, 271–282.
- Hogg, M. A. (1993). Group cohesiveness: A critical review and some new directions. *European Review of Social Psychology*, 4, 85–111.
- Mullen, B., & Copper, C. (1994). The relation between group cohesiveness and performance: An integration. *Psychological Bulletin*, 115, 210–227.
- Podsakoff, P. M., MacKenzie, S. B., & Ahearne, M. (1997). Moderating effects of goal acceptance on the relationship between group cohesiveness and productivity. *Journal of Applied Psychology*, 82, 974–983.
- van Knippenberg, D., & Ellemers, N. (2003). Social identity and group performance: Identification as the key to group-oriented efforts. In S. A. Haslam, D. van Knippenberg, M. J. Platow, & N. Ellemers (Eds.), *Social identity at work: Developing theory for organizational practice* (pp. 29–42). New York & Hove, UK: Psychology Press.

GROUP DECISION-MAKING QUALITY AND PERFORMANCE

The need for broad representation and a wide range of expertise often necessitates the use of groups to make important decisions. Indeed, group decision making is evident in product development teams, corporate boards, juries, and emergency medical teams. Group decision making involves the process of reaching agreement on a given set of alternatives among multiple individuals. Through interaction and discussion, individual positions or preferences are transformed into a consensus choice. Research in this literature has mostly focused on small groups, typically with a size of 4 to 7 members but reaching up to 12 members in jury decision research. What distinguishes group from individual decision making is the need to reconcile various positions and preferences into a collective decision. A common assumption is that groups can make higher-quality decisions and better detect errors than individuals acting alone. However, research has shown that group outcomes are not always superior to

those of individuals. Instead, the factors contributing to group decision-making success or failure are numerous, complex, and situationally contingent.

ADVANTAGES AND DISADVANTAGES OF GROUP DECISION MAKING

The belief that *several heads are better than one* underlies the reliance on groups to make important decisions in business, military, medical, and governmental contexts. Groups, as opposed to individuals, represent a diversity of perspectives, areas of expertise, and values. In addition, groups can distribute the responsibility for consequential decisions across many members. Furthermore, people may reject decisions made by a single authority, whereas collective decision making may increase the acceptability and ease of implementation of decisions.

Despite these advantages, however, group decision making also suffers from significant limitations. For example, groups often take longer to arrive at a choice than individuals. In addition, although group decision making is expected to lead to superior performance when no single member has all the necessary information to identify a correct solution, extensive laboratory research has revealed that groups tend to discuss information that is shared by all members as opposed to pooling the unique information held by individual members. Therefore, the potential for different individuals to bring independent, unshared, and valid information to the group is never realized, which contributes to incorrect group solutions. Nevertheless, information sharing has been found to improve over time, and leadership as well as training can improve the dissemination of knowledge in teams.

Although groups are often expected to neutralize individual biases in decision making, they have been found to fall prey to some of the same errors as individuals. The question of whether groups are any less subject to judgmental biases than individuals depends on a variety of factors, including group size and the type and magnitude of bias, as well as group processes.

Some research has found that groups exaggerate the biases of individual group members. Specifically, group polarization refers to the finding that groups are more extreme than the mean of individuals. For example, if members adopt a cautious or risky viewpoint prior to group discussion, they tend to have an even

more cautious or risky viewpoint after deciding together as a group.

Another disadvantage to group decision making is the potential for groupthink, which has received much emphasis in the literature. Groupthink occurs when the premature striving for agreement among members produces faulty decisions. To combat these limitations and improve group decision making, many techniques have been proposed to establish new patterns of social interaction, change the sequence of steps in information processing, or develop specific procedures for task accomplishment.

TYPES AND STAGES OF GROUP DECISION MAKING

There are two major categories of group decision making. One type involves members discussing decision alternatives and combining their preferences to arrive at a collective solution. A second type is called hierarchical decision making because a team leader asks for input from group members, but that team leader makes the final decision. For example, a department chair may be advised and informed by various faculty committees but determines the final choice alone.

Similar stages have been proposed for both individual- and group-level decision making, namely issue identification, alternative generation, evaluation, and choice. During issue identification, relevant information is acquired and issues are defined and interpreted. In the alternative generation stage, decision criteria are chosen and alternatives are proposed. Finally, alternatives are evaluated and a decision is selected. Some models of group decision making also include an implementation phase in which actions are coordinated and monitored.

GROUP DECISION-MAKING EFFECTIVENESS

Two broad categories that can be used to assess group decision-making effectiveness are decision outcomes and affective outcomes. Decision outcomes include acceptance of the decision by those affected by it, whether the decision stands or is subsequently overturned, and how successfully it is implemented. In addition, decision accuracy or quality has been researched extensively. Affective outcomes include satisfaction with the final decision, fairness of the processes used to arrive at consensus, and whether

members would like to continue working together. Both short- and long-term outcomes should be considered in the assessment of decision-making effectiveness.

FACTORS CONTRIBUTING TO GROUP DECISION-MAKING EFFECTIVENESS

Existing models recognize that effective and ineffective group decision making is determined by a wide range of factors. A sampling of the variables that have been investigated in this literature follows.

Decision Rule

Group members must implicitly or explicitly select and implement decision rules to determine how individual preferences will be combined to produce a collective decision. Majority rule and unanimity are the most common methods of social choice. In a simple majority, 51% or more of group members must agree, whereas unanimity requires that all members agree. Group decisions often are more difficult to reach and require more discussion under unanimity rule than under majority rule. In contrast, majority rule is more efficient and less time-consuming, and it prevents impasses more than does unanimity. However, majority rule may not be the preferred decision rule in groups with conflicting viewpoints, because it cannot always resolve diverse preferences in a way that contributes to effective group functioning. Unanimity drives groups toward more systematic processing of information because attention must be paid to all members' perspectives.

Social Decision-Making Schemes

Related to decision rules, prediscussion preferences of group members can be related to group decisions through simple functions or rules, termed *social decision schemes*. Examples include *majority rule* (group decision is favored by more than half of group members), *truth wins* (one correct member is necessary and sufficient for a correct group response), and *truth supported* (two correct members are necessary and sufficient for a correct group response).

Social decision schemes are probabilistic models, and their fit can be assessed through statistical tests. A reoccurring finding in this research is that groups tend to decide for an alternative that is supported by the

majority of members, despite the fact that it may not be the correct solution. However, a major value of this research has been to trace the ways in which the best fitting or most predictive social decision scheme varies with the decision environment and type of task. For example, truth wins tends to be the best fitting social decision scheme for intellectual tasks where a demonstrably correct solution exists. In contrast, truth supported tends to be the best fitting combination process for general world knowledge and vocabulary. Furthermore, the best fitting social decision scheme for juries is a two-thirds majority.

Minority Influence

In the absence of dissenters, convergent thinking strategies are used, which involve a narrow focus with little cognitive effort. However, the presence of dissenting minorities causes group members to think more divergently; that is, their thoughts cover a wider range of perspectives. Majority members seek understanding of the minority position to better reject it, and the tension produced by conflicting perspectives produces divergent thinking. As a result, groups with dissenting minorities have been found to produce more innovative ideas than groups without dissenting minorities.

Conflict

In the past 15 years, it has been recognized that conflict can be a functional and stimulating mechanism in groups as opposed to a stressful and disruptive event. As a result, some decision-making interventions such as devil's advocacy encourage group members to challenge each other's ideas to foster debate and critical analysis. Some research suggests that these techniques do yield better group decisions. However, not all conflict is beneficial. Although task-related conflict fosters a deeper discussion of the issues by fostering disagreement about ideas, relationship conflict results in animosity, anger, and tension between group members.

GROUP DECISION MAKING IN ORGANIZATIONS

The majority of research in group decision making has been conducted by social psychologists who mostly use laboratory experiments and ad hoc groups. Therefore, it is not clear if all results can be generalized

to groups in organizations, in which members have a history and stay together for extended periods of time. However, over the past decade, organizational psychologists have gotten more involved in group decision-making research to overcome the artificiality of laboratory work. Recent group decision-making models include more *real world* variables such as political factors, stress from external threats, member history, and the likelihood of future group interactions. Therefore, it is expected that new insights will be gained concerning the effects of organizational factors on group decision making in the next few years.

—Alexander Schwall and Susan Mohammed

See also Group Decision-Making Techniques; Groupthink

FURTHER READING

- De Dreu, C. K. W., & West, M. A. (2001). Minority dissent and team innovation: The importance of participation in decision making. *Journal of Applied Psychology, 86*(6), 1191–1201.
- Fuller, S. R., & Aldag, R. J. (2001). The GGPS model: Broadening the perspective on group problem solving. In M. E. Turner (Ed.), *Groups at work: Theory and research* (pp. 3–24). Mahwah, NJ: Lawrence Erlbaum.
- Hinsz, V. B., Tindale, R., & Vollrath, D. A. (1997). The emerging conceptualization of groups as information processes. *Psychological Bulletin, 121*(1), 43–64.
- Hollenbeck, J. R., Ilgen, D. R., Segoe, D. J., Hedlund, J., Major, D. A., & Phillips, J. (1995). Multilevel theory of team decision making: Decision performance in teams incorporating distributed expertise. *Journal of Applied Psychology, 80*(2), 292–316.
- Kerr, N. L., & Tindale, R. (2004). Group performance and decision making. *Annual Review of Psychology, 55*, 623–655.

GROUP DECISION-MAKING TECHNIQUES

A group decision-making technique is a strategy for structuring group members' interactions to enhance the quality of a collective decision. It is a set of rules or procedures that specify the process members should follow when contributing to a decision pertaining to their group.

An effective group decision is characterized by a full use of members' resources, an efficient use of

time, and a high-quality outcome. A number of group process deficiencies or roadblocks can hinder one or more aspects of effectiveness. For example, group members may withhold critical input because they do not want to interrupt another person (i.e., production blocking), feel apprehensive about being evaluated by other group members, have been interrupted by another person such as a domineering teammate, or be prone to social loafing wherein individual effort decreases as group size increases. Furthermore, members may ignore teammates' input because they are unwilling to consider alternative viewpoints or because they are distracted as they closely monitor the conversational flow for opportunities to state their own ideas. Collectively, these and other barriers can cause groups to evaluate solutions before all members have provided input or exhausted their supply of ideas and suggestions.

A group decision-making technique is designed to enhance effectiveness by diminishing barriers and roadblocks such as those described earlier. Four of the most commonly cited group decision-making techniques are brainstorming, the nominal group technique, the Delphi technique, and the stepladder technique. These techniques vary in the manner in which they structure group problem solving. They also differ according to the particular process deficiencies they aim to minimize.

BRAINSTORMING

Groups often make ineffective decisions because they either fail to sample an adequate domain of alternative solutions or do a poor job of evaluating and selecting among the alternatives considered. Brainstorming is a group decision-making technique designed to address the first of these two issues by increasing the range of ideas and solutions available for the group to explore. Brainstorming groups meet specifically to generate alternatives. They are instructed to produce as many ideas as possible. Brainstorming does not provide a problem solution or decision itself. Instead, it produces a list of alternatives that will later be considered, discussed, and evaluated when it is time to reach a final decision.

The ground rules include the following:

- **Suspend judgment:** Evaluation and criticism of ideas during brainstorming should be avoided.
- **Permit freewheeling:** Group members should offer any ideas they have, no matter how impractical. Wild

ideas, even those considered too risky or impractical to implement, are expected.

- **Emphasize quantity, not quality:** Quantity should be stressed, not quality. All ideas should be expressed. None should be screened out. This is intended to encourage people to move beyond their favorite ideas, thereby producing a more complete range of alternatives.
- **Encourage pooled creativity and synergy:** Members should build on others' ideas when possible. People should feel free to make combinations from others' suggestions.
- **Ignore seniority:** During brainstorming, group members should behave as if everyone were the same rank. Political motivations should be set aside. Brainstorming should be characterized by a relaxed, cooperative, uninhibited, congenial, egalitarian atmosphere.
- **Ensure all voices are heard:** It is important to ensure that all members participate in the brainstorming session, no matter how reluctant they are to contribute.
- **Record all ideas:** Every idea produced during the brainstorming session should be recorded for later discussion.

The purpose of brainstorming is to prompt divergent thinking, produce many different ideas in a short period of time, and encourage full participation among all group members. It is designed to minimize stifling ideas by domineering members, interpersonal conflicts, stereotypes of others' expertise or intelligence, habitual patterns of silence, and evaluation apprehension.

Brainstorming can be implemented in one of several ways. In one version of brainstorming, group members convene and randomly verbalize their ideas, which are captured by a tape recorder or a facilitator who writes them on a flip chart. Research has shown this strategy to be less effective than simply having people generate ideas on their own, independent of the group. Social anxiety and evaluation apprehension prevent some members from blurting out their ideas in a group. Additionally, groups experience production blocking, which is a norm where only one member speaks at a time. During production blocking, ideas that might have emerged are forgotten or censored while a member awaits the opportunity to speak.

Electronic brainstorming is an alternative that is more effective than the face-to-face procedure described earlier. During electronic brainstorming, group members enter ideas into the computer, either

anonymously or not, and each member is able to see the ideas shared by others. The production-blocking problem described previously is all but eliminated because multiple people can enter ideas simultaneously. Research has shown that this form of brainstorming is more effective than its face-to-face alternative, with electronic brainstorming groups performing as well as or better than people generating ideas on their own.

THE NOMINAL GROUP TECHNIQUE

The nominal group technique facilitates both the generation and evaluation of ideas. Unlike brainstorming, this strategy results in a final group decision. The nominal group technique typically involves the following steps:

- **Write ideas in private:** After the problem at hand is understood, members silently generate their ideas in writing. No discussion among members is permitted at this point.
- **Take turns reporting ideas:** Members take turns reporting their ideas to the group, one at a time, while a facilitator records them on a flip chart or blackboard. Again, no group discussion occurs during this step. This round-robin listing continues until each member has no more ideas to share.
- **Discuss ideas:** Next, group members discuss the ideas that have been recorded. The main purpose of this discussion is to clarify, criticize, or defend the stated ideas.
- **Vote on ideas:** Each member privately and anonymously prioritizes the ideas. This nominal voting step may involve a rank-ordering system, a weighted voting procedure, or some similar mechanism for reporting preferences.
- **Calculate the group decision:** The group decision is calculated mathematically, based on the vote described earlier. The final decision is the pooled outcome of the individual votes.
- **Repeat if necessary:** Some variations of the nominal group technique allow the generation–discussion–vote cycle described previously to be repeated until an appropriate decision is reached.

The nominal group technique was developed to overcome a number of decision-making roadblocks. The highly structured and task-focused nature of this strategy is thought to encourage the efficient use of time by reducing the propensity for nonproductive digressions and hostile arguments. The nominal

group technique likely decreases evaluation apprehension by having members write their ideas privately and by separating the brainstorming phase from the later idea evaluation phase. Requiring group members to brainstorm their ideas independently and in writing also facilitates idea generation by reducing production blocking. Taking turns reporting written ideas encourages balanced participation and discourages domineering or high-status members from blocking others' input. Members may also experience an increased sense of accountability and a decreased propensity for social loafing, because members are required to publicly state their written ideas. Finally, the round-robin listing of ideas prevents groups from prematurely evaluating solutions before all members have provided input or exhausted their supply of suggestions.

Despite its positive features, some have argued that the structured nature of the nominal group technique may limit creativity. Research has shown that groups organized according to this method express less decision satisfaction than those using a conventional, unstructured, consensus meeting approach. They also express less decision satisfaction than those relying on the Delphi technique.

THE DELPHI TECHNIQUE

The Delphi technique is a method for collecting, organizing, reviewing, and revising the opinions of a group of individuals who never actually meet. This procedure, which is directed by a nonparticipating coordinator, generates a group decision without physically assembling members. Ideas are solicited and provided via questionnaires. The Delphi technique typically involves the following steps:

- **Solicit input:** The coordinator sends initial questions to members via a mail, fax, or e-mail survey.
- **Independently generate ideas:** Members brainstorm and then include their opinions and ideas on the survey, which is returned to the coordinator on completion.
- **Summarize input:** The coordinator summarizes the input received from members in a way that maintains member anonymity.
- **Distribute summary:** The coordinator sends the summary of everyone's opinions to all group members.
- **Revise, refine, and prioritize earlier input:** After reading the summary of opinions, members are given the opportunity to revise their earlier input, refine

ideas, comment on idea strengths and weaknesses, prioritize the opinions being considered, and identify new ideas. When finished, they send their input to the coordinator.

- **Repeat as necessary:** The third through the fifth steps described earlier are repeated until members have no further input to add.
- **Form final decision:** If a clear consensus emerges after the final round of surveys, the exercise is finished. Alternatively, the members may be asked to rank or rate the final decision options. In this case, the group decision is the alternative with the most favorable rating or ranking.

By requiring members to work independently, the Delphi technique can promote accountability, decrease social loafing, equalize participation, eliminate the biasing effect of domineering members, prevent impaired communications stemming from unproductive disagreements and conflict, avoid the logistical problems (e.g., scheduling) that occur when trying to assemble a dispersed group, eliminate production blocking, and ensure that a premature decision is not made before all ideas are expressed. In addition, the anonymity of group members' input can decrease evaluation apprehension and minimize pressure to conform.

Research has shown that groups structured according to the Delphi technique are more satisfied than both nominal and conventional consensus groups. However, the Delphi process can take a long time. Some estimates indicate that this process, when conducted by postal mail, takes about 44 days on average. Another limitation of this technique is that it completely eliminates direct interaction among group members, which can lead to fruitful synergies under the right conditions.

THE STEPLADDER TECHNIQUE

The stepladder technique is a group decision-making strategy that staggers the entry of members into a group. Like the nominal group and Delphi approaches, the stepladder technique facilitates both the generation and evaluation of ideas. Unlike its predecessors, the stepladder approach allows groups to form a final decision collaboratively and collectively rather than having an outside party derive the group decision by combining independent inputs.

The stepladder technique commences by forming a two-person core group. These two members begin discussion of the problem at hand by presenting their

individual ideas to each other. When they feel they understand each other's ideas, a third member is brought into the core group. This member presents ideas and a preliminary discussion ensues. Next, a fourth member is brought into the core group to present ideas and then participate in the preliminary discussion. This process continues until each member of the team has joined. Once all members are present, the group works together to form a final decision.

The stepladder technique has four ground rules:

1. **Allot sufficient individual problem-solving time:** Each member must have adequate time to think about the problem at hand before joining the core group.
2. **Require entering members to speak first:** On entry, a group member must present all ideas before hearing the core group's preliminary solutions.
3. **Allot sufficient group discussion time:** An adequate amount of discussion time must be allotted to discuss the issues immediately after an entering member presents ideas.
4. **Delay final decisions until all are present:** The group must be fully formed with all members present before a final solution is determined.

By requiring each member to present ideas independently and without knowledge of others' ideas, the stepladder technique may promote accountability, decrease social loafing, decrease conformity, and equalize participation. Moreover, the stepladder technique can minimize the biasing effect of domineering teammates by giving each member an uninterrupted presentation opportunity on entering the group. Finally, by instructing groups to wait until all are present before forming a final decision, the stepladder approach can prevent groups from arriving at solutions prematurely, before all members have exhausted their supply of ideas.

Compared with members of groups using a conventional, unstructured, consensus meeting approach, members of stepladder groups have reported feeling less pressure to conform. Following their group decisions, stepladder members are also more inclined to consider their group friendly and believe that they collectively agreed on a final product, worked unusually well together, worked hard on the task, proceeded in an organized manner, and devised a better-than-average solution. Tests of the technique have shown that stepladder groups do tend to produce higher-quality decisions than conventional groups. This is true for

time-restricted, face-to-face stepladder groups where each step is monitored by an outside coordinator who enforces time limits at each phase. It is also true for self-paced, face-to-face stepladder groups that self-regulate and determine how much time is needed at each step. Research has cast doubts on whether the time-restricted stepladder technique improves the decisions of dispersed, computer-mediated teams using text-based software to collaborate online. However, the self-paced stepladder technique has been shown to improve the quality of dispersed audioconferencing groups collaborating by telephone.

—Lori Foster Thompson

See also Group Decision-Making Quality and Performance; Group Dynamics and Processes; Groups; Meetings at Work

FURTHER READING

- Dennis, A. R., & Valacich, J. S. (1993). Computer brainstorming: More heads are better than one. *Journal of Applied Psychology, 78*, 531–537.
- Fox, W. M. (1989). The improved nominal group technique (NGT). *Journal of Management Development, 8*, 20–27.
- Gallupe, R. B., Bastianutti, L. M., & Cooper, W. H. (1991). Unblocking brainstorming. *Journal of Applied Psychology, 76*, 137–142.
- Hornsby, J. S., Smith, B. N., & Gupta, J. N. D. (1994). The impact of decision-making methodology on job evaluation outcomes. *Group & Organization Management, 19*, 112–128.
- Rogelberg, S. G., Barnes-Farrell, J. L., & Lowe, C. A. (1992). The stepladder technique: An alternative group structure facilitating effective group decision making. *Journal of Applied Psychology, 77*, 730–737.
- Rogelberg, S. G., & O'Connor, M. S. (1998). Extending the stepladder technique: An examination of self-paced stepladder groups. *Group Dynamics: Theory, Research, and Practice, 2*, 82–91.
- Rogelberg, S. G., O'Connor, M. S., & Sederburg, M. (2002). Using the stepladder technique to facilitate the performance of audioconferencing groups. *Journal of Applied Psychology, 87*, 994–1000.
- Thompson, L. F., & Coovert, M. D. (2002). Stepping up to the challenge: A critical examination of face-to-face and computer-mediated team decision making. *Group Dynamics: Theory, Research, and Practice, 6*, 52–64.
- Valacich, J. A., Dennis, A. R., & Nunamaker, J. E., Jr. (1992). Group and anonymity effects on computer-mediated idea generation. *Small Group Research, 23*, 49–73.

GROUP DEVELOPMENT

Group or team development refers to the process by which members of newly formed work teams learn about their teammates, establish their roles and responsibilities, and acquire the *task work* and *team-work* capabilities required to coordinate their effort to perform effectively as a team. Work group development pertains to the team as a whole (i.e., all members are new to the team), distinguishing this process from group socialization, which refers to the assimilation of new members into an existing team with an ongoing history. The amount of time it takes for a team to develop is variable and, although precise time frames are not established, the process is presumed to take longer when the team task entails greater complexity, interdependence, and coordination and less time when there is less demand for the integration of team members' knowledge, skill, and effort. The process is important because team development is assumed to be a necessary, but insufficient, precondition for team effectiveness. That is, work groups and teams cannot achieve goals and meet performance expectations until essential task work and teamwork skills have developed. However, other contingencies that influence team performance have to be resolved before teams can perform effectively; such factors are the focus of team effectiveness models and research. Finally, although team training and leadership interventions have the potential to enhance team development, it is a process that generally unfolds naturally without intentional intervention. Thus the potential for improving team development (and team effectiveness) in many organizations is high.

THEORIES, MODELS, AND APPROACHES

Time is central in all models of group development. How this temporal process has been treated, however, distinguishes different conceptual approaches: stage, punctuated equilibrium, and integrated models, and more recent systems-oriented approaches.

Stage Models

Until relatively recently, most theories of group development were based on descriptions of the *stages* groups passed through as the developmental process unfolded. Although there are many such stage models,

their basic characteristics are captured very well by B. W. Tuckman's (1965) widely cited model of group development. He reviewed the group literature—defined by therapy, T-group, natural, and laboratory group studies—and proposed that groups go through the developmental stages of *forming*, *storming*, *norming*, and *performing*.

As team members are first brought together during the formation stage, they cautiously begin to explore the group and attempt to establish some social structure. This stage is characterized by feelings of excitement, anticipation, and optimism; pride in being chosen for the project; initial, tentative attachment to the group; and some fear and anxiety about what lies ahead. Members attempt to define the nature of the group task and to establish how they will accomplish it. They try to determine acceptable group behavior and deal with group problems. Discussions are often characterized by abstract, lofty concepts and issues, but members may also express impatience with the failure of the group to be more task focused.

As team members begin to realize that defining the task is more difficult than expected, they move to the difficult storming stage. They focus inward and become testy, impatient, and blameful over the lack of progress. Members argue about what actions the group should take. There is defensiveness, competition, disunity, and jealousy. Different factions may form as conflict within the group progresses. Members may experience mood swings as they wonder about the project's potential for success.

As the group is finally able to reconcile competing loyalties and responsibilities, it begins to firmly establish ground rules, roles, and status. During this norming stage, members reduce emotional conflict and become more cooperative. There is more friendliness, personal confiding, and harmony. Members express criticism constructively and attempt to avoid conflict. They develop a sense of group cohesion and common goals.

As these normative expectations take hold, the group moves to the performing stage. Members have more insight into personal and group processes and a better understanding of each other's strengths and weaknesses. They are able to prevent group problems or work through them when they arise. Members become closely attached to the team and satisfied with its progress as they move toward their common goal.

This stage model of group development is a classic and representative of many other similar such models.

It provides a rich description of the social interaction process group members experience as they struggle to resolve task uncertainty, interpersonal ambiguity, and conflict as they create a social structure to guide their interactions. However, this and similar stage models are not specific to work group development, where the organizational setting and task requirements are more salient and important. Thus most stage models tend to heavily emphasize group development centered on social interaction, with far less attention to development around task-driven interactions that are important to coordination in work teams.

Punctuated Equilibrium Model

Other descriptive research on team development has produced a notable variation to the stages and underlying process of group development addressed by stage models. In two studies, C. J. Gersick (1988, 1989) examined eight student groups and eight organizational project teams as they worked to accomplish a group objective. The project teams possessed a single project objective and a finite life span (i.e., project deadline), but the length of the deadline varied across groups. Findings from her qualitative analysis indicated that the project groups established an immediate pattern of activity toward their objective, with little apparent progress, that persisted until a transition point about halfway to the project deadline. At that point, the groups dropped old agendas, adopted new perspectives, and made major progress toward the completion of their project. This transition was characterized as a *punctuated equilibrium*, a discontinuous shift and realignment, that significantly altered the pattern of group activity. This finding points to the importance of external factors (i.e., temporal entrainment to the project deadline) as well as internal factors to group development and activity.

Integrated Models

Although some scholars view stage models and the punctuated equilibrium model as contradictory, others view them as distinctive yet complementary. For example, one study examined 25 student project groups and concluded that the models are largely complementary. Key factors distinguishing the approaches were the content that was used for coding group activities and the unit of time for observations.

Content that addressed group processes and structure and more microtiming tended to support the linear developmental process inherent in the stage approach, whereas content that addressed the group's approach to their task and more macrotiming supported the punctuated equilibrium approach. These findings suggest that both perspectives have value for describing the process of group development.

Other researchers have also taken an integrative perspective, asserting that work teams need to develop and combine task work and teamwork skills across nine stages of development that combine both stages and a punctuated transition. In phase one, teams proceeded through four stages of forming, storming, norming, and performing and then made a transition to phase two that yielded improved task work and teamwork. Although data evaluating this model were based on a small number of teams, the researchers found that better performing teams exhibited more effective teamwork behaviors including team spirit, cooperation, coordination, and adaptability; developed better role clarity; and evidenced more consensuses about teamwork over time. Thus the research provided support for a developmental process that increasingly integrated both task work and teamwork skills over time, with that integration important to team effectiveness.

System-Oriented Approaches

More recent theory on team development and performance has adopted an organizational systems perspective. Teams are embedded in an open, yet bounded, organizational system composed of multiple levels: individual team members, the team, and an embedding organizational context. This broader system sets *top-down* contextual constraints on team functioning. Simultaneously, team development, performance, and effectiveness are complex *bottom-up* phenomena that emerge over time from what individual team members think, feel, and do, and how they interact with other team members. Theories of team development that are emerging from this more recent perspective are sensitive to critical conceptual issues of task interdependence (i.e., task-driven demands for interaction and coordination), temporal dynamics (i.e., different temporal processes—linear and cyclical or episodic—exert different influences on team development and performance), and multilevel influences (i.e., team development and performance are influenced

by what individuals think, feel, and do; the social structure that members enact to guide the group, and higher-level organizational factors).

One example of representative work within this perspective is a model of *team compilation* that integrates team development and performance; team performance at any given point in time is viewed as a consequence of a continuous developmental process. Temporal dynamics are both linear and cyclical, representing developmental processes and task episodes, respectively. Team capabilities improve with linear time prompting transition to more advanced skill acquisition. Within a phase, task episodes provide opportunities for learning. Team compilation is viewed as an emergent multilevel phenomenon such that knowledge, skills, and performance outcomes compile successively upward across levels from an individual self-focus to dyadic exchanges to a dynamic and adaptive team network. Relative to the other approaches to group development, this emerging theory is more process oriented and sensitive to temporal characteristics and the interconnectedness of teams in the organizational system. Because this perspective is relatively recent, research is sparse; but preliminary findings are encouraging.

SUMMARY

Perspectives on work group and team development have progressed from descriptive stages and punctuated transitions; to integrated approaches that combine these complementary processes; to more recent system-oriented approaches that view team development (and performance) as complex phenomena that are embedded in the organizational system with influences from multiple levels, strongly influenced by the workflow interdependence of team tasks, and emerge dynamically and adaptively over time as teams continuously acquire expertise. As teams increasingly become the basic organizing structure of work, understanding and improving the processes will assume greater importance. Given that developing integrated task work and teamwork skills is a precondition for team effectiveness, it is remarkable that many organizations do relatively little in the way of intervening to improve team development; for the most part, teams are assembled and left on their own. However, team training and team leadership are key leverage points for enhancing the developmental process by intervening before or as teams are formed (team training) and

as they proceed through the developmental process in the work setting (team leadership and coaching).

—Steve W. J. Kozlowski

See also Groups; Team-Based Rewards; Team Building

FURTHER READING

- Chang, A., Bordia, P., & Duck, J. (2003). Punctuated equilibrium and linear progression: Toward a new understanding of group development. *Academy of Management Journal*, *46*, 106–117.
- Gersick, C. J. G. (1988). Time and transition in work teams: Toward a new model of group development. *Academy of Management Journal*, *31*, 9–41.
- Gersick, C. J. (1989). Marking time: Predictable transitions in task groups. *Academy of Management Journal*, *32*, 274–309.
- Kozlowski, S. W. J., & Bell, B. S. (2003). Work groups and teams in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 333–375). London: Wiley.
- Kozlowski, S. W. J., Gully, S. M., Nason, E. R., & Smith, E. M. (1999). Developing adaptive teams: A theory of compilation and performance across levels and time. In D. R. Ilgen & E. D. Pulakos (Eds.), *The changing nature of work performance: Implications for staffing, personnel actions, and development* (pp. 240–292). San Francisco: Jossey-Bass.
- Kozlowski, S. W. J., Gully, S. M., Salas, E., & Cannon-Bowers, J. A. (1996). Team leadership and development: Theory, principles, and guidelines for training leaders and teams. In M. Beyerlein, D. Johnson, & S. Beyerlein (Eds.), *Advances in interdisciplinary studies of work teams: Team leadership* (Vol. 3, pp. 251–289).
- Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychological Bulletin*, *63*, 384–399.

GROUP DYNAMICS AND PROCESSES

For most people in work organizations, the organization as a whole is a relatively abstract entity. Their day-to-day work experience is shaped far more by the work group, team, department, or work unit than by the organization as a whole. The work group is their direct social environment at work and the most important social influence on how they experience their work. Moreover, organizations are increasingly

structuring work to be group or team based, where groups and teams rather than individuals are responsible for production and performance. This requires people to work in close cooperation with their fellow group members; and it makes coordination, cooperation, and communication between group members critical elements of task performance. Obviously, then, understanding how work groups function, what causes specific group processes, and what the consequences of specific group processes are is of critical importance to theory and practice in industrial/organizational (I/O) psychology. Understanding these processes is the domain of group dynamics, or group processes.

The causes and consequences of group processes are typically understood within an input–process–outcome (IPO) framework, in which group processes (what happens in the group during task performance) are seen as the mechanism through which group inputs (resources internal and external to the group, and the organizational context) are translated into group outcomes (productivity, performance, or some other indicator of group effectiveness). In recent years research has highlighted group processes as critical in this respect, including group information processing; group conflict; group members' shared understanding of, and shared feelings about, the task situation; and group efficacy.

INPUT–PROCESS–OUTCOME MODELS OF GROUP EFFECTIVENESS

Most attempts to understand group dynamics implicitly or explicitly take an IPO perspective. Inputs refer to what is *given* at the outset of task performance. Inputs include factors that flow from team composition—such as group member personality, knowledge, skills, and abilities—but also factors that are more external to the team—such as the organizational context in which the group performs its tasks. Processes refer to what actually takes place in the group during task performance, highlight what happens in the interaction between group members, and underscore group members' thoughts and feelings about the group and group task performance. Obviously, the focus in trying to understand group processes is on factors that may be assumed to affect desirable and undesirable outcomes of group interaction. Outcomes in principle are all variables that might be influenced by group inputs and group processes. Not surprisingly, however, in I/O

psychology the emphasis typically is on group outcomes that can be seen as indicators of group effectiveness, such as group productivity and performance, or on variables that may be seen as more distal indicators of effective group functioning such as group member turnover and satisfaction.

Originally, group processes were understood within this IPO perspective as being caused by group inputs. Group process was primarily seen as the mechanism explaining the relationship between group inputs and group outcomes. An alternative perspective in which group processes are seen as mechanisms that may be influenced to affect the relationship between group inputs and group outcomes is equally viable, however. In the latter perspective, specific group processes are not seen as the more or less inevitable consequence of particular input factors but rather as mechanisms that may be influenced, for example, by team leadership or management practices, in attempts to achieve positive group outcomes and prevent negative group outcomes. Importantly, the perspectives do not contradict each other. Particular group inputs may be likely to engender specific group processes, whereas at the same time group interventions may render these associations between inputs and outcomes more or less likely. For research and practice in group dynamics, it is therefore important to understand both how group input may affect group processes, and group outcomes through group process, and how group processes may be used to translate group inputs into desirable outcomes.

KEY ISSUES IN GROUP DYNAMICS AND PROCESSES

As more and more organizations use groups and teams for knowledge-intensive work, an issue that seems to increasingly assume center stage is a group's ability to process and integrate large amounts of task-relevant information, as well as use this information in creative and innovative ways. Research and development teams are prime examples of teams faced with such tasks; but the same holds, for example, for the top management teams found in many of today's organizations. The challenge to such groups and teams is all the bigger, because such groups are often quite diverse in their composition, including members with different demographic, educational, and functional backgrounds, and this diversity may introduce a wide range of task-relevant information, knowledge, and

expertise that groups ideally would use in their task performance. Thus group information processing and decision making is one of the key issues in understanding and managing group dynamics.

A related but distinct issue is group conflict. Whenever people work together, conflicts may arise. These conflicts may concern the task itself as well as the relationship between group members. Especially diverse groups that have to deal with complex issues may be prone to such conflicts. Conflicts can be problematic, because they may disrupt group functioning and decrease satisfaction among group members. However, not all conflicts appear to be equally disruptive—task-related conflicts tend to be less problematic than relationship-oriented conflicts. Moreover, there is also evidence that at least under certain circumstances task conflict may actually be productive, because it may stimulate more thorough and creative thinking among group members. Group conflict in particular thus seems a group process that requires careful management; although it may often be disruptive, it may also lead to positive outcomes.

More and more evidence points to another aspect of group processes that may have an important impact on group outcomes: the extent to which thoughts and feelings about the group and the group's task are socially shared among group members, that is, the extent to which group members have similar thoughts and feelings about the group and the task. This is the area of research in what are called team mental models and task mental models—group members' understanding of their team and the way it functions and of the team task and the way it should be performed. This research suggests that as mental models of the team and the task become more socially shared (i.e., as group members hold more similar mental models), the influence of these mental models on group task performance grows; and groups may function more effectively and efficiently because these shared mental models provide guidance that not only contributes to individual performance but may also help coordinate group member efforts. Research has similarly suggested that groups may share feelings; and as feelings become more socially shared, they exert a stronger influence on group interaction. More generally, research suggests that group members' thoughts and feelings exert a greater influence on group processes and performance the more they are socially shared.

Another factor that is important to group performance is perceptions of group efficacy: the belief that

the group is capable of achieving its goals. The perception that an individual is able to achieve a goal is an important factor in translating motivation into action, and essentially the same holds for groups. Higher group efficacy (or group potency) tends to be associated with more effort and persistence in task performance and ultimately with better performance. Somewhat related to this is the notion of group cohesiveness—group members' attraction to the group. At least under certain conditions, high cohesiveness may engender group member efforts that result in better performance.

From an applied perspective, this suggests that the effective management of work groups and teams includes the management of group processes, such that the potential in group inputs is realized; and potentially negative effects of group inputs, such as (relational) conflicts, are prevented. Among other things, this requires fostering group motivation and ability to thoroughly exchange, process, and integrate task-relevant information and perspectives; the careful management of group conflict to reap its potential benefits without suffering its potentially disruptive consequences; and facilitating the development of an (appropriate) shared understanding of the team and the task. This may involve member selection (e.g., selecting members with appropriate knowledge, skills, and ability), leadership to motivate high task performance and to build the trust between group members that is necessary to effectively deal with conflicts, and collective rather than individual training to develop a shared understanding of the team and the task. It also helps to keep the work group or team together for a more extended period of time so the team can benefit from the initial time investment required to achieve these positive influences on group processes.

—Daan van Knippenberg

See also Group Cohesiveness; Group Decision-Making Quality and Performance; Group Decision-Making Techniques; Group Development; Groups

FURTHER READING

- Edmondson, A. C. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, *44*, 350–383.
- Hinsz, V. B., Tindale, R. S., & Vollrath, D. A. (1997). The emerging conceptualization of groups as information processes. *Psychological Bulletin*, *121*, 43–64.

- Kozlowski, S. W. J., & Bell, B. S. (2003). Work groups and teams in organizations. In W. C. Borman & D. R. Ilgen (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 333–375). New York: Wiley.
- Tindale, R. S., & Kameda, T. (2000). Social sharedness as a unifying theme for information processing in groups. *Group Processes and Intergroup Relations*, 3, 123–140.
- van Knippenberg, D., De Dreu, C. K. W., & Homan, A. C. (2004). Work group diversity and group performance: An integrative model and research agenda. *Journal of Applied Psychology*, 89, 1008–1022.

GROUP MENTAL MODEL

See TEAM MENTAL MODEL

GROUPS

Organizations seeking to promote productivity, better service, fewer errors, and improved safety as well as remain competitive in changing environments are turning to work teams and groups. Work teams have become a preferred performance improvement intervention in the last decade. So now we have a plethora of theories, methodologies, tools, and strategies to understand and facilitate teamwork in organizations. Both the science and practice of team performance has evolved and matured, making significant progress. But why and when do organizations deploy teams? Are all work teams created equal? Are all groups in organizations the same? This brief section addresses these questions. What follows is an attempt to clarify and elaborate some of the key features that characterize work teams and groups in organizations.

First, why do organizations use, dispatch, and compose work teams and groups today?

WHY ARE GROUPS USED IN ORGANIZATIONS?

Teams and groups are used for a variety of reasons, from brainstorming activities to problem solving issues to manufacturing products. Teams and groups are present in the floor shop as well as in the boardroom. They are used to perform surgery, fly planes, operate power plants, launch the space shuttle, drill for oil, and secure the peace of nations. But work

teams and groups are mainly (not always) used when tasks are complex, difficult, and dynamic and where the consequences for errors are high. Also, work teams are best when redundancy is needed and the context in which they will perform is ill-defined as well as where team members have to process lots of information from different modalities. So the kinds of tasks teams or groups need to execute matter. The environment and the demands on team members matter.

And if errors are costly, they matter even more. In sum, work teams (and some groups) perform best and are needed when organizations have fluid environments typified by rapidly evolving and ambiguous situations, no right answers, information overload, intense time pressure, and severe consequences for error.

TEAMS

Many definitions of work teams have been advanced over the last two decades. Taken together, work teams are complex social and dynamic entities characterized by the following:

- there are two or more members;
- they hold meaningful task, goal, and feedback interdependencies;
- they interact routinely;
- they interact adaptively;
- they have a shared common and valued vision;
- they are hierarchically organized;
- they have a limited life span;
- they have expertise, roles, and functions that are distributed;
- they engage in cycles of performance; and
- they are embedded in an organizational environment that influences its processes and performance outcomes.

This definition is an umbrella for typifying the kind of teams found in industry, business, agencies, and the military.

GROUPS

Groups are in the same continua as teams, but usually work groups have no task interdependency and the expertise is not distributed. Work groups are loosely coupled social entities that are brought in to solve a specific problem or generate ideas about how to improve a situation, such as a task force or brainstorming group. Their life

cycle is short and group members have no shared history or future. Of course, there are exceptions.

Is the distinction between these two entities important? Well, in practice it might not be. But in research, it is. To build the science of team performance, we must be clear on how research findings generalize, to what kind of team or group the results matter. Again, all work teams are not created equal and neither are groups.

—Eduardo Salas

See also Group Cohesiveness; Group Decision-Making Quality and Performance; Group Decision-Making Techniques; Group Development; Group Dynamics and Processes; Groups; Groupthink; Input–Process–Output Model of Team Effectiveness; Justice in Teams; Social Norms and Conformity; Team Building; Team-Based Rewards; Team Mental Model

FURTHER READING

- Guzzo, R. A., & Dickinson, M. W. (1996). Teams in organizations: Recent research on performance and effectiveness. *Annual Review Psychology, 47*, 307–338.
- Kozlowski, S. W. J., & Bell, B. S. (2003). Work groups and teams in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Comprehensive handbook of psychology: Vol. 12. Industrial and organizational psychology*. New York: Wiley.
- McIntyre, R. M., & Salas, E. (1995). Measuring and managing for team performance: Emerging principles from complex environments. In R. Guzzo & E. Salas (Eds.), *Team effectiveness and decision making in organizations* (pp. 149–203). San Francisco: Jossey-Bass.
- Porter, C., Hollenbeck, J. R., Ilgen, D. R., Ellis, P. J., West, B., & Moon, H. (2003). Backing up behaviors in teams: The role of personality and legitimacy of need. *Journal of Applied Psychology, 3*, 391–403.
- Salas, E., Sims, D. E., & Burke, C. S. (2005). Is there a “Big Five” in teamwork? *Small Group Research, 36*, 555–599.
- Salas, E., Stagl, K. C., & Burke, C. S. (2004). 25 years of team effectiveness in organizations: Research themes and emerging needs. In C. L. Cooper & I. T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology*. New York: Wiley.

GROUPTHINK

Groupthink is a term coined by Irving Janis in 1971 to describe a premature concurrence-seeking tendency that interferes with collective decision-making

processes and leads to poor decisions. It is characterized by deterioration in group member mental efficiency, reality testing, and moral judgments that result from in-group pressures to seek consensus. It is what happens when the task demands on a decision-making group are overwhelmed by the social demands to reach consensus. When experiencing groupthink, members tend to make simplistic statements about the issues and more positive in-group references than those in nongroupthink cases.

Groupthink theory has become an influential framework for understanding the origins of group decision-making fiascos and has been widely cited in a variety of disciplines including psychology, business, political science, and communication. The appeal of the concept is evidenced by the ease with which it can be applied to numerous group decisions and the potential for groupthink to occur in various work situations.

Groupthink is likely when members

- are in a highly cohesive group;
- perceive a stressful situational context such as time pressure;
- perceive the task to be important, difficult, and involving; and
- are striving for unanimity rather than evaluating alternative courses of action (i.e., concurrence seeking tendency).

Group cohesion may be a function of mutual attraction, comradeship, enthusiasm, and devotion to a common course; desire to belong to the group; or loyalty to a leader. Other antecedents of groupthink may be structural and procedural faults of the group, including insulation, promotional (or directive) leadership, lack of norms requiring methodological procedures, and homogeneity of members' social backgrounds and ideology.

Groupthink theory identifies specific symptoms of defective decision making and prescribes a number of concrete and useful remedies for avoiding them. The original symptoms of groupthink identified by Janis (1972) are as follows:

- **An illusion of invulnerability:** Members ignore obvious danger, take extreme risk, and are overly optimistic.
- **Collective rationalization:** Members discredit and explain away warnings contrary to group thinking.
- **An illusion of morality:** Members believe their decisions are morally correct, ignoring the ethical consequences of their decisions.

- **Excessive stereotyping:** The group constructs negative stereotypes of rivals outside the group.
- **Direct pressure for conformity on dissidents:** Peers pressure members of the group who express arguments against the prevailing group's stereotypes, illusions, or commitments, viewing such opposition as disloyalty.
- **Self-censorship:** Members withhold their dissenting views and counterarguments.
- **Illusion of unanimity:** Members perceive falsely that everyone agrees with the group's decision—silence is considered consent.
- **Reliance on self-appointed mind guards:** Some members appoint themselves to the role of protecting the group from adverse information that might threaten group complacency.

Research suggests that additional symptoms may include the following:

- **Group insulation:** Failure to initiate or maintain contact with an opposition group and lack of coordination with third-party mediators.
- **Creation of time pressure:** Failure to extend the time period for reaching a decision.
- **Lack of impartial leadership:** Less available information is used and few solutions are suggested when leaders are directive.
- **Decision making:** Lack of methodical decision-making procedures.

By facilitating the development of shared illusions and related norms, these symptoms are used by groups to maintain *esprit de corps* during difficult times. The major thrust of groupthink theory is that the presence of a number of the previous symptoms increases the probability that a group will elicit groupthink. That is, the more symptoms of groupthink, the more unfavorable the outcomes.

Groupthink may be avoided if the group does the following:

- **Understands groupthink:** The group is made aware of the causes and consequences of groupthink.
- **Has an open climate:** The leader is neutral when assigning a decision-making task to a group, initially withholding all preferences and expectations. This practice can be especially effective if the leaders consistently encourage an atmosphere of open inquiry with free discussion, nonjudgmental attitudes, and acceptance of divergent thinking. The leader gives high priority to airing objections and doubts, and

is accepting of criticism. Groups are divided into two separate deliberative bodies as feasibilities are evaluated.

- **Avoids being too directive:** The leader exercises the leadership role by avoiding being too directive. It is important that the leader avoid exerting undue influence on other group members.
- **Has coping mechanisms:** Groups should be provided with some means of coping with decision-making stress.
- **Avoids isolation:** Outside experts should be included in vital decision making to provide critical reaction to the group's assumptions. Tentative decisions should be discussed with trusted colleagues from outside the decision-making group. In this way the group avoids isolation with limited data and few perceived choices. The organization should routinely follow the administrative practice of establishing several independent decision-making groups to work on the same critical issue or policy.
- **Assigns members the role of critical evaluator:** Each group member should be a critical evaluator with the role of devil's advocate assigned to several strong members of the group. After reaching a preliminary consensus on a decision, all residual doubts should be expressed and the matter reconsidered. The group should be forced to reexamine its assumptions and rationalizations and consider unpopular alternatives. A sizable amount of time should be allocated specifically to surveying all warning signals from rival groups and organizations.

RESEARCH SUPPORT

Janis (1972) first developed the concept of groupthink through qualitative analyses of defective decision-making cases such as the appeasement of Nazi Germany, the Bay of Pigs, Pearl Harbor, the North Korean invasion, the escalation of the Vietnam War, and the Watergate cover-up. He compared the decision-making processes involved in these fiascoes with those cases in which there was more effective decision making, such as the Cuban Missile Crisis and the Marshall Plan. In developing groupthink theory, Janis highlighted the defective search and appraisal process that could be attributed directly to group pressures acting on members and stemming directly from their desire to protect and maintain group cohesion.

Philip Tetlock (1979) conducted a more quantitative test of Janis's theory by conducting a content analysis of public statements made by key decision makers involved in groupthink and nongroupthink

decisions. Results of this analysis indicate that decision makers in groupthink situations had more simplistic perceptions of policy issues and more positive references to the United States and its allies. However, these decision makers did not engage in more out-group stereotyping.

Since its original conception, the groupthink model has been widely investigated in experimental settings, and there are about two dozen empirical studies of groupthink. The studies directly testing the model use one or a combination of three methods: case study, laboratory experiment, and content analysis. Although most studies have examined the antecedents of groupthink and defective decision making, researchers have attempted to expand on the model and provide the underlying psychological mechanisms producing groupthink, such as social categorization, compliance and internalization, and group polarizations.

Laboratory studies have mainly focused on the antecedent conditions of groupthink including leadership, group cohesiveness, external threat, and so on. These studies have demonstrated that directive leadership style with more mind guarding and more self-censorship is predictive of groupthink. In addition, there is generally support that lack of decision-making procedures increases groupthink; and external threat, particularly time pressure, appears to promote symptoms of groupthink and defective decision making.

However, contrary to Janis's predictions, laboratory studies have found little or no support for group cohesion as a predictor of groupthink. However, these studies have been criticized for operationalizing groupthink poorly or inappropriately because members may not have perceived themselves as group members. Moreover, although insulated groups do seem to consider fewer alternatives and make poorer decisions, they do not have an illusion of invulnerability and do not consult with experts less often than do less insulated groups.

Overall, results of experimental studies provide only partial support for the groupthink model, and there are no firm conclusions regarding its antecedents. Researchers have attributed null or contradictory results of the experimental studies of groupthink to

- testing the model partially by including only a subset of antecedent conditions,
- failure to fully capture the original meanings of the antecedent conditions,
- failure to include all symptoms of groupthink and defective decision making, and
- failure to use a decision-making task on which solution quality ranges from very poor to very good.

In practical terms, research has applied the groupthink model to various managerial domains, such as decision making, leadership, and the management of organizational teams. In these domains groupthink has been regarded as a detrimental group process and, as a result, many training programs addressing leadership and team performance have incorporated various strategies to avoid groupthink in the workplace. There has been little empirical work done to demonstrate groupthink's negative implications in organizations. However, the few studies that have been conducted provide evidence that groupthink hinders the effectiveness of work teams.

—Simon Taggar and Heather MacDonald

See also Group Cohesiveness; Group Decision-Making Quality and Performance; Group Decision-Making Techniques; Social Norms and Conformity

FURTHER READING

- Choi, J. N. (1999). The organizational application of groupthink and its limitations in organizations. *Journal of Applied Psychology, 84*, 297–306.
- Janis, I. L. (1972). *Victims of groupthink*. Boston: Houghton Mifflin.
- McCauley, C. (1989). The nature of social influence in groupthink: Compliance and internalization. *Journal of Personality and Social Psychology, 57*, 250–260.
- Park, W. W. (2000). A comprehensive empirical investigation of the relationship among variables of the groupthink model. *Journal of Organization Behavior, 21*, 873–887.
- Tetlock, P. E. (1979). Identifying victims of groupthink from public statements of decision makers. *Journal of Personality and Social Psychology, 37*(8), 1314–1324.
- Turner, M. E., Pratkanis, A. R., Probasco, P., & Leve, C. (1992). Threat, cohesion, and group effectiveness: Testing a social identity maintenance perspective on groupthink. *Journal of Personality and Social Psychology, 63*, 781–796.
- Whyte, G. (1989). Groupthink reconsidered. *Academy of Management Review, 14*, 40–56.
- Whyte, G. (1998). Recasting Janis's groupthink model: The key role of collective efficacy in decision fiascos. *Organization Behavior and Human Decision Processes, 73*, 185–209.

H

HARDINESS

Hardiness consists of three interrelated belief systems people have about their relationship to their world. *Commitment* refers to people's ability to find meaning in events that happen to them. People who are high in commitment feel involved in and engaged by events in their lives rather than feeling alienated, disengaged, or disconnected. *Control* refers to the sense that, through effort, people can influence the world. People who are high in control feel capable of responding to events in their lives rather than helpless. *Challenge* refers to the belief that to be fulfilled, people must gain wisdom from experience, rather than living a life that is completely safe, secure, and routine. People who are high in challenge tend to view potentially stressful events as opportunities for personal growth, rather than feeling threatened by the world. Hardiness researchers regard these three belief systems as reflecting people's dispositional resilience to the detrimental effects of stressful events as well as their ability to summon courage in the face of adversity.

In the late 1970s, a research team led by Salvatore Maddi and Suzanne Kobasa conducted a longitudinal study of business executives. They were particularly interested in differentiating between executives who thrived under intense stress and those who experienced great personal and performance difficulties. They identified the hardiness belief systems as crucial to maintaining health and performance under stress. For industrial/organizational (I/O) psychologists, perhaps the most compelling aspect of their theoretical model was their research-supported contention that

hardiness could be taught, which has important practical implications for stress management programs. Maddi and Kobasa's (1984) research stimulated hundreds of studies on hardiness as well as numerous doctoral dissertations. Thus there is a substantial empirical literature from which to draw conclusions about the effects of hardiness on work-related outcomes.

FINDINGS FROM HARDINESS LITERATURE

Much research has studied the effects of hardiness on health-related outcomes. One of the most common outcomes examined in this literature is burnout, defined as a syndrome of emotional exhaustion, disengagement, and a loss of feelings of accomplishment that is common in occupations requiring intense interpersonal interactions with clients or customers. Several studies have established a negative relationship between hardiness and burnout, particularly for service professions such as nursing and teaching. Hardiness also is associated with desirable outcomes such as job and life satisfaction, optimism, positive affect, perceptions of support, and general well-being; and it is negatively related to outcomes such as anxiety and depression. Finally, several studies report modest positive relationships between hardiness and physical health, but the connections between hardiness and physiological reactions to stress are not well understood.

Less research has examined work outcomes such as job attitudes and behavior. Although there are some exceptions, hardy employees appear to hold more favorable views of their jobs and are more committed

to their employing organization. Other studies suggest that hardy individuals may be better organizational citizens and better able to maintain effective performance under stress. The relationship of hardiness to other occupational outcomes, such as absenteeism and injuries, lacks definitive conclusions. Conclusions vary greatly across studies of absenteeism; the limited research on injuries suggests that hardy workers may be less likely to suffer illnesses or injuries requiring hospitalization.

Ample research has examined indirect effects of hardiness on work and health outcomes, including hardiness-related individual differences in how people appraise potentially stressful events, choose coping strategies, and access social support. Hardy people tend to appraise stressful events as less threatening and more controllable. They feel more confident about their ability to cope with stressful events and classify fewer experiences as undesirable. Hardy people also are more apt to use adaptive coping strategies such as active or problem-focused coping and avoid maladaptive strategies such as denial and disengagement. Finally, hardy people generally tend to build larger, more effective social networks, suggesting that they have more potential support when coping with workplace stressors. They also report higher levels of social support from both coworkers and supervisors. It is unclear whether these perceptions reflect higher levels of received support or a lower need for social support. However, in either case, hardy people seem better equipped to cope with stressors at work. Taken together, these findings show that hardiness influences many of the causal pathways through which stressful events influence health.

One of the most frequently examined issues in the hardiness literature concerns whether hardiness moderates the relationship between experiencing potentially stressful events and suffering adverse consequences of those stressors. This literature is replete with inconsistent findings. Some of the inconsistencies observed may be caused by differing definitions of stress. For example, hardiness researchers have defined stress in terms of exposure to events most people consider stressful, the perceived intensity of a stressor, frequency of exposure to a stressor, the number of major life events experienced, and the levels of perceived role demands they face. These differing definitions of stress probably account for some of the conflicting findings

in this literature. Thus although there is ample evidence to suggest the beneficial effects of hardiness on health and work outcomes, the exact mechanisms through which these effects occur are unclear.

UNRESOLVED ISSUES

A few unresolved issues present challenges for hardiness research. First, the central propositions of hardiness theory are somewhat more complicated than those tested in most empirical research. For example, hardiness theory suggests that hardy employees should experience less stress and be more resistant to the effects of stress. This implies that the effects of hardiness on outcomes should be expressed through stress response processes rather than directly on outcomes of interest. Second, some theoretical depictions of hardiness suggests that high levels of all three parts are required, whereas researchers typically examine each part separately or average across the three components to form a total score. Finally, some research has begun to separate the positive and negative components of each belief system. For example, people may differ in their tendencies to adopt entirely positive, largely negative, or somewhat more conflicted belief systems. The positive and negative elements of these belief systems may exert distinct effects on health and performance processes. Thus much literature has demonstrated the importance of hardiness for I/O psychology but has also identified some exciting challenges for future research.

—Robert R. Sinclair and Celina M. Oliver

See also Personality; Stress, Consequences; Stress, Coping and Management; Stress, Models and Theories

FURTHER READING

- Britt, T. W., Adler, A. B., & Bartone, P. T. (2001). Deriving benefits from stressful events: The role of engagement in meaningful work and hardiness. *Journal of Occupational Health Psychology, 6*, 53–63.
- Funk, S. C. (1992). Hardiness: A review of theory and research. *Health Psychology, 11*(5), 335–345.
- Kobasa, S. C., & Puccetti, M. C. (1983). Personality and social resources in stress resistance. *Journal of Personality and Social Psychology, 45*, 839–850.
- Maddi, S. R., Kahn, S., & Maddi, K. L. (1998). The effectiveness of hardiness training. *Consulting Psychology Journal: Practice & Research, 50*, 78–86.

Maddi, S. R., & Kobasa, S. C. (1984). *The hardy executive: Health under stress*. Chicago: Dorsey Professional Books.

Sinclair, R. R., & Tetrick, L. E. (2000). Implications of item wording for hardiness structure, relation with neuroticism, and stress buffering. *Journal of Research in Personality, 34*, 1–25.

HAWTHORNE STUDIES/ HAWTHORNE EFFECT

The Hawthorne Studies and the Hawthorne Effect are threads through management schools and associated research from before the Great Depression to the present. They can be viewed from at least four vantage points. The Hawthorne Studies themselves were a series of collaborative investigations at the Hawthorne Works of Western Electric. The researchers began with a criterion of productivity and first studied environmental changes in illumination, encountered anomalies because production increased when illumination decreased to very low levels, and finally shifted toward recognition of social influences and personnel counseling. From one perspective, they linked the scientific management and the human relations movement schools. From a second standpoint, the studies attracted multiple disciplines interested in organizations (sociology, industrial, social, and then organizational psychology, organizational behavior, and human resource management). From a third outlook, they provide numerous lessons concerning the history of these fields in the unquestioning acceptance of secondary sources and in methods for studying history. From a fourth, methodological perspective, the Hawthorne Effect was defined as a confounding and biasing factor in intervention research that resulted from research participation (status or difference perception of participants). An example of how the effect has penetrated current methodological thinking is the widespread citation of the term in method and conclusion sections of contemporary research articles. This entry approaches the Hawthorne Studies from three vantage points:

1. Genesis and growth of the studies
2. Key findings of the Hawthorne Studies
3. Role of the Hawthorne Studies and Hawthorne Effect in shaping the history and trajectory of industrial/organizational (I/O) psychology and related disciplines

GENESIS AND GROWTH

Ostensibly, the Hawthorne Studies began as attempts to study such factors as illumination and work breaks. In that sense they derived from a school of thought that was dominant in management thinking. The scientific management school, although sensitive to worker concerns, believed that extrinsic environmental factors accounted for most of the variance in performance and productivity; worker attitudes were not viewed as important at this time, but the seeds were sown with the development of the concept of attitude. Fritz Roethlisberger and William Dickson described multiple studies conducted at the Hawthorne Works of the Western Electric Company in Cicero, Illinois, between 1924 and 1932. They published *Management and the Worker* in 1939, but this book was preceded by publications by Thomas Whitehead and Elton Mayo. Mayo, for example, worked in several ways to guide, motivate, and popularize the Hawthorne Studies, publishing a well-known book in 1933 titled *The Human Problems of an Industrial Civilization*. The personnel interviewing and subsequent counseling programs were unique contributions of the research program, larger in scope than the other studies (encompassing more than 25,000 workers at one point) and much less well remembered; and yet they continued long after the other experiments ended (Katzell & Austin, 1992).

KEY FINDINGS

The Hawthorne studies represent an early instance in which a firm, in this case the Western Electric Company, collaborated with a group of academicians in an effort to improve individual productivity and thus presumably organizational efficiency. The academics, including Elton Mayo and T. N. Whitehead, were faculty of the Harvard Business School. The original experiments dealt with modifications of illumination, wage incentives, and rest pauses—topics that would have gladdened the heart of F. W. Taylor and the scientific management school. What captivated psychologists and others were not those substantive results but the serendipitous findings highlighting the importance of social relationships: team development, informal supervision, and group norms. Specifically, the researchers found it necessary to shift (and then explain their shift) from a scientific

management focus toward one that emphasized development of group norms and their enforcement through informal leadership.

Another prominent aspect of the work at Hawthorne was that it involved systematic field research—including time-series, experimental, and observational techniques. The researchers set up specific conditions that varied within and across groups. They tracked these conditions over many weeks and tallied production counts for the groups in the Relay Assembly Test Room and the Mica Splitting Room. The field experiments of Frederick Taylor and Frank Gilbreth had been less sophisticated in terms of research design and data analysis and carried out in the tradition of management rather than behavioral science. In the Hawthorne Studies, however, the interventions were supervised by teams of managers and behavioral scientists, and there were systematic, even if imperfect, efforts at experimental and statistical controls. An entire domain of *Hawthorne bashing* became quite popular after the reports of the research were promulgated, extending as far as a Marxist critique based on the concept of class struggle. It is possible to divide such critiques into methodological and learning hypotheses and attempt to refute the learning hypothesis adherents. One interesting research tactic employed by several individuals was to locate and interview individuals who had participated. Such combinations of qualitative and quantitative approaches to the study of history ought to become more influential.

As with many historical *facts* in I/O psychology, however, myth mixes with the mundane. Charles Wrege exposed many misconceptions in his dissertation, but this did not stop textbook authors from perpetuating the myths. Olson, Verley, Santos, and Salas (2004), in a recent analysis of textbook coverage of the Hawthorne studies, document the misconceptions in several ways. They reviewed the frequency of mention of various parts of the studies in 21 books and presented a table containing definitions of the effect provided by 13 authors. One way that confusion is sown is in descriptions of the layout and sequence of the studies, another in the ascription of greater importance than warranted to Elton Mayo, and a third in a failure to consult primary sources.

ROLE AND EFFECTS ON INDUSTRIAL/ ORGANIZATIONAL PSYCHOLOGY

One of the key effects of the Hawthorne Studies was as a general warning about alternative interpretations for

research findings. This warning was especially true for large-scale field research. As a blanket tocsin the general Hawthorne effect was perhaps overused. Links to experimenter and expectancy effects might provide a more circumscribed and useful rationale. Undoubtedly, more specific interpretations of bias in research outcomes are preferred in contemporary circles.

Although the critics make valid points, they also miss important points. Despite demonstrable flaws of design and analysis, it was those studies and their philosophy that helped launch the human relations movement and the organizational branch of the I/O discipline. Study of the history of the field, in addition, can be enhanced through consideration of how the myths were established and perpetuated, including some of the techniques used by historians.

—James T. Austin and Scott A. Davies

See also Human Relations Movement; Scientific Management

FURTHER READING

- Dickson, W. J., & Roethlisberger, F. J. (1966). *Counseling in an organization: A sequel to the Hawthorne researches*. Boston: Harvard Graduate School of Business Administration.
- Katzell, R. A., & Austin, J. T. (1992). From then to now: The development of industrial-organizational psychology in the United States. *Journal of Applied Psychology*, 77, 803–835.
- Olson, R., Verley, J., Santos, L., & Salas, C. (2004, January). What we teach our students about the Hawthorne Studies: A review of content within a sample of introductory IO and OB textbooks. *The Industrial-Organizational Psychologist*, Retrieved May 15, 2005, from www.siop.org/tip/backissues
- Roethlisberger, F. J., & Dickson, W. J. (1939) *Management and the worker*. Cambridge, MA: Harvard University, Graduate School of Business Administration.

HIGH-PERFORMANCE ORGANIZATION MODEL

The contemporary flexible, high-performance organization model is a primary alternative to the classical bureaucratic model, popularly known as *Taylorism*. Several historical trends have contributed to the development of the high-performance model.

Beginning in the 1930s, increased attention was focused on the human impact of work, especially in assembly-line type settings. The Hawthorne Studies, and especially their popular interpretation by Elton Mayo, a vigorous crusader against the boredom of factory jobs, made the case for the importance of considering the human element in the workplace. The focus of industrial/organizational (I/O) psychology was broadened from *industrial efficiency* and productivity to include human relations and employee satisfaction as key variables. Through the 1960s and 1970s there was a major push for job enrichment. Somewhat earlier, researchers at the Tavistock Institute had laid the foundation for the sociotechnical systems approach to the design of work. With its use of open-system thinking and its emphasis on the multiskilled self-directed work team as the fundamental unit of work, the sociotechnical approach stood against Taylorism, and it captured in an embryonic way many of the essential elements that we now recognize as central to the high-performance organization model.

The *Japanese revolution* in manufacturing of the 1960s and 1970s dramatically highlighted another core weakness of the mechanistic model. Assembly-line workers who performed a narrow range of repetitive tasks typically did not know whether they were producing a quality product. When Japanese manufactured products suddenly came onto the world market, they were noted for their outstanding quality. Several quality techniques that are integral to the modern high-performance organization were popularized by the Japanese revolution: quality circles, statistical process control, total quality management, six sigma, just-in-time inventory management (*Kanban*), continuous improvement (*Kaizen*), and lean production, to name but a few.

The environment of business is marked by change. Huge environmental shifts—such as the growth of technology, the globalization of the economy, the changing demographics of the workforce, changing customer demands, increased competition, and the tightening regulatory environment—have pressed organizations to rethink their underlying assumptions, and their organizational structures and systems, to position themselves for success in the midst of such *turbulence*. The traditional bureaucratic organization model was not built for flexibility and does not fit a turbulent marketplace.

To achieve and sustain high levels of business performance and *quality of work life* (QWL) for

employees in the highly competitive and rapidly changing marketplace, organizations have increasingly moved away from the bureaucratic structure of the past and embraced a series of practices, which collectively define the high-performance organization. The high-performance approach is intended to be comprehensive and superordinate; application of subcomponents (e.g., process reengineering, customer-supplier partnerships, work cells) in a piecemeal way is seen as a partial and incomplete *solution* to the complex problem of sustaining organizational excellence in a turbulent environment.

Although there does not appear to be a consensus on a single, comprehensive definition of the high-performance organization, the research and practice literature point to a set of common elements, many of which are visible in benchmark organizations:

- *Teams*: Perhaps the most visible and pervasive marker of the high-performance model is the widespread application of the team concept. Production is commonly done by small *semiautonomous* teams, which set production schedules, manage quality for themselves, do equipment maintenance, and solve problems as they arise. Through open information sharing, teams understand the business sufficiently well that they do not need to call on a supervisor or other resources to address their daily issues. Such self-directed work teams are usually multiskilled, so individual jobs are enriched and teams can deploy their resources flexibly. Teams are also visible in nonproduction functions in the high-performance model as well—quality improvement teams, safety teams, new product development teams, procurement teams, and recognition teams, for example.
- *Titles and roles change*: Multiskilled employees operating in a team concept are commonly called *associates*, *technicians*, *team members*, or some other term with a professional connotation befitting their expanded role. Also, although in the past the supervisory role may have been reasonably well captured in the old definition of planning, organizing, directing, and controlling work, in the high-performance organization managers operate more as business leaders than as work bosses. They set direction for their teams (which is in alignment with the overall vision and strategic direction of their plant or unit), and they coach and facilitate more than direct or closely manage the work of others. Their roles are defined as performance manager, team builder, business leader, and change manager. Common

supervisory or management titles in the high-performance model are *team manager*, *coach*, or *facilitator*. The high-performance organization is also flatter than a traditionally structured organization, because of broadening individual job responsibilities at all levels and reduction in layers of management.

- *Employee involvement, participation, and empowerment*: Employee input and involvement on a whole range of organizational issues, leading to more empowered workers who can run their business, is central to the model. In union settings, the use of joint team structures is common; so the union participates in a leadership partnership with management, for the benefit of the business and the employees.
- *Focus on the market and customers*: In general the high-performance organization has an external focus, not just an internal focus. Workers at all levels are exposed to more real-market information than before. Employees are expected to think and act like they own the business. In some organizations teams literally run their own *minibusiness*.
- *Vision driven*: The high-performance organization focuses on creating vision, mission, and values statements, and using those broad commitments to provide overall alignment and direction to the organization. Leadership works to ensure that internal activities are aligned with each other, and with the overall vision, mission, and strategy of the business, to minimize so-called non-value-added work.
- *Innovative human resources (HR) practices*: Employees may be involved in the hiring process. Pay and incentive systems that reward teamwork and productivity—such as pay for knowledge and gainsharing—are often present. There is a heightened focus on training, not only in technical skills, but also in team skills (communication, feedback, conflict management) and business administrative skills (safety management, productivity record keeping). Indeed, the contemporary term *learning organization* is commonly applied to the high-performance organization.
- *Innovative production practices*. The high-performance organization is not a social experiment in job enrichment or the social aspects of sociotechnical systems work design. Process improvement and linkage of work to customers' needs are central to the high-performance organization. Contemporary production-improvement practices such as process reengineering, lean manufacturing, and six sigma are common.
- *Flexibility and adaptability*. The model rests squarely on the assumption that the environment of

business will continue to be turbulent and that success comes to organizations that are nimble, and can quickly and flexibly reconfigure themselves and redeploy their resources to take advantage of opportunities and avoid threats in the marketplace. Sooner or later, environmental conditions change to the point that no rigid structure will be adaptive.

The high-performance literature, spanning pop-management books to rigorous research studies, is enormous. A strong correlation between the adoption of the high-performance organization model and excellent business performance is widely reported. Anecdotally, organizations commonly claim dramatic improvements in both business performance measures (productivity, quality, cycle time) and measures of QWL (direct or indirect). Meaningful research points in the same direction, with many measures of business performance and QWL correlating significantly with the adoption of high-performance practices. Further, there is strong evidence that integrated comprehensive high-performance systems do in fact yield better results than elements implemented singly or in nonintegrated ways. Growth in the application of high-performance practices is forecast to continue.

—John Kello

See also Quality of Work Life

FURTHER READING

- Gephardt, M. A., & Van Buren, M. E. (1996). Building synergy: The power of high performance work systems. *Training & Development*, 50(10), 21–36.
- Holbeche, L. (2005). *The high performance organization: Creating dynamic stability and sustainable success*. New York: Elsevier.
- Kirkman, B. L., Lowe, K. B., & Young, D. P. (1999). *High-performance work practices: Definitions, practices, and an annotated bibliography*. Greensboro, NC: Center for Creative Leadership.
- Lawler, E. E., III, Mohrman, S. A., & Ledford, G. E., Jr. (1995). *Creating high performance organizations: Practices and results of employee involvement and total quality management in Fortune 1000 companies*. San Francisco: Jossey-Bass.
- Neusch, D. R., & Siebenaler, A. E. (1998). *The high performance enterprise: Reinventing the people side of your business* (2nd ed.). New York: Wiley.

HISTORY OF INDUSTRIAL/ ORGANIZATIONAL PSYCHOLOGY IN EUROPE AND THE UNITED KINGDOM

This article is about the history of work and organizational (W/O) psychology, as it is called in Europe; it is also known as industrial/organizational (I/O) psychology in the United States. To correctly interpret this historical account of W/O psychology in Europe, it should be taken into account that our discipline had and has different names, depending on the authors and countries. For example, the following names were used as synonyms: industrial psychology, occupational psychology, personnel psychology, work psychology, organizational psychology, psychotechnics, employment psychology, ergology, and even applied psychology. This article offers a chronological summary of the European *milestones* in the creation and consolidation of W/O psychology as a scientific discipline. In this sense I will arbitrarily divide the history into three periods: 1900 to 1945, 1946 to 1980, and from 1981 to the present.

THE EARLY YEARS AND THE DEVELOPMENT OF PSYCHOTECHNICS: 1900–1945

It is frequently stated that the German psychologist Hugo Münsterberg is the founding father of industrial, work, and organizational psychology. In effect, Münsterberg's studies on the selection of drivers and his program for industrial psychology and psychotechnics were first described by him in 1910 and 1911 when he lectured as an exchange professor at the University of Berlin. In 1912 Münsterberg published a book in Leipzig, Germany, titled *Psychologie und Wirtschaftsleben: Ein Beitrag zur angewandten Experimental-Psychologie*, which was subsequently translated into English with the title of *Psychology and Industrial Efficiency* and first published in Boston, Massachusetts, in 1913. His points of view were subsequently developed in his book *Grundzüge der psychotechnik*, which appeared in 1914. However, the work by William Stern on individual differences formed the basis of the main ideas of Münsterberg's industrial psychology. Furthermore, in several European countries some years before Münsterberg

began his experiments on personnel selection, researchers had begun to conduct personnel examinations. For example, beginning in 1901 the psychologist Ugo Pizzoli carried out professional examinations of the apprentices in Modena, Italy. In France between 1905 and 1908, Jean Marie Lahy gave the first steps toward producing a job analysis method and carried out preliminary experiments on the selection of streetcar operators. Studies on work fatigue, work curves, professional work, aptitude for working, and training were done by a variety of researchers. In 1907 the *Zeitschrift für angewandte Psychologie*, edited by Otto Lipmann and William Stern, appeared in Germany; it was the first journal in the world devoted to the applications of psychology, among them, the application of the knowledge of work problems. Stern was also the creator of the term *psychotechnics*. In summary, a complete program for work and organizational psychology has been operating in many European countries since 1907.

Regarding the use of psychological procedures for examining men, Jean Marie Lahy began to use cognitive tests for selecting drivers in France in 1908; Walter Moede, Curt Piorkowski, Otto Lipmann, and William Stern used similar tests in Germany beginning in 1914; Agostino Gemelli used psychological measures for selecting military pilots during World War I (the European War) in Italy; Emilio Mira used attention and perceptual tests for selecting drivers in Spain starting in 1918; and Cyril Burt and the members of the National Institute of Industrial Psychology (e.g., Winefried Spielrein, G. Miles) and the members of the National Board of Health (e.g., Eric Farmer) began developing and using many cognitive tests in the United Kingdom in 1914. Examples from other European countries could be cited. A consequence of this popularity was that many criterion validity studies were carried out during the first half of the 20th century in European countries, and they were largely used in civil and military contexts.

In 1920 the first international congress of psychotechnics was held in Geneva, Switzerland, under Eduard Claparède's presidency. Claparède was also the first president of the International Association of Psychotechnics founded this same year. Later, in 1952, the association was renamed the International Association of Applied Psychology. In this early period psychotechnics was primarily associated with the use of apparatus tests for the purpose of the assessment of individual characteristics. In the early 1920s various

European companies started selling psychotechnical testing equipment, while leading psychotechnicians tended to construct their own devices based on their own ideas regarding the psychological requirements of various vocations and the most suitable instruments for measuring them. The use of this sophisticated equipment contributed significantly to the reputation of psychotechnics as a solid and scientific enterprise. In the early years of psychotechnics, the most well-known psychotechnicians considered their primary task to be the development of instruments that would enable them to assess vocational aptitude as precisely as possible.

A good example of the advances in psychotechnics is the proposal by the German applied psychologist Otto Lipmann, who suggested in 1922 that occupations varied according to their cognitive demands and provided a scheme for classifying jobs. Lipmann's proposal was popular in Europe during the 1920s and was well-known by the American industrial psychologists of that age. According to Lipmann, occupations differ not solely in the mental functions they require but also in the different intensity with which specific mental functions are used. Therefore, Lipmann suggested that occupations be classified based on the nature of the object on which the work is done; and consequently, occupations could be distinguished into three groups depending on whether the action is applied to things, people, or concepts (ideas). Examples of occupations based on things could be carpentry or watchmaking. Professions involving people could be medicine or law. Finally, occupations involving concepts could be philosophy or mathematics. The Spanish psychologist Mira expanded on this classification by incorporating the relation between these dimensions and cognitive abilities. Thus, according to Mira, things are related to spatial intelligence, people are related to verbal intelligence, and concepts are related to abstract intelligence.

During the first 40 years as a scientific discipline in Europe, most W/O work was done in the areas of personnel selection, accidents, fatigue, and other areas. In 1929 Arthur Kornhauser, a pioneer American industrial psychologist, compared the industrial psychology in England, Germany, and the United States. He concluded with regard to England that he observed progress in the adaptation and application of efficiency engineering and the physiology and psychology of industrial work; but he noted little emphasis on the psychology of business management and an

acceptance of a *fixed* status of working men. With regard to Germany, Kornhauser maintained that German W/O psychology (*Industrial Psychotechnik* as it was called in that time) also showed progress in efficiency engineering, in developing psychotechnical institutes and training methods, and a deep interest in the social aspects of industrial psychology. After his review Kornhauser concluded that American *superiority* in I/O psychology was little more than an accident of natural wealth and rapid industrial growth and that the United States was nothing short of *retarded* in psychological matters.

W/O PSYCHOLOGY IN POSTWAR EUROPE: 1946–1980

The history of European W/O psychology over the next 35 years is a bit different from the previous period. Although during the between-wars period German applied psychology was the leading psychology, after World War II American research was dominant; and its influence has marked, to some extent, the situation of European W/O psychology. Thus the statistical model for personnel selection was followed and many local studies were conducted in various European countries regarding the validity of psychological procedures for personnel selection. For example, during World War II a remarkable amount of research was carried out in Great Britain on the criterion validity of intelligence and cognitive tests for predicting job performance and training success. Simultaneously, important methodological advances were made in those years in the United Kingdom. For example, Cyril Burt developed formulas for correcting for range restriction in the criterion, a kind of range restriction frequently missed in applied settings. Also, Burt and Lawley independently developed formulas for the multivariate range restriction correction. Similarly, in other European countries a considerable volume of research was carried out in the 1940s and 1950s. For example, in France, a substantial program of research was conducted by R. Bonnardel and members of the Institut d'Oriation Professionnelle. In Spain, Pinillos and other members of the Instituto Nacional de Psicotecnia carried out many validity studies. Another remarkable contribution was made in the United Kingdom when the Civil Service Selection Board, based on the 1949 work reported by Philip Vernon and John Parry, adopted the assessment

methods developed by the War Office Selection Boards; and cognitive tests, interviews, and assessment centers were used for hiring personnel. In the period between 1946 and 1970, personnel selection was probably the major activity of work and organizational psychologists in European countries.

Although personnel selection was the dominant activity, studies on organizational psychology started to appear in various European countries in this period. For example, relevant advances were made by the members of the Tavistock Institute of Human Relations in London (United Kingdom). Elliot Jaques, who developed the foundations of organizational change based on the Lewinian action-research paradigm, deserves special mention. Another advance of the Tavistock Institute was the development of the concept of organizations as sociotechnical systems. These pioneer studies were conducted in the years preceding the application of this knowledge to work restructuring and to the conduction of experiments on *industrial democracy*, for example, at Phillips Industries in the Netherlands, in Norway under the auspices of the Oslo Work Research Institute, and in the Volvo company in Sweden. In the 1970s a group of psychologists and sociologists from 12 European countries carried out a study on industrial democracy in Europe. They examined the impact of formal rules for participation (laws, collective agreements, and formal managerial policies) on the factual participation behavior in 134 organizations matched according to size and technology. They found that the best single predictors of de facto participation are hierarchical level and the intensity of prescribed norms for participation. Other relevant studies were made by the Aston group (Great Britain), who studied the effects of organizational variables on individual behavior and their relationship with their environment.

RECENT CONTRIBUTIONS OF EUROPEAN W/O PSYCHOLOGY SINCE 1980

In the last 25 years, European W/O psychology has made some relevant contributions to the knowledge of human behavior at work both in the professional area and in research advances. A first professional contribution to the field was made by a group of 35 professors of W/O psychology from 15 European countries, who founded the European Network of Organizational and Work Psychology (ENOP) in 1981; ENOP's objective was to develop a model of the curriculum for the training of work and organizational psychologists in Europe. A

second relevant professional contribution took place in 1991, when the organization European Work and Organizational Psychology (EAWOP) was founded with the mission of promoting and supporting the development and application of W/O psychology in Europe and facilitating links between scientists and practitioners working in the field across Europe. Subsequently, EAWOP founded the *European Journal of Work and Organizational Psychology* (EJWOP) in 1992.

Regarding research, in the last 15 years various European integrative studies or quantitative meta-analyses have been published; this represents a significant contribution to our understanding of relationships between individual variables and subsequent measures of job performance and other organizational criteria. For example, Ivan Robertson and Silvia Downs examined the validity of work sample tests of trainability in 1989. Jesús Salgado examined the validity of the Big Five in the European Community in 1997. Salgado's studies showed that conscientiousness and emotional stability were valid predictors for all occupational groups, and it generalized validity across samples and criteria. His findings also showed that conscientiousness and agreeableness were predictors of counterproductive behaviors (i.e., deviant behaviors at work) and that the five dimensions predicted turnover. More recently, he found that job complexity is a relevant validity moderator of personality measures and that the magnitude of validity coefficients was much larger than was previously thought. The validity of cognitive abilities for predicting job performance and training proficiency was also examined in the European context. A European team of researchers led by Salgado and Anderson examined the magnitude of the validity of the cognitive measures in six European countries and across the European Union; and they found that general mental ability is the best single predictor of job performance and training success (Salgado & Anderson, 2003).

In this last period, European research has also made a relevant contribution to the study of deviant behaviors in the workplace. This contribution refers to the topic of *mobbing* or *bullying*; and it was first described in 1984 by Heinz Leymann in a report published by the National Board of Occupational Safety and Health in Stockholm, Sweden. The term *mobbing* is typically used in the Nordic countries (Norway, Sweden, Denmark, and Finland), Germany, the Netherlands, France, Italy, and Spain, whereas *bullying* is used in English-speaking countries. Furthermore,

two special issues of the *European Journal of Work and Organizational Psychology* (Zapf & Leymann, 1996; Zapf & Einarsen, 2001) were devoted to the theme.

In this last period Europe has also contributed to the discipline with several international reviews and journals. Examples of the journals and reviews published in Europe are the *International Journal of Selection and Assessment*, *Journal of Occupational and Organisational Psychology*, *Applied Psychology: An International Journal*, *Journal of Organizational Psychology*, *European Journal of Work and Organizational Psychology*, *International Review of Industrial and Organizational Psychology Series*, *Le Travail Humain*, and *European Review of Applied Psychology*, together with national journals in Belgium, the Netherlands, Germany, Spain, Italy, and other countries.

SUMMARY

Since its origin in the early 20th century, W/O psychology has benefited from the contributions of European researchers in the field. In the first decades, European psychologists pioneered many advances in the knowledge of human behavior at work and they practically established the discipline as it is currently known. It could be said that W/O psychology was European in its origin. Among the most relevant contributions to cite are the creation of the psychotechnic laboratories in many European countries and many apparatuses for assessing human aptitudes important for work, the development of the first paper-and-pencil tests for assessing intelligence, the development of methods for job analysis, the study of fatigue at work, and the learning curves. The European W/O psychologists conducted hundreds of local studies for estimating the validity of different personnel selection procedures, and German and British psychologists may be considered the creators of the assessment center method, now widely used across the world. The European W/O psychologists are also responsible for many contributions at the organizational level—such as the Tavistock Institute studies, the studies on industrial democracy and the participation of workers, and the studies of the Aston group on the effects of the environment on organization. More recently, they have contributed by conducting meta-analytic reviews on the prediction of job performance and other organizational criteria through individual difference variables;

and they also contributed to the examination of the deviant workplace behavior known as mobbing or bullying.

Today, European work and organizational psychology enjoys remarkable success, as is demonstrated by the number of journals published on the Continent, the presence of European researchers on the editorial boards of non-European W/O psychology journals, and the international conferences in this area, and by the many studies conducted in Europe that are cited by colleagues from other countries and taken as models for the advance of W/O psychology as a science.

—Jesús F. Salgado

See also History of Industrial/Organizational Psychology in North America; History of Industrial/Organizational Psychology in Other Parts of the World

FURTHER READING

- Robertson, I. T., & Downs, S. (1989). Work sample tests of trainability: A meta-analysis. *Journal of Applied Psychology*, *74*, 402–410.
- Salgado, J. F. (1997). The Five Factor model of personality and job performance in the European Community. *Journal of Applied Psychology*, *82*, 30–43.
- Salgado, J. F., & Anderson, N. (2003). Validity generalization of GMA tests across countries in the European Community. *European Journal of Work and Organizational Psychology*, *12*, 1–18.
- Vernon, P. E., & Parry, J. (1949). *Personnel selection in the British Forces*. London, UK: University of London Press.
- Viteles, M. (1932). *Industrial psychology*. New York: Norton.
- Zapf, D., & Einarsen, S. (Eds.). (2001). Bullying in the workplace: Recent trends in research and practice [Special issue]. *European Journal of Work and Organizational Psychology*, *10*(4).
- Zapf, D., & Leymann, H. (Eds.). (1996). Mobbing and victimization at work [Special issue]. *European Journal of Work and Organizational Psychology*, *5*(2).

HISTORY OF INDUSTRIAL/ ORGANIZATIONAL PSYCHOLOGY IN NORTH AMERICA

The confluence of dynamic external (socioeconomic, business, military, legal, technology) and internal forces (individuals, theories, research, applications)

transformed the science and practice of industrial/organizational (I/O) psychology from the foresights of a few individuals into a legitimate scientific and applied discipline. Throughout the evolution, an underlying theme persisted: The study and use of psychology for improving the workplace and work lives. As early as 1913 Hugo Münsterberg advocated that the purpose of a new applied psychology was to connect laboratory science with the problems of business.

THE ROOTS: LATE 19TH CENTURY

The birth of an applied psychology, then labeled business psychology, economic psychology, or industrial psychology, was linked to the inception of psychology as a scientific discipline at the end of the 19th century. Thus I/O psychology has its roots in experimental psychology, the study of individual differences or differential psychology, and psychometrics. Wilhelm Wundt, in his German laboratory, used the experimental method to control observations for studying objectively mind and behavior to distinguish psychology from philosophy. Two graduates of Wundt's doctoral program, James McKeen Cattell and Münsterberg, relocated to the United States and initiated the application of psychology to solve industry problems. Unlike Wundt, who was interested in general laws of behavior, Cattell measured individual differences and introduced the mental test. He was first located at the University of Pennsylvania and then Columbia University. Münsterberg headed the psychological laboratories at Harvard University in 1892. Also during this time, Francis Galton coined the term *co-relation*, and Karl Pearson discovered the mathematics behind calculating the correlation coefficient. The American Psychological Association (APA) was founded in 1892 to formalize psychology as a discipline.

THE BEGINNING: EARLY 20TH CENTURY

Psychologists were compelled to legitimize their science by demonstrating the value of psychology to society because of institutional pressures and society's images of psychology as common sense or as occultism and superstition. A great emphasis was placed on empirical methods, which resulted in various measurement methods (mental tests, observations, and case studies) and statistics for measuring and analyzing individual differences (regression, simple correlation,

and partial correlation). Meanwhile, an American functional psychology called *functionalism* was formulated, which challenged the pervading structuralism view in psychology because it emphasized *how* and *why* the mind adapts the individual to its environment rather than focusing solely on the structure, or *what*, of the mind. This functional perspective provided a foundation for applying psychology.

The primary business objectives during the late 19th and early 20th centuries were to improve efficiency, increase productivity, and decrease costs through standardization and simplification. Scientific management experts Frederick Taylor and Frank and Lillian Gilbreth addressed these objectives by investigating and designing work to improve efficiency. Through the use of time and motion studies, a precedent was established for scientists to enter organizations. In 1915 Lillian Gilbreth was the first individual to complete a doctoral dissertation on the application of psychology to the work of classroom teachers.

A focus on productivity influenced business leaders to determine strategies for advertising, selling, and distributing their goods. In 1901 young psychologist Walter Dill Scott gave a presentation about the value of psychology for advertising to the Agate Club, a group of business leaders in Chicago, and then published his ideas in a book, *The Theory of Advertising*, in 1903. In 1913 Münsterberg published *Psychology and Industrial Efficiency*, the first major text on applied psychology.

In 1915 Walter VanDyke Bingham directed the Division of Applied Psychology at Carnegie Institute of Technology (CIT) to create opportunities for research, applications, and collaborative efforts with industry. Bingham hired W. D. Scott in 1916 to lead the Bureau of Salesmanship Research. Scott was also appointed professor of applied psychology, the first appointment by that title in academia. Bingham, Scott, and colleagues developed methods for selecting and training sales personnel (e.g., personal history blank, interview, reference form, mental alertness tests). Later, the bureau was renamed the Bureau of Personnel Research.

In the beginning the objective of an industrial psychology was to improve organizational goals (productivity and efficiency) primarily by applying psychology with an emphasis on individual differences, through selection and training. For example, in 1910 Münsterberg developed an aptitude test for streetcar operators. Most applied psychologists were

employed at universities; the first full-time psychologist in industry on record was Henry Link, director of training and psychological research at the Winchester Repeating Arms Company, in 1917. The same year the current premier scientific journal, *Journal of Applied Psychology*, was created.

WORLD WAR I: 1917–1919

When the United States entered the war in 1917, Robert M. Yerkes (then president of APA) and other psychologists formed a committee to evaluate a psychological examining program for recruits. Simultaneously, Scott and Bingham formed the Committee on Classification and Personnel to aid the Army in the selection of officers. These psychologists collaborated in developing intelligence tests to be administered to groups, known as the Army Alpha and Army Beta group mental ability tests. These tests paved the way for large-scale intelligence testing and for later expansion of psychological testing into government, industry, and education.

AFTER WORLD WAR I: THE 1920s AND 1930s

Forward-looking managers and organization leaders sought the use of psychological applications, techniques, and programs developed for the Army. Scott and his colleagues of the Army's Committee on Classification and Personnel formed the Scott Company in 1919, the first I/O private consulting firm. The consultants used mental ability group tests, job standards, performance ratings, and oral trade tests. The CIT expanded its work to include investigating vocational interests and developing sales training, with the establishment of the Research Bureau of Retail Training. The Carnegie program awarded the first PhD in industrial psychology to Bruce V. Moore in 1921 and was instrumental in preparing several applied psychologists, especially women. Also in 1921 Cattell organized the Psychological Corporation, which consisted of 20 influential psychologists as directors and approximately 170 psychologists holding stock. The organization's purpose was to advance and promote applied psychology.

During the 1920s, the emphasis was on the use of mental ability tests to select proficient employees or employment testing, until around 1930. In addition, the concepts of validity and criterion were introduced, and analysis of variance (ANOVA) was developed, the

graphic rating scale for performance appraisal was published, and the measurement of attitudes was improved by the scaling techniques of L. L. Thurstone in 1927, and later Rensis Likert in 1932. A widely published research program known as the Hawthorne Studies was conducted at the Hawthorne Works of the Bell System's Western Electric Company in Cicero, Illinois. The original purpose of the study was to examine the relationship between illumination levels and productivity. Researchers observed that workers changed their behaviors regardless of the illumination levels. Results revealed that work groups and attitudes had an effect on performance and that workers' behaviors changed because they were being watched, which has become known as the Hawthorne Effect. These studies are frequently regarded as the basis for a human relations movement in I/O psychology.

An emphasis on employee welfare during the depression led to development of personnel counseling as a popular organizational intervention for helping employees solve problems. Other developments in the 1930s included the 1932 publication of the first modern I/O psychology textbook by Morris Viteles, the formulation of work motivation theories, attempts to measure job satisfaction, introduction of factor analysis, and the 1937 establishment of the American Association of Applied Psychology (AAAP) Section D: Industrial and Business Psychology, an early professional organization for psychologists in industry. The U.S. Employment Service developed the General Aptitude Test Battery (GATB) and completed the first large-scale systematic analysis of jobs, the *Dictionary of Occupational Titles* (DOT), in 1939. This project moved psychologists toward realizing the importance of matching individuals with job requirements.

WORLD WAR II

World War II brought new challenges and psychologists were ready to respond. Significant developments included the Army General Classification Test (AGCT), situational stress tests, and the selection and simulation training of pilots to fly warplanes. The U.S. Office of Strategic Services (OSS) developed the assessment center as a technique for selecting spies and sabotage agents. One of the first comprehensive applied psychology programs was the Aviation Psychology Program directed by John Flanagan. World War II served as an impetus and was a turning point for leadership research.

BEYOND WORLD WAR II: 1940s AND 1950s

After the war the economy provided prosperity, affluence, education, and a heightened awareness of the good life. An explosion of psychological applications and research opportunities occurred, especially in commercial testing. The focus was on fitting people for jobs and fitting jobs for people. Other areas included job analysis and job evaluation, salaries and wages, placement, promotions, training, performance appraisal, job satisfaction and morale, counseling and guidance, labor relations, industrial hygiene, accidents and safety, equipment design, and quality circles. The forced choice rating system for evaluating performance was introduced during the 1940s. Work motivation theories were further developed and leadership research projects such as, the Ohio State Leadership studies ensued.

The economic and political division of the world along capitalist–communist lines, the emergence of the Soviet Union as a superpower, and the threat of nuclear war increased military spending. Several military research centers were created, such as the Navy Personnel Research and Development Center (NPRDC) and the Air Force Human Resources Laboratory (AFHRL). Psychological research organizations were created (American Institutes for Research, for example); consulting firms were established, such as Richardson, Bellows, Henry, & Company; and research groups were formed in private corporations including General Electric and Standard Oil of New Jersey. For example, a research group at the American Telephone and Telegraph Company (AT&T) was created in 1956 to conduct a longitudinal study to discover qualities related to managerial success and advancement in the company. Universities also organized research centers to investigate aspects of work. In 1944 Kurt Lewin established the Research Center for Group Dynamics at the Massachusetts Institute of Technology, where he collaborated with a similar group in London, the Tavistock Institute of Human Relations. The establishment of numerous graduate programs further legitimized I/O psychology as a discipline.

In 1945 the AAAP merged with the APA to form APA Division 14, Industrial and Business Psychology. Several division members and others began meeting separately in a group called Psychologists Full-Time in Industry to discuss pertinent topics. Additional informal groups were established in the 1950s—such as

the Dearborn Conference Group and the No-Name Group—with the purpose of facilitating communication and interaction to advance the science and practice of I/O psychology.

By the end of the 1940s, the discipline of I/O psychology had dramatically evolved. Viteles revised the title of his 1932 book in 1953 to *Motivation and Morale in Industry* because of numerous changes, including more complex theories of motivation, and attention to emotions and attitudes, such as job satisfaction. Edwin E. Ghiselli and C. W. Brown published a major text, *Personnel and Industrial Psychology*, in 1948, which became the key reference in I/O training and education. Modern cognitive psychology began in the 1950s, which led to significant developments in years to come. One survey revealed at least 1,000 psychologists who were employed full-time in industry in the United States in 1959.

THE 1960s AND 1970s

Unrest surfaced in American society because of changes in values and enhanced attention to discriminatory and unfair practices, the Vietnam War, baby boomers in the workforce, and international and foreign competition. The civil rights movement had begun in the 1950s when the separate-but-equal doctrine in education was struck down in the case of *Brown v. Topeka Board of Education* (1954). The Civil Rights Act (CRA) of 1964, Title VII, prohibited discrimination in employment because of race, color, religion, sex, or national origin. This and other legislation, such as the Age Discrimination in Employment Act of 1967, significantly influenced I/O developments in fair employment practices and test validation. The development of guidelines for doctoral training in industrial psychology in 1965 further legitimized the discipline of I/O psychology.

A new generation of employees questioned the authority of organizations, which stimulated interest in democracy and autonomy in the workplace. These changing societal views, along with flagging productivity, forced organizations to rethink their ways of dealing with and managing employees. North American companies changed from highly bureaucratic authoritarian structures to open systems, emphasizing total quality management, teamwork, and employee participation. How the organization could best serve the individual became important. Research was stimulated in areas of communication, conflict management,

socialization, organizational climate and culture, and group development and maturation. The creation of interventions for facilitating organizational development (OD) surfaced.

During the 1970s several Supreme Court decisions, including *Griggs v. Duke Power Co.* (1971), further highlighted the need for job analysis and test validation to defend tools and techniques used for personnel decisions. The federal government developed administrative guidelines for employment selection procedures, which included definitions of adverse impact and employment discrimination. Validity generalization and meta-analysis were introduced as approaches for generalizing validity studies across various jobs and organizations. Cognitive-based theories began to emerge, especially in the areas of motivation and leadership. In 1976 a one-volume *Handbook of Industrial and Organizational Psychology* was published by Marvin Dunnette.

Because of the changing nature of the field, APA Division 14, *Industrial and Business Psychology*, changed its name in 1973 to better reflect the discipline's science and practice. *Organizational* was added to the name to become Division 14, *Industrial and Organizational Psychology*. Other developments included the establishment of consulting firms such as Development Dimensions International and the Center for Creative Leadership; the implementation of teams in business and industry; and the formulation of social learning theory, which influenced training approaches and conceptualizations of work motivation.

1980s AND BEYOND

In the 1980s stagnant productivity and threats to economic well-being heightened concerns about productivity and quality. Serious attention was given to utility analysis, and a renewed interest in organizational development built relations between organizations and employees. With the fall of Communism and the passage of the North American Free Trade Agreement (NAFTA), a global and diverse workforce became commonplace. Other changes included increased competition, restructuring, mergers, and acquisitions. The Americans With Disabilities Act in 1990 created an emphasis on identifying essential job functions, physical requirements, and job design. The CRA of 1964 was amended by the CRA of 1991 to prohibit quota hiring, which renewed interest in fair personnel decisions.

In 1982 APA Division 14 incorporated as the Society for Industrial and Organizational Psychology (SIOP) to achieve some independence from the APA. The overall purpose of SIOP did not significantly differ from the purpose established by the AAAP Section D in 1937. In 1988 some SIOP members elected to join the newly formed Association for Psychological Science (APS), which was established for psychologists with scientific interests.

Although military spending on research decreased during this time period, some projects were successful. In 1990 John Campbell described Project A, a large-scale project for the U.S. Army; this endeavor involved several psychologists over a 10-year period to research the selection and classification of military personnel and develop the Armed Services Vocational Aptitude Battery (ASVAB). Another example of military research was the extensive investigation of team training and performance completed by the U.S. Navy's Training Systems Center.

A plethora of developments in I/O psychology have occurred since the 1980s. These include a cognitive perspective of performance appraisals; organizational justice theory; computerized adaptive testing; personality testing for employment; Internet for recruitment, assessment, and selection; research on work stress and work-family balance; the Occupational Information Network (O*NET) to replace the DOT; and the second edition of the four-volume *Handbook of Industrial and Organizational Psychology*.

Over the years I/O psychology shifted from a simple, narrowly defined technical field focused on individual issues for accomplishing organizational objectives to a complex, broad scientific and applied discipline emphasizing individual and organizational issues for achieving both individual and organizational goals. Today the objective is to improve both organizational goals or efficiency and individual goals or efficiency by applying psychology and by theorizing and researching psychology in the workplace, with consideration for individual and organizational factors. The key challenge within the discipline is to maintain an identity as a rigorous scientific discipline, while at the same time providing a growing range of professional services and applications.

—Laura L. Koppes

See also American Psychological Association, Association for Psychological Science; Occupational Information

Network (O*NET); Project A; Society for Industrial and Organizational Psychology

FURTHER READING

- Austin, J. T., Scherbaum, C. A., & Mahlman, R. A. (2002). History of research methods in industrial and organizational psychology: Measurement, design, analysis. In S. G. Rogelberg, *Handbook of Research in Industrial and Organizational Psychology*, (pp. 3–33). London, UK: Blackwell Publishers.
- Benjamin, L. T., Jr. (1997a). A history of Division 14 (Society for Industrial and Organizational Psychology). In D. A. Dewsbury (Ed.), *Unification through division: Histories of the divisions of the American Psychological Association* (Vol. 2, pp. 101–126). Washington, DC: American Psychological Association.
- Benjamin, L. T., Jr. (1997b). Organized industrial psychology before Division 14: The ACP and the AAAP (1930–1945). *Journal of Applied Psychology*, *82*, 459–466.
- Burnham, J. C. (1987). *How superstition won and science lost: Popularizing science and health in the United States*. New Brunswick, NJ: Rutgers University Press.
- Camfield, T. (1973). The professionalization of American psychology, 1870–1917. *Journal of the History of Behavioral Sciences*, *9*, 66–75.
- Capshew, J. H. (1999). *Psychologists on the march: Science, practice, and professional identity in America, 1929–1969*. New York: Cambridge University Press.
- Ferguson, L. (1952). A look across the years, 1920–1950. In L. L. Thurstone (Ed.), *Applications of psychology: Essays to honor Walter V. Bingham* (pp. 1–17). New York: Harper.
- Ferguson, L. W. (1962–1965). *The heritage of industrial psychology* [14 pamphlets]. Hartford, CT: Finlay Press.
- Hilgard, E. R. (1987). *Psychology in America: A historical survey*. New York: Harcourt Brace Jovanovich.
- Katzell, R. A., & Austin, J. T. (1992). From then to now: The development of industrial-organizational psychology in the United States. *Journal of Applied Psychology*, *77*, 803–835.
- Koppes, L. L. (1997). American female pioneers of industrial and organizational psychology during the early years. *Journal of Applied Psychology*, *82*(4), 500–515.
- Koppes, L. L. (2003). Industrial-organizational psychology. In D. K. Freedheim (Ed.), *History of psychology* (pp. 367–389). Volume 1 in I. B. Weiner (Editor-in-Chief), *Handbook of psychology*. New York: Wiley.
- Koppes, L. L. (Ed.). (in press). *Historical perspectives in industrial and organizational psychology*. Mahwah, NJ: Lawrence Erlbaum.

- Landy, F. J. (1997). Early influences on the development of industrial and organizational psychology. *Journal of Applied Psychology*, *82*(4), 467–477.
- Napoli, D. S. (1981). *Architects of adjustment: The history of the psychological profession in the United States*. Port Washington, NY: Kennikat Press.
- Van De Water, T. J. (1997). Psychology's entrepreneurs and the marketing of industrial psychology. *Journal of Applied Psychology*, *82*(4), 486–499.
- Viteles, M. S. (1932). *Industrial psychology*. New York: Norton.

HISTORY OF INDUSTRIAL/ ORGANIZATIONAL PSYCHOLOGY IN OTHER PARTS OF THE WORLD

This entry presents the history of industrial/organizational (I/O) psychology in four countries: Israel, India, Singapore, and Australia. It points out some similarities in the evolution of the profession across diverse cultures.

ISRAEL

Early 20th Century

The presence of psychology in Israel is traced back to 1930, when a group of German-Jewish psychoanalysts fleeing persecution in Nazi Germany arrived in Israel under the leadership of Sigmund Freud's student Max Eitingon. In 1933, they established the Palestine Psychoanalytic Society.

Post-World War II

The establishment of the state of Israel in 1948 has accelerated the need for psychologists in the areas of clinical, educational, vocational, industrial, and military psychology. In the first three years of the State of Israel, the population grew from about 600,000 to 1.7 million people; and it is up to about 6,800,000 today. The number of people in the civilian labor force rose in 2004 by 2.6% compared with the previous year and reached 2.678 million. According to the Central Bureau of Statistics, the percentage of people in the labor force reached 54.9% in 2004.

Vocational psychologists and industrial psychologists helped develop the new civilian labor force.

Military psychologists and industrial psychologists were needed mainly for selecting soldiers and officers and placing them into their new roles in the Israel Defense Forces (IDF).

In 1947 Louis Guttman founded the behavioral unit of the military, which eventually became the Israel Institute of Applied Social Research. His research contributions to the theory and practice of scale and factor analysis, multidimensional scaling analysis, and facet theory have made a significant impact on the fields of social, military, and industrial psychology.

Attempts to establish a department of psychology in Israel began in the 1930s; but they were actualized only in 1957 when the first department of psychology in Israel was founded at the Hebrew University, headed by Professor Shlomo Kugelmass, an immigrant from the United States who emphasized experimental psychology.

In the same year, the Israel Psychological Association (IPA) was established, with divisions in clinical psychology; educational psychology; and later on a division of social, occupational, and industrial psychology. Since its inception with 170 members, the association has grown up. Today there are 3,500 members with 280 members in the division of industrial psychology.

Additional departments of psychology, with graduate level programs in industrial psychology, were established at Bar-Ilan University (1958), Tel-Aviv University (1967), and Haifa University (1967). Ben-Gurion University established a department of behavioral sciences, which includes psychological studies (1984); and the Technion established a graduate program in industrial psychology (1985).

In 1977 the Knesset, Israel's parliament, passed the *Psychologists Law*. It mandated the establishment of the Council of Psychologists in the Ministry of Health to enforce the new law's licensing procedures regulating who may practice psychology and a variety of regulations concerning professional practice.

Industrial and organizational psychologists in Israel practice in industry, in the IDF, and in private consulting firms. They are involved in numerous areas in personnel psychology, organizational behavior, and human factors. In the area of personnel psychology, Israeli industrial psychologists are responsible for establishing criteria and measures for personnel selection, assessing managerial potential, and appraising performance. Furthermore, they are involved in management development, training, and management

consulting. In the area of organizational behavior, they design and implement organizational change; advise Israeli companies on how to become global companies; develop motivational techniques for enhancing productivity; consult companies on the development and shaping of the organizational culture; run stress reduction workshops; and offer advice on decision-making processes, gender issues, organizational justice, and other important issues needed for the competitive advantage of companies today. In the area of human factors, industrial psychologists are involved in new product design, taking responsibility for the interface between employees and the technology systems. There is a great demand for graduate degrees in industrial and organizational psychology as graduates of these programs get job offers from the Israeli industrial sector, high-tech sector, service organizations, and the public and government sectors.

Research in I/O psychology reflects the needs of the country. Among these are the need to absorb, integrate, and acculturate successive waves of immigrants with diverse ethnic backgrounds; to resolve the Arab-Jewish conflict; to improve leadership, decision-making, and work motivation; to improve the interface between people and technological systems; and more recently to research on cross-cultural management, reflecting the need to integrate into the global business context.

Israeli professors of I/O psychology are highly involved with the worldwide community of I/O psychology. They serve as journal editors (*Applied Psychology: An International Review*) and associate editors (*Academy of Management Journal; Management Science*); there are also fellows of the Society for Industrial Organizational Psychology and the Academy of Management who are Israeli professors, and the past president of the division of organizational psychology at the International Association of Applied Psychology was also Israeli. The publication record of Israeli researchers in leading scientific journals is way above their proportion in the scientific community, demonstrating once again that science is universal and is shared beyond geographical borders.

INDIA

Ancient Time

The roots of psychology in India can be traced to ancient Indian religious-philosophical thought that

evolved out of Indian religion and philosophical traditions, epics, and folklore originally in the oral tradition. The large number of Indian scriptures contains references to and the analyses of mental status and contents of mental activities of human beings over millennia. These ancient expositions are mostly based on the experiences of sages, and seers, wise men and self-verification by them. There were no clear distinctions between religion, philosophy, and psychology in ancient Indian culture; the overarching consideration was to assist individuals in their pursuit of self-realization and liberation from the miseries of life. It is, however, not easy to consider this psychological knowledge as *scientific* in the strict and modern sense of the term.

Early 20th Century

Psychology as a modern and scientific field of study was first introduced in India in 1905 as a subject in the philosophy department of Calcutta University; the first course offered was in experimental psychology, along with the establishment of a psychological laboratory. In time this laboratory evolved into the first department of psychology in India at Calcutta University in 1915. This was gradually followed by the setting up of psychology departments in several other universities. Two separate departments, experimental psychology and applied psychology, were started at Patna University in 1946.

Post-World War II

The early years saw a fair amount of research and publication. A survey done in 1972 showed that 90% of the publications in all fields of psychology were dated from 1950 and after; the only exceptions are the areas of experimental and social psychology, with figures approximately 70% and 77%, respectively, because research was done in these areas beginning in 1950 (Mitra, 1972). Three areas, clinical, personality, and social psychology, accounted for 50% of published material between 1950 and 1972. Industrial psychology made its appearance in the postindependence (1947) period. The reason was the priority accorded to industrialization by the government of the newly independent country. The focus was on development of heavy industry, which had concomitant development in industrial psychology. Mitra wrote that the 1972 survey by the Indian Council of Social Science

Research indicated about 11% of all the papers published in psychology to be in industrial psychology.

The rapid industrialization of the 1950s and 1960s created the need for better understanding of the psychology of the workplace; worker, production, and organizational efficiency; and labor management relations. Areas that received attention at this time were job attitudes, work incentives, absenteeism, and job satisfaction (Ganguli, 1961). One of the major centers for psychological research was the Ahmedabad Textile Industry Research Association (ATIRA), which was established in 1950. Well-known psychologists such as Erik Erikson, David McClelland, and A. K. Rice were frequent visitors to this institute where several large-scale surveys were conducted to study psychological issues related to the textile industry. Rice did some of his pioneering work in industrial psychology in India in 1955 using the sociotechnical approach in an experimental automatic loom shed here. A survey by Durganand Sinha in 1972 showed that while only 25 studies were done in the field of industrial psychology until independence in 1947, as many as 508 studies were done from 1948 to 1969. Two major areas that accounted for the bulk of the studies were performance and job satisfaction (139 studies), and management and organization (128 studies). Other areas studied were occupational choice and guidance; selection and placement; training, task, and work analysis; special environment; advertising and consumer psychology; engineering psychology; driving and safety; and surveys and general studies. This review also noted that research in industrial psychology had an academic focus possibly because of the absence of contact between academic psychologists, the research they produced, and other organizations.

The early 1960s saw initiation of formal management education in the country with the setting up of two Indian Institutes of Management, at Ahmedabad and Calcutta, which had separate areas of study called organizational behavior and behavioral sciences, which provided the impetus for organizational psychology.

The latest survey found the focus of I/O psychology shifting to motivation, leadership, and human performance (Kanungo & Misra, 2004). Some trends toward indigenization and cross-cultural psychology were, however, discernible.

Industrial/organizational psychology in India seems to continue to evolve in keeping with the broad socioeconomic situation in the country and also staying in touch with global trends.

SINGAPORE

Singapore, with a population of more than 4 million, is an urban city-state. Eighty-five percent of Singaporeans live in public flats, of which 94% are owner occupied. The major components of Singapore's gross domestic product by industry as of 2004 were manufacturing, wholesale and retail, transport and communications, business services, other goods industries, and financial services. Singapore is therefore a setting in which I/O psychologists can make major contributions.

Industrial and organizational psychology is presently offered as an optional undergraduate third-year module in the psychology department at the National University of Singapore. There are indications from Web site listings of the Nanyang Technological University and the Singapore Management University of plans to offer the module at some future date.

The Singapore Psychological Society (SPS) has the most comprehensive data about I/O psychologists who are members of the society. It is the sole national association of psychologists in Singapore.

According to the membership data as reported by the then SPS membership chair, the I/O SPS members reported their areas of specialization and highest academic qualifications as follows: seven members with doctorates in ergonomics (4), occupational (2), and I/O psychology (1); nine members with master's degrees in occupational (5) and I/O psychology (4); and one postgraduate in I/O psychology.

The membership strength of SPS at that time was 247, out of which 159 had postgraduate qualifications. The I/O psychologists therefore represented 10.7% of the SPS members with postgraduate qualifications.

Although only 17 psychologists with postgraduate qualifications identified themselves as I/O or occupational psychologists and ergonomists, a total of 47 full members of the SPS indicated that they were engaged in work settings that typically engage I/O psychologists. Such work settings include work with the police (6%), military (21%), and commercial (23%) organizations. The highest percentage (47%) worked as consultants, whereas one (2%) was affiliated with a bank.

One inference that may be drawn from this disparity is that at least 64% (30 out of 47) of the psychologists working in these traditionally I/O work settings do not have postgraduate qualifications. As some of the postgraduate I/O psychologists are with academic

establishments, a better estimate of the percentage working outside academia without postgraduate qualifications is more than 70%. Approximately 28% of the I/O psychologists work for the public sector. The private sector, composed of commercial establishments, consultancies, and a bank, make up the remaining 72%. The demand for I/O psychology in Singapore is therefore predominantly in the private sector.

The Singapore workforce has had to face the challenges posed by a downturn in the economy since the late 1990s. *The Business Times, Singapore*, reported on August 24, 1998, that 14 electronic firms had retrenched 4,800 workers in the first half of the year.

The Business Times, Singapore also reported, on April 7, 2004, that the Singapore workforce, which had regularly earned accolades in the 1980s and early 1990s by country risk consultancies (e.g., BERI [Business Environment Risk Intelligence]) for being among the world's most productive, was now encountering stiff competition to maintain its position.

In the process of structural transformations in the country, widespread workforce educational upgrading and skills retraining programs, and calls by the political leadership to change mind-sets toward perceived low-status jobs, there is much that I/O psychologists can do. However, there needs to be set in place a process for the training of sufficient numbers of I/O psychologists to meet this need. Arguably, this could best be achieved by planning and implementing a full-fledged academic program to train I/O psychologists in one of the tertiary institutions in Singapore.

AUSTRALIA

Industrial/organizational psychology has been an active part of Australian psychology throughout its history and has begun to diversify in the late 20th and early 21st centuries. At many points since its inception, the story of Australian I/O can be linked to major developments in the United States and Britain; but there are also interesting differences that we highlight, together with key milestones.

EARLY 20TH CENTURY

At the beginning of the 20th century, a close relationship existed between philosophy and psychology.

Henry Tasman Lovell was appointed to the first officially titled post in psychology in the philosophy department at the University of Sydney in 1910. Elton Mayo was appointed the first chair of philosophy at the University of Queensland in 1910. By 1913 most Australian universities were teaching mental philosophy or an equivalent. The close link between philosophy and psychology in universities remained for quite some time, substantially longer than in the United States and Britain.

POST-WORLD WAR I

Elton Mayo and Bernard Muscio warrant specific mention during this period. Their legacy can be traced to issues in current I/O psychology, but Mayo's name is the most immediately recognizable because of his work at Harvard and the Hawthorne Studies. The psychological and medical treatment of returning veterans was a focus for Mayo's work in the postwar period. This work led to a series of papers concerning the state of consciousness termed *revery* and its relevance for managers and workers in industrial society. Elton Mayo is credited with a major role in the human relations movement, which included his views on industrial society and the role managers should play in industry.

Bernard Muscio was appointed the Challis Professor of Philosophy at the University of Sydney in 1922, and the development of the field of industrial psychology throughout the British Empire is credited to him. Like Mayo, he published a number of papers during the early 1920s on fatigue and related topics in industry.

In 1927 Alfred Martin at the University of Sydney established the Australian Institute of Industrial Psychology (AIIP). The primary industrial applications of psychology were directed toward vocational guidance and testing, spurred on by the establishment of a Vocational Guidance Bureau in New South Wales in 1926. By 1969 the Commonwealth Department of Labour and National Service employed 60 psychologists, and most worked in vocational guidance.

Psychological testing was more closely associated with education than industry. Australia's first psychological laboratory, which first was established at the Melbourne Teachers College in 1903 and later closed, reopened in 1923. The Australian Council for Educational Research (ACER) began conducting psychological research in 1930.

POST-WORLD WAR II TO 1970

As in other countries, in Australia, World War II involved psychologists in a variety of activities to support the armed forces and broader society. In 1940 Martin brought together the Volunteer Emergency Psychology Service comprising the AIIP, the education department, and the Vocational Guidance Service (later known as the Vocational Guidance Bureau), and educational institutions. The Australian Council for Educational Research was involved in testing of military personnel.

Overall, Australian management was more reluctant than its U.S. and British counterparts to use industrial psychologists. In the decades following World War II, the application of testing was relatively limited and the focus of personnel activities remained vocational guidance and welfare.

LATE 20TH CENTURY

In the 1970s several social psychologists became associated with organizational psychology, reflecting similar development in the emergent field of organizational behavior in the United States, where some of the Australian scholars such as Gordon O'Brien were trained. Norman Feather, a colleague of O'Brien's at Flinders University, was another social psychologist whose writings became influential in motivational theories within organizational behavior.

In the 1990s a third stream of research started with the arrival or return to Australia of many organizational psychologists who had been trained at or otherwise associated with the Institute for Work Psychology at Sheffield University. These scholars are spread around the country; and their research addresses issues in the work design, teams, and organizational performance areas. Much of this work is now blending with that of organizational behavior researchers, whose work is focused on a wide range of areas, including motivation and emotions, negotiation, careers, and cross-cultural and other topics. The individual differences tradition, which has the longest history of the three streams, continues in studies of human resources systems. As in the United States, individual differences are more likely to be taught in psychology departments, whereas organizational behavior and work design topics are more frequently taught in schools of management and business.

There are many Australian researchers who are prominent scholars of international standing, but there

is no distinctive Australian research approach or set of issues. In the last part of the 20th and the beginning of the 21st centuries, there has been increased funding available in Australia for applied research conducted in collaboration with industry. Organizational psychologists have been among the more successful groups in the award of these grants. Thus there is the potential for an Australian set of issues and perspectives to emerge.

The Australian Psychological Society established the Board of Organizational Psychologists in 1972, and at this writing it has more than 14,000 members. There are research and professional streams in most of Australia's 38 universities. Australian psychologists are well represented in the management of universities and professional bodies.

—Miriam Erez, Jagdeep S. Chhokar,
Elizabeth Nair, Robert Wood, and Mark Griffin

See also History of Industrial/Organizational Psychology in Europe and the United Kingdom; History of Industrial/Organizational Psychology in North America

FURTHER READING

- Drever, P. (1998). EAPS: Bridging the workplace gap. *In-Psych*, 20(6), 18–20.
- Ganguli, H. C. (1961). *Industrial productivity and motivation*. Bombay: Asia Publishing House.
- Kanungo, R. N., & Misra, S. (2004). Motivation, leadership, and human performance. In J. Pandey (Ed.), *Psychology in India revisited: Developments in the discipline*. (pp. 309–341). New Delhi: Sage.
- Mayo, E. (1924). Revery and industrial fatigue. *The Journal of Personnel Research*, 3, 273–281.
- Mitra, S. K. (1972). Psychological research in India. In S. K. Mitra (Ed.), *A survey of research in psychology* (pp. xvii–xxxiii). New Delhi: Indian Council of Social Science Research.
- Muscio, B. (1921). Feeling-tone in industry. *British Journal of Psychology*, 12, 150–162.
- Nair, E. (2004). Psychology in Singapore. In M. J. Stevens & D. Wedding (Eds.), *Handbook of international psychology*. New York & Hove, UK: Brunner-Routledge.
- Rice, A. K. (1955). The experimental organization of non-automatic weaving in an Indian mill. *Human Relations*, 8, 199–249.
- Singapore Infomap. (2005). Retrieved on October 29, 2005, from <http://www.sg/>
- Sinha, D. (1972). Industrial psychology: A trend report. In S. K. Mitra (Ed.), *A survey of research in psychology* (pp. 175–237). New Delhi: Indian Council of Social Science Research.

HONESTY TESTING

See INTEGRITY TESTING

HUMAN-COMPUTER INTERACTION

Human-computer interaction (HCI) is a concept addressing a variety of aspects in the interaction between humans and computers. These aspects include how a user commands the computer; how the computer presents information to the users and performs their commands; and how this interaction begins, proceeds, and ends. On a broader scope, HCI is often viewed as the multidisciplinary domain dealing with all aspects of the study, design, evaluation, and deployment of interactive computer systems.

COMPUTER APPLICATIONS IN EVERYDAY LIFE

Computers are everywhere. We find the computer in life-critical systems such as traffic light control systems or the airport control tower. Many of the medical systems, imaging, diagnostic, and treatment, are computer driven. And at any workplace, be it the office or the factory, we find computerized systems: from word processing and accounting, through architectural or printed circuit board (PCB) design or newspaper typesetting, up to computer numerical control (CNC) machine control and material conveyance. Even at home we have computer games and Internet browsing. Our wristwatch, cellular phone, and personal digital assistants (PDAs) all are computers. Our interaction with computers has become a fact of life.

INTERACTION IS ACHIEVED VIA THE USER INTERFACE

The *user interface* is the medium between the user and the computer that enables the interaction between them. The user interface consists of three basic components:

1. **Controls:** The controls are usually objects that enable giving commands to the system. These could

be buttons, knobs, menus, sliders, voice commands, keyboards, and many more.

2. **Displays:** The displays are both the information conveyed to the user as part of the interaction and also the medium that conveys the information. These could be screens and monitors, sound, graphs and visualizations, text and narrative, printouts, and much more.
3. **Interactions or Dialogs:** The combination of giving commands and instructions to the computer, on one hand, and displaying information by the computer, on the other hand, merges together to become the dialog between the user and the computer.

HISTORICAL PERSPECTIVE: FROM CHARACTER-BASED TO GRAPHICAL USER INTERFACE

In the beginning interaction with computers was achieved by using mediums such as punched card readers and magnetic tapes. Computing and processing were executed *behind the scenes* (batch work fashion) and the output to the user was printed. In other words, there was no direct communication or dialog between the user and the computer.

The concept of interaction appeared early in the 1960s. This concept referred to the dialog between human and computer, similar to human-to-human dialog. Interaction required technological progress such as the ability of the computer to *speak* with a number of users simultaneously (time sharing) and perform the processing for them during the interaction (real-time processing). There was also a need to develop the interaction channels and replace the punched cards and the printed output with something else.

Indeed, several technological developments in the computer world brought us closer to an interactive user interface. These developments included visual display units such as a cathode ray tube (CRT). The development of the displays started with presenting only characters to fully graphic displays showing pictures, drawings, and a variety of colors. The computer's processing units were developed in a way that enabled time sharing and real-time processing. The interaction channels included the appearance of the first mouse in 1965, use of a light pen that points on the screen, and a transfer to the digitizing tablet. In the 1970s many technological developments occurred that made a huge step toward the user interface as we know it today. These developments included the first

personal computer by Xerox; and later Apple appeared and in 1977 presented its first personal computer.

The personal computer infrastructure enabled the development and appearance of the graphical user interface (GUI). Xerox was the pioneer and in 1981 introduced the Xerox Star, the first personal computer with a GUI. In this interface the main familiar elements of a GUI were introduced: windows, icons on the screen, desktop metaphor, and other principals that will be outlined later in the text. The Star computer was a commercial failure, but Apple turned the GUI into the popular and dominant HCI channel with a computer called Lisa and later with the Macintosh. Microsoft followed and added the Windows environment on its operating system, which dominates a significant portion of the personal computing domain.

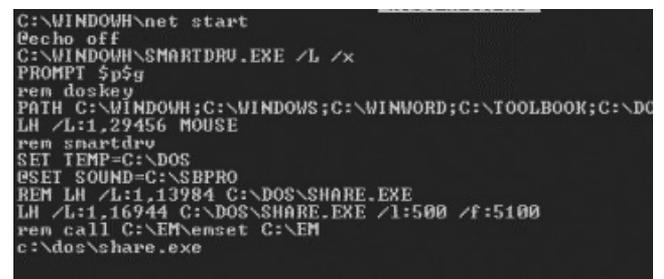
Until recent developments in display technology, the user interface was character based (Figure 1).

This interface limited the amount of information that could be displayed. For example, in personal computer screens, this amount was limited to 24 rows with up to 80 characters in each. In addition, each character had a fixed size and shape. This interface dictated limited operating modes such as command language dialogs (different dialog forms will be discussed in the following text). The GUI was developed with the development of visual display technology. This technology provided almost unlimited color display, high resolution details, fast response time of the display, ability to use large screens, and more.

This interface has several features that are familiar today to every computer user. The features are detailed as follows.

WYSIWYG: What You See Is What You Get

This feature means that what the user sees on the screen represents exactly the way the information will



```
C:\WINDOWH\net start
@echo off
C:\WINDOWH\SMARTDRV.EXE /L /x
PROMPT $p$g
rem doskey
PATH C:\WINDOWH;C:\WINDOWS;C:\WINWORD;C:\TOOLBOOK;C:\DO
LH /L:1,29456 MOUSE
rem smartdrv
SET TEMP=C:\DOS
@SET SOUND=C:\SBPRO
REM LH /L:1,13984 C:\DOS\SHARE.EXE
LH /L:1,16944 C:\DOS\SHARE.EXE /I:500 /f:5100
rem call C:\EM\nset C:\EM
c:\dos\share.exe
```

Figure 1 Character-Based User Interface

look when printed. This feature is possible because of the advanced display technology consisting of high-resolution display elements, the pixels. It is important to note that even contemporary display technologies do not match the print resolution, but the display is a good approximation of the output.

This feature can save a lot of time in the user’s work. Instead of wasting valuable time in repeated trials and errors of printing until the exact desired output is achieved, it is possible to make interactive attempts on the screen.

Windows, Icons, Mouse, and Pull-Down Menus (WIMP)

As mentioned earlier, the use of windows was one of the first and most significant features of the GUI. The window enabled the display of several different items simultaneously—such as documents, drawings and sketches, and data—and the ability to move among them easily and quickly.

The use of a mouse as a pointing device was advanced significantly with the emergence of the GUI. There is the capability to use the mouse with character-based displays; however, it lacks the strong and intuitive association between the continuous movement of the hand moving the mouse and the respective visible movement of the cursor on the screen. The high-resolution graphic display enabled a continuous and smooth movement of the cursor on the screen in perfect correlation with the location, direction, and rate of the hand movement with the mouse.

Pull-down menus were also one of the control mechanisms in non-GUI interfaces. However, GUIs provided a number of menus simultaneously, using the menu bar, which is usually at the top part of the window, for immediate access to many actions. This feature contributes significantly to increasing the efficiency of work with the system.

The use of icons to represent objects and actions is a significant element of a graphical interface (Figure 2).

Graphic Metaphors and Visual Language

High resolution and a variety of colors enabled almost anything to be shown in pictorial fashion. Today, applications, objects such as documents or drawings, and actions are all visually represented by icons. Icons appear as a way to initiate programs, select an object,



Figure 2 Example of GUI Interface With Icons and Menu Bars



Figure 3 Example of a Graphic User Interface

and launch various operations. The icons have an advantage over using words because it is easy to identify them quickly, they are not dependent on using technical or unknown terminology, and they add to the aesthetics of the user interface (Figure 3).

To present the available options and commands, on the one hand, and the information that is presented by the system, on the other hand, a graphical language is used. It is taken either from everyday life or from a domain known to the user. For example, Figure 3 shows a user interface for playing music on the computer that looks exactly like a real recording system. This way the user has almost nothing to learn to be able to use the system.

Object Oriented

Most of the computer’s elements and the variety of applications for it are represented as objects on the screen: disk drive, network communication, trash can for deleting, or a type of a document. This way of

displaying is familiar and intuitive to users from everyday life, and it enables the users to see and understand immediately what they can work with and what they can do. The fact that the object is displayed and accessible enables one to first select it and then choose a certain action to apply on the selected object.

Direct Manipulation

Together, all the characteristics that were mentioned in the previous text enable an interaction method that is intuitive to people. Instead of typing commands and selecting things indirectly, the ability to move the cursor in a totally random way on the screen and select objects and launch actions directly suits the way people do things in daily life. The direct manipulation principle consists two of main characteristics of the user's work:

- Point and click
- Drag and drop

For example, to copy a document to a different directory, the user points at the document, selects it (usually using the button on the mouse), *drags* it over the screen, and drops it into the target directory.

EXAMPLES FOR USER-COMPUTER DIALOGS OR INTERACTION STYLES

Command Language

This dialog is based on typing commands to the computer in a specific language. The best-known example is the command language of the Microsoft Disk Operating System (MS-DOS) for personal computers or the questions language called standard query language (SQL) of large databases. This way of interaction requires learning a language: vocabulary, grammar, and syntax.

Application: Command language as an interaction mode is appropriate for experienced and expert users, in cases where expenses on learning time are not a critical factor and for tasks that require fast operation time and flexibility in giving commands.

Questions and Answers

This approach is like a session of questions and answers between the user and the computer. Questions

are presented to the user, who selects one answer from several that are offered. The computer executes the action based on the answer or asks another question, and so on, until all the information and parameters required for completing the operation are given.

Application: This approach is appropriate for novice users or tasks that can be defined in a single track, where the progression is from one phase to the next. This approach is common for tasks such as installing hardware or software where it is important to ensure that all the steps are taken in the correct sequence.

Menu Selection

This dialog is based on displaying a list of items, objects, or actions; and the user selects an item to activate or perform various operations. Menu selection is an old interaction approach that was prevalent also in character-based interfaces. In the past, selecting the item was done mostly by typing the option number in the menu or some shortcut (a functional key or the first letter of the option, etc.). In the GUI era selecting the option is done by directly pointing on the desired item.

Application: Menu selection, being a structured interaction approach, is appropriate for novice or infrequent users. It is also suitable for tasks where speed is not a critical factor for successfully completing the task.

Form Filling

This dialog approach is based on data entry required to complete a given task. Usually, the data is displayed as a form; and the user navigates within the form using either the keyboard, by skipping from one field to another, or in direct access with the mouse and filling in the necessary data. In graphical interfaces data can be entered in various ways, from typing it into an input field to using different controls (as check boxes, radio buttons, combo boxes, or spinners for numbers). Dialog boxes are the forms in GUIs.

Application: Form filling interaction is appropriate in applications where there is a need to update parameters in a fluent and efficient way during a task.

Direct Manipulation

This dialog approach, as mentioned earlier, is the most common and typical GUI. Because of the nature of the graphical interface, objects and actions are displayed in a unified and consistent metaphoric frame (like the desktop metaphor), and the user executes actions in a direct way in this framework. In this way there is no need for typing commands or selecting from menus. The basic operations in the direct manipulation approach are the point and click on an object or command, and the drag and drop, which help to manipulate entities.

Application: Using this dialog approach is applicable mostly to nonverbal tasks with spatial characteristics such as drawing or painting. It can be appropriate for both novice and expert users.

OBJECTIVES IN THE DESIGN OF A GOOD HCI

Easy and Short Learning

The user interface should shorten the learning time for using the system. The learning duration has a direct influence on user attitude toward the system: A system that is simple to learn to use will be perceived as comfortable and easy to use. In addition, the duration of learning has an influence on the deployment and system usage costs. With a lower learning cost, the added value of the system increases because the time for starting the production is shorter.

Efficiency

It is not enough that the user can perform the job with the computer. Performing the job has to be efficient: saving time with an accurate and quality product. If work with the system is slowed down because the user has to look in the user guide to perform any given operation or the number of operations required to complete a task is too large, less value is added by using a computer.

Minimum Errors

Errors can occur during the user's work with the computer. They can result from human errors or from problems and failures in the computer system itself.

A good interface will be evaluated according to the way it deals with errors. It should show error detection and display the appropriate information to the user about the error and its characteristics. In addition, it should let the user handle the error. The interface has to be forgiving of user mistakes. If errors will be destructive and irreversible, the user will be discouraged from using the system. Poor error handling mechanisms will affect the learning process of the system and the efficiency of working with it.

Satisfaction

A short and easy learning process, the ability to work efficiently with the system, and the ability to handle errors in a nondestructive way all bring the user satisfaction with his work with the system. This satisfaction is essential to the successful deployment of the system and to effective work with it. The subjective satisfaction of the user is influenced also from the aesthetic aspects of the user interface. Although beauty is subjective, a good interface complies with basic aesthetic rules, as well as employing other approaches that make work with the system pleasant and even fun.

HCI: SOME CONTEMPORARY EMERGING CHALLENGES

Information Visualization: The graphical depiction of large amounts of information in ways that integrate and synthesize the information, and let the user interact with it according to their objectives and tasks.

Computer Supported Collaborative Work and Computer Mediated Communication: The use of computers to support and mediate collaborative work and communication between people.

Mobile Computing: The implementation of a variety of applications and programs in mobile devices such as the cellular phone or the PDA.

Virtual Reality: The simulation of environments in an immersive fashion such that the user perceives and feels as if he or she is actually *inside* the simulated environment. Used primarily for training and games.

—Avi Parush

See also Automation/Advanced Manufacturing Technology/
Computer-Based Integrated Technology

FURTHER READING

- Badre, A. (2002). *Shaping Web usability: Interaction design in context*. Boston: Addison-Wesley.
- Carroll, J. M. (2002). *Human-computer interaction in the new millennium*. Boston: Addison-Wesley.
- Clabby, J. (2002). *Visualize this: Collaboration, communication, and commerce in the 21st century*. Upper Saddle River, NJ : Prentice Hall.
- Kim, S.-J. (2005, December). Collaborative interaction behaviors in an information technology problem-solving context: Cognitive movements of the helper and the helped. *Journal of Information Science*, 31, 483–495.
- Preece, J. (2002). *Interaction design: Beyond human-computer interaction*. New York: Wiley.
- Rosson, M. (2002). *Usability engineering: Scenario-based development of human-computer interaction*. San Francisco: Academic Press.
- Stanney, K. M. (2002). *Handbook of virtual environments: Design, implementation, and applications*. Mahwah, NJ: Lawrence Erlbaum.
- Wei, C. Y., Evans, M. B., Eliot, M., Barrick, J., Maust, B., & Spyridakis, J. H. (2005, October). Influencing Web-browsing behavior with intriguing and informative hyperlink wording. *Journal of Information Science*, 31, 433–445.

HUMAN FACTORS

See ENGINEERING PSYCHOLOGY

HUMAN RELATIONS MOVEMENT

Viewing the Hawthorne Studies as the linchpin that connected scientific management to new thinking and practice, the human relations movement is the result. This entry approaches the human relations movement from three vantage points:

1. Genesis and growth of the movement
2. Key concepts and practices of the human relations movement
3. Role of the movement in shaping the history and trajectory of industrial/organizational (I/O) psychology

Further readings are provided at the end of this entry. The entry clarifies that researching investigators, practicing consultants, and working managers contributed to the human relations movement.

GENESIS AND GROWTH

Two early figures, related through the Hawthorne Studies and Harvard Business School, were Fritz J. Roethlisberger and G. Elton Mayo. Roethlisberger was a Harvard Business School professor for 40 years; Mayo was a Harvard professor with training in psychopathology. The human relations movement emerged through their writings, in opposition to scientific management. The various members of the movement, without excessive formal identification, promulgated an attitude toward organizations that emphasized persons, groups, and relationships.

The human relations movement began with impetus from the findings of the Hawthorne Studies that both group norms and worker attitudes are important and account for variance that is left unaccounted for by scientific management and personnel selection. The movement began during the period spanning the irrational zest of the late 1920s and the start of the Great Depression. The shift was documented in the titles of two books by Morris Viteles. Specifically, the revision of *Industrial Psychology* (1932) illustrated the evolution of the field when it appeared as *Motivation and Morale in Industry* (1953). Even as industrial psychologists continued to develop personnel testing techniques, documented by Harold Burt in 1926 and 1929 and then by Morris Viteles in the magisterial *Industrial Psychology*, the roots of organizational psychology were being cultivated in the study of attitudes and groups. Another individual who made the transition to a focus on job attitudes and mental health of the worker as well as industrial conflict, from an early focus on testing aspects of industrial psychology, was Arthur Kornhauser. Several individuals went undercover to write popular accounts of how workers thought and behaved. Satisfaction became an important outcome for the human relations movement. Researchers developed job satisfaction surveys following unobtrusive investigations during the 1920s (for example, Whiting Williams, *Mainsprings of Men*), and the Hawthorne researches provided guidance on personnel interviewing and counseling. Context and environment were important to workers, and thus to management, and eventually to I/O psychologists.

Two other individuals were important in advancing models of cooperation, paired with productive conflict, as a preferred organization for business firms. Mary Parker Follett, trained in political science, presented analyses of power relationships within

organizations that have been rediscovered by the I/O field. Chester Barnard, a CEO of New Jersey Bell Telephone who was also influenced by Harvard Business School faculty, wrote about management in *Functions of the Executive* (1938). He discussed the directives of supervisors and the varying acceptance by subordinates. Chester Barnard developed concepts of strategic planning and the acceptance theory of authority. Strategic planning is the formulation of major plans or strategies, which guide the organization in pursuit of major objectives. Barnard believed that the prime functions of executives were to establish effective communication systems, hire and retain effective personnel, and motivate personnel. These functions vary from standard treatments in their inclusion of communication systems as an important facet of the executive position.

Moving on through the interval between 1950 and 1970, Douglas McGregor and Rensis Likert stand out among others in terms of their influence on the human relations movement. McGregor proposed theory X and theory Y views of workers held by managers at multiple levels of organizations from supervisors to executives. Simplifying, theory X pertains to a scientific management perspective, whereas theory Y pertains to a human relations perspective. It is of interest that many organizations and managers continue with theory X perspectives and may suggest a contingency interpretation. Rensis Likert influenced them in several ways: They included his early work on scaling and later work on conducting surveys to support World War II efforts, as well as his role in founding the Institute for Social Research (ISR) at the University of Michigan. Likert identified systems of exploitive, benevolent, consultative, and participative management and worked with colleagues at the ISR to develop diagnostic tools and planned change interventions. A major vector of influence was Kurt Lewin. The influence was transmitted through Lewin's emphasis on groups and lifespaces but perhaps to a greater extent through his training of many social psychologists who studied within organizations.

KEY CONCEPTS AND PRACTICES OF THE HUMAN RELATIONS MOVEMENT

The human relations movement is known neither as a formal school nor for a single set of practices, whether considering the System 1–4 framework of Rensis

Likert or the acceptance theory of management by Chester Barnard. Assessing, understanding, and working with employee attitudes were its hallmarks, however, and contributed to the formation of organizational psychology, as noted by Harold Leavitt. Training for supervisors in human relations was also prominent during the interval between 1940 and 1966, as indicated by a search of the historical research database. The effectiveness data were of course meager. The emphasis of the human relations movement on the study of groups and organizations meant that theory and research moved away from a myopic preoccupation with the individual level of analysis to a more integrative conception of micro-, meso-, and macroinfluences and consequences of behavior.

ROLE OF THE HUMAN RELATIONS MOVEMENT

Arthur Bedaeian and Daniel Wren, based on an order of merit ranking procedure, placed multiple books from the human relations movement in their list of the top 20 books in management during the 20th century. Two important effects of the human relations movement were the development of the organizational branch of I/O psychology (and organizational science, broadly defined) and the emergence of professional development for managers. The organizational branch of I/O psychology is concerned with groups and norms, attitudes, motivations, interests and values, and roles. Remembering ability in general or training to influence worker capabilities, the human relations movement enhanced our suite of potential causes of observed behavior and advanced job design and redesign as another class of action levers. It also demonstrated application links with other areas of psychology, for example using the scaling procedures of Thurstone and of Likert to measure job attitudes. Systematic studies of and interventions around labor–management relations were another offshoot of this movement seen in organizational psychology, as are current concerns with forms of job affect and withdrawal and interventions to influence them. Professional development for managers, whether T-group work at the National Training Laboratories (NTL) or role-playing of interviewing and communications with subordinates or participation in large-scale networked simulations, is a large and booming business. All these tendrils, and more, are offshoots of the human relations movement.

—James T. Austin and Scott A. Davies

See also Hawthorne Studies/Hawthorne Effect; History of Industrial/Organizational Psychology in North America; Scientific Management

FURTHER READING

- Barkin, S. (1957). Human relations in the trade unions. In C. M. Arensberg, S. Barkins, W. E. Chalmers, H. L. Wilensky, J. C. Worthy, & B. D. Dennis (Eds.), *Research in industrial human relations* (pp. 192–213). New York: Harper.
- Barnard, C. (1938). *The functions of the executive*. Cambridge, MA: Harvard University Press.
- Kornhauser, A. W. (1965). *Mental health of the industrial worker*. New York: Wiley.
- Leavitt, H. J. (1961). Toward organizational psychology. In B. von Haller Gilmer (Ed.), *Walter Van Dyke Bingham memorial program* (pp. 23–30). Pittsburgh, PA: Carnegie Institute of Technology.
- Likert, R. (1961). *New patterns of management*. New York: McGraw-Hill.
- McGregor, D. (1960). *The human side of enterprise*. New York: McGraw-Hill.
- Viteles, M. (1953). *Motivation and morale in industry*. New York: Norton.

HUMAN RESOURCE MANAGEMENT

Human resource management (HRM) refers to the design of formal programs to enhance the effective and efficient use of employees to achieve organizational goals. In essence, it is the *people practices* and ranges from hiring new employees to developing them into successful organizational members to managing their separation from the company. Human resource (HR) professionals administer these programs and can be generalists or specialists. Generalists have some knowledge about each HR function (i.e., jack-of-all trades), while specialists are experts in one particular function such as recruitment, labor relations, or training.

PURPOSES OF HRM

Traditionally, the primary purpose of HRM has been administrative, which includes designing and administering programs, such as recruiting, training, performance evaluations, payroll, and benefits. A second purpose of HRM is being an employee advocate. Human resource professionals need to voice employee

concerns and protect their rights by acting as liaisons. Third, HRM must serve as a change agent by helping organizations adapt to the constantly changing business environment. For example, HR professionals can enact family-friendly policies in response to the increased number of women in the workforce. Finally and most important, HRM should be strategic by aligning all HR functions with organizational goals. For example, if a company's mission includes providing excellent customer service, HR professionals must hire and train workers with good customer service skills, provide feedback on customer interactions, and reward those displaying superior service.

HRM FUNCTIONS

The field of HRM covers many functions, which are briefly described in the following text:

Equal employment opportunity laws prohibit discrimination against applicants and current employees based on their demographic characteristics—such as race, gender, religion, national origin, age, and disability—in all terms and conditions of employment. Human resource professionals must ensure that all employment decisions are based on merit or other nondiscriminatory reasons.

Job analysis is the process of describing the essential tasks, duties, knowledge, skills, and abilities needed to successfully perform a job. The outcome of this process is a job description that can be used to determine what skills applicants need, what type of training should be conducted, what to evaluate employees on, and so forth.

Human resource planning entails forecasting the number of employees who will be needed (demand) and the availability of workers (supply) as well as creating programs to remedy any mismatch between demand and supply. To resolve an employee shortage, HR professionals can recruit new employees, hire temporary workers, outsource, require overtime, or reduce turnover. Likewise, when there is a surplus HR can conduct layoffs, implement job sharing, reduce work hours or pay, or transfer workers.

Recruitment involves identifying and attracting a large pool of applicants for a job. Internal recruitment is hiring from within organizations by identifying internal job candidates through performance evaluations, job postings, or manager recommendations. Conversely, external recruitment seeks candidates from outside organizations through newspaper ads, Internet job boards, employment agencies, college career centers, job fairs, or word of mouth.

Selection refers to matching job candidates to the appropriate job. In other words, it involves hiring the most qualified people in the hope that they will successfully perform the job. Many methods are used to identify the best candidates—including applications, résumés, interviews, assessment centers, background checks, and tests such as cognitive (intelligence) or physical ability, personality, and integrity.

Orientation programs introduce new employees to the organization, job, and individuals within the company. These programs typically discuss company history and mission, policies, procedures, pay, and benefits.

Training provides employees with the knowledge and skills needed to perform their jobs. Training can be conducted on the job where employees learn as they go, often while supervised by a manager or senior employee. It can also be off the job where employees learn away from the actual work setting using classroom lectures, videos, role-playing, simulations, or computer-based training.

Performance appraisal is the process of observing, evaluating, giving feedback, developing, and rewarding job performance. Typically, supervisors evaluate performance, but 360-degree feedback in which multiple raters (supervisors, subordinates, coworkers, customers, and self) evaluate performance is gaining popularity. Performance can be rated based on results such as number of sales or behaviors including teamwork, as well as in comparison to coworkers or predetermined standards.

Compensation and benefits are used to attract and retain employees. Compensation is monetary payments employees receive from their employer and can include base pay, cost-of-living adjustments, and merit or incentive pay. Benefits are a form of indirect compensation that may be required by law—including workers' compensation, unemployment insurance, or unpaid family and medical leave—or voluntarily offered by companies—such as paid leave, retirement or pension plans, child care, educational assistance, or medical insurance.

Health and safety programs protect employees' psychological and physical well-being. Employee health can be enhanced through wellness—including exercise facilities, health screenings, or educational programs—or employee assistance programs that help manage personal problems such as substance abuse and stress. The Occupational Safety and Health Act (OSHA) of 1970 requires that organizations provide a workplace that is free from recognized hazards. Compliance can be achieved through safety programs that include safety policies, training, protective equipment, and inspections.

Labor relations are important because organizations are required by law to recognize and bargain in good faith with unions. Human resource professionals can participate in collective bargaining, facilitate union-management relations, and ensure that management does not engage in unfair labor practices, such as threatening to fire employees who vote for a union.

Employee relations cultivate relationships that balance employer needs and employee rights regarding issues such as electronic communication monitoring, drug testing, and termination. Management should be accountable for upholding these rights, and employees abusing them should be disciplined according to company policy.

SOCIETY FOR HUMAN RESOURCE MANAGEMENT AND HR CERTIFICATION

The Society for Human Resource Management (SHRM) was established in 1948 and represents more than 190,000 HR professionals. It strives to advance the profession by providing resources, networking, and professional development. SHRM also advocates the key role HR professionals can play in formulating and implementing organizational strategy. SHRM founded the Human Resource Certification Institute, which offers three types of HR certification. First, the *professional in human resources* is for those with less HR experience and jobs that are technical or operational. Individuals with more HR experience and jobs that are strategic or policy oriented can attain the *senior professional in human resources*. Finally, HR professionals operating in multinational organizations can receive the *global professional in human resources*. To become certified, individuals need at least two years of HR experience and must pass an exam covering the field of HRM.

—Christine A. Henle

See also Adverse Impact/Disparate Treatment/Discrimination at Work; Compensation; Electronic Human Resource Management; Employee Selection; Human Resources Strategy; Job Analysis; New Employee Orientation; Performance Appraisal; Recruitment; Training; Unions; Workplace Safety

FURTHER READING

- Cascio, W. F., & Aguinis, H. (2005). *Applied psychology in human resource management* (6th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Maidment, F. H. (2005). *Annual editions: Human resources* (15th ed.). Dubuque, IA: McGraw-Hill/Dushkin.

- McKenzie, J. S., & Traynor, W. (2002). *Opportunities in human resource management careers*. New York: VGM Career Books.
- Mondy, R. W., & Noe, R. M. (2005). *Human resource management* (9th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Weinberg, R. B. (2005). *Certification guide* (9th ed.). Alexandria, VA: HRCI.

HUMAN RESOURCES STRATEGY

Human resources strategy focuses on two primary issues:

1. The degree to which human resources (HR) practices are aligned with business strategies
2. The extent to which these practices influence organizational performance

It is also based on three key assumptions:

1. Human resources can be a source of competitive advantage.
2. Human resource practices have a direct influence on the motivation and productivity of organizational members.
3. Such practices are key determinants of organizational performance.

Although strategies for managing people in organizations have been the focus of research in management and industrial and organizational (I/O) psychology since the turn of the century (e.g., Scientific Management, Likert's Systems-4 Management), there has been a renewed interest in the topic in recent years. Furthermore, researchers have offered several new frameworks for understanding the effects of HR practices on organizational performance including the best practices model, the alignment model, and the resources-based model. These models and research examining their effectiveness are described in the following text.

THE BEST PRACTICES MODEL

One framework for understanding strategic human resources management has been labeled the best practices model. This approach argues that there are sets of best practices in the field of HR management, and

the use of these practices has a positive influence on organizational performance or profitability. Some empirical research conducted in a variety of countries, such as the United States, Japan, Israel, and Korea, supports this prediction. For example, research has indicated that the use of high-performance work practices—including job analysis, training, employment testing, quality of work life programs, and incentive compensation—is positively related to firm performance and profitability. Similarly, research comparing production lines in the United States and Japan found that Japanese production lines were more productive than U.S. lines. However, the productivity rates of U.S. lines were equal to the Japanese lines when Japanese management systems were used. Although most research has found that high-performance work practices are positively related to an organization's profitability, results of one recent study found that these work practices increase productivity but also increase labor costs.

THE ALIGNMENT MODEL

Another framework for understanding HR strategy has been characterized as the alignment model. This approach suggests the effectiveness of organizations can be increased if HR practices are aligned with the competitive strategies used by organizations to differentiate themselves in the marketplace. For example, firms that differentiate themselves based on cost or speed use different HR practices than those that seek to gain a competitive advantage based on quality or innovation. Some empirical research has shown that organizations following different business strategies use different HR practices, and studies have shown that manufacturing and financial performance is enhanced when firms align their HR practices with the firm's business strategy.

THE RESOURCE-BASED MODEL

Still a third model of strategic human resources management has been designated as the resource-based model. This model emphasizes that human resources can be a source of competitive advantage for organizations, but the value of people is not always readily apparent. In addition, the resource-based model contends that human resources may be a key advantage in organizations because they provide organizations with a unique pool of talent that is not easily imitated or

substitutable. Furthermore, this model suggests that a combination of HR practices may be more difficult to imitate, and therefore, more valuable to the organization than a single practice—such as use of valid selection techniques. A number of empirical studies have provided support for this prediction and found that bundles of HR practices are more effective than individual practices. In addition, research suggests that HR practices need to be synergistic or complement one another if they are to have an impact on organizational performance. Similarly, research has revealed that firms often have higher levels of performance when they use different HR practices for different employee groups rather than use a uniform HR system with all employees. Similarly, research has indicated there are often sets of critical employees in organizations who are responsible for the organization's core competencies, and retention of these individuals is a key determinant of the success of organizations.

MEDIATING FACTORS

Although some research has shown that sets of HR practices may be related to organizational performance, researchers argue that it is important to understand the processes that mediate this relationship. As a result, research in strategic human resources management has examined the extent to which productivity, voluntary turnover, and organizational flexibility mediate the relationship between high-performance work practices and organizational outcomes, including

profitability and return on investment. In addition, researchers have argued that HR systems create clearly defined social structures, and strong systems clarify organizational goals and the nature of the exchange between employees and employers. Finally, researchers contend that HR practices affect firm performance because they increase employee skill levels, motivation, and perceptions of empowerment. Although this argument seems highly plausible, little empirical research has directly examined the degree to which these psychological factors mediate the relationship between HR practices and organizational performance.

—Dianna L. Stone

FURTHER READING

- Delery, J. E., & Shaw, J. D. (2001). The strategic management of people in work organizations: Review, synthesis, and extension. *Research in Personnel and Human Resources Management, 20*, 165–297.
- Huselid, M. A. (1995). The impact of human resources management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal, 38*, 635–672.
- Wright, P. M., & McMahan, G. C. (1992). Theoretical perspectives for strategic human resource management. *Journal of Management, 18*, 295–320.
- Wright, P. M., & Snell, S. A. (1998). Toward a unifying framework for exploring fit and flexibility in strategic human resources management. *Academy of Management Review, 23*, 756–772.

I

IMPLICIT THEORY OF LEADERSHIP

What is leadership? Is it leaders' behavior or our image of it? For example, if you are a female manager, how often has an outsider taken you for your own secretary? How often does that happen to your male colleague? This is what research on implicit leadership theories (ILT) focuses on. What are our ideas of what a leader is like (e.g., male, as further explored later in this paragraph)? Whereas prior leadership research has studied the leader and his or her behavior, scholars studying ILT have taken a different approach. According to ILT scholars, the *actual* behavior or characteristics of the leader are less important for finding out what leadership is than our particular *ideas* about what leaders are and what characteristics or behaviors they should exhibit. It has become clear that individuals are well able to produce ideas about leaders in general, ideal leaders, effective leaders, and so on, without referring to an actual leader they know. When meeting a person labeled *leader*, this image of a leader in general is activated. To illustrate: Imagine you are at a party and your friend tells you that she is going to introduce you to a friend of hers who is a top leader of a Fortune 100 company. Immediately, you will have an idea about this person's attributes. For example, you might imagine this person to be male, dominant, intelligent, and so on. These characteristics do not come out of the blue. Virginia Schein has found that we often imagine leaders to be male, and recent research on the contents of our implicit leadership theories has found that

characteristics such as dominant and intelligent are often named as typical for leaders.

Similarly, not only do we have ideas about leaders before or when we meet them, but, as the Robert Lord research group found, we also tend to label a person a leader who fits our ideas of a leader. This means that we are well able to say whom we believe to be the leader of a group we are observing. But we would be wise to be cautious: We can, of course, be mistaken. Leaders who do not possess "typical" leader characteristics may often mistakenly be seen as subordinates.

According to Robert Lord and colleagues, the implicit theories of leadership that are stored in our minds are often associated with the idea of success. When individuals observe a group and are given information concerning the performance of that group, they tend to remember more leadership behavior when told that the group was successful than when told the group was not successful. Remember, we are talking about different observations of exactly the same behavior, simply owing to differing information concerning group success.

Interestingly, this is a tendency we can also find on a broader societal level. James Meindl and colleagues examined newspaper articles and found that particular emphasis was put on the leader of a specific company in times when companies performed well and in times when they performed poorly. We all know this phenomenon from our daily lives: Just think about how often sports coaches are made responsible for the failure and success of their team and are, in times of failure, consequently replaced.

WHAT EFFECTS DO IMPLICIT LEADERSHIP THEORIES HAVE?

What consequences does the knowledge that people have ideas about leaders have for organizations and their leaders? Judith Nye has focused on the idea that a match between followers' implicit leadership theories and their leaders' behavior may have an impact on the evaluation of their leaders. Nye and her colleagues found that once followers have ideas about leaders that do not fit their leader's actual behavior, their evaluation of their leader will be less positive. This is of course important for leaders to know, as it can have an impact on their effectiveness with these followers. In addition, we have seen in leadership research that different followers may see the same leader in different ways. Implicit leadership theories can help us understand this fact. Birgit Schyns, Jörg Felfe, and colleagues undertook research on the perception of leadership and found that implicit leadership theories influence the perception of leadership. This means that implicit leadership theories, or the ideas we have about what leaders are like, affect what we see in our own leaders. This, then, can explain why one follower may see, in effect, a different leader than another follower sees. Taking into account how often followers are asked to rate their leaders, for example in the context of 360-degree feedback, the impact of such an effect should not be overlooked. Tiffany Keller reports another critical finding, namely that the match between the implicit leadership theory of an employee and his or her actual leader predicts job satisfaction.

ARE IMPLICIT LEADERSHIP THEORIES GENERALIZABLE?

In our world of diversity, intercultural cooperation, mergers, and expatriates, it is important to be aware of the differences in implicit leadership theories that exist among different members of the workforce as well as in different cultures. Laura Graves and Gary Powell found evidence that men and women differ in their implicit leadership theories. We also know from research by David Day and Charlotte Gerstner that students with different cultural backgrounds have different implicit leadership theories. The Global Leadership and Organizational Behavioral Effectiveness (GLOBE) research project undertook a cross-cultural examination of implicit leadership theories about effective leaders in 62 cultures. This group

found that some of the attributes associated with charismatic leadership are considered indicators of effective leadership across different cultures, but the importance of other characteristics of effective leadership are different in different countries.

This research indicates that leaders working in different cultures may be confronted with followers who have different ideas about how leaders are and how they should be. This influences the expectations followers have concerning their leaders and, in turn, will probably affect their evaluation of these leaders and influence the amount of effort they are willing to exert to support them. Imagine, for example, an individualistic leader acting in a collectivist country. Strategies can be extremely successful in one country yet can trigger misunderstandings and even repudiation in another country. We can imagine that the idea of a leader in a collectivist country is more dominantly shaped by an emphasis on group identity than on individual achievements. So, because of such different implicit leadership theories, leaders may have different effects in different countries.

SUMMARY AND CONCLUSION

We have seen in this short overview that implicit leadership theories exist, which is to say that people have particular beliefs concerning leaders even before they encounter a leader and that they apply these beliefs to a person labeled *leader*. We have also seen that these theories develop early and are different for male and female individuals, as well as for individuals with different cultural backgrounds. In addition, this overview shows the consequences of implicit leadership theories for organizations. The following related issues have begun to be discussed only very recently.

THE FUTURE OF IMPLICIT LEADERSHIP THEORIES

Recently, the concept of implicit leadership theories has been broadened. In 2005, Reinout de Vries and Jean-Louis van Gelder introduced the term *implicit followership theories*, arguing that people not only have ideas about how leaders are, but also about how followers are. In a similar direction, Mary Uhl-Bien has argued that individuals have *implicit relationship theories*. These theories affect the cooperation between, for example, leader and follower, as both enter the relationship with different or similar ideas

about what such a relationship should look like. Brigitte Kroon introduced the idea of *implicit organizational theories*. Her line of argumentation has considered how these implicit organizational theories affect the start-up of a company—that is, how they shape our image of companies, as well as how actual companies are shaped by the idea of its founders.

These examples show how implicit theories in general, and implicit leadership theories specifically, have an impact on leaders, members, and organizations in general.

—Birgit Schyns

See also Global Leadership and Organizational Behavior Effectiveness Project; Leadership Development; 360-Degree Feedback

FURTHER READING

- Graves, L. M., & Powell, G. N. (1982). Sex differences in implicit theories of leadership: An initial investigation. *Psychological Reports, 50*, 689–690.
- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Thousand Oaks, CA: Sage.
- Meindl, J. R., Ehrlich, S. B., & Dukerich, J. M. (1985). The romance of leadership. *Administrative Science Quarterly, 30*, 78–102.
- Nye, J. L., & Forsyth, D. R. (1991). The effects of prototype-based biases on leadership appraisals: A test of leadership categorization theory. *Small Group Research, 22*, 360–375.
- Offermann, L. R., Kennedy, J. K., & Wirtz, P. W. (1994). Implicit leadership theories: Content, structure, and generalizability. *Leadership Quarterly, 5*, 43–58.
- Schyns, B., & Meindl, J. R. (2005). Implicit leadership theories: Essays and explorations. *The Leadership Horizon Series* (Vol. 3). Greenwich, CT: Information Age.

IMPRESSION MANAGEMENT

Many companies use scores from personality tests when evaluating job applicants. Meta-analytic evidence suggests that scores from well-developed personality tests are predictive of job performance and other organizationally relevant outcomes, with the strongest findings observed across settings for the trait of conscientiousness. A potentially important issue

with many personality tests, however, is the accuracy of responses provided by applicants. The assumption is that applicants will respond to items in a manner consistent with their behavior, producing scores that indicate their trait standing. However, for many personality items it is possible for applicants to respond in a way that enhances their attractiveness to the hiring organization.

For illustrative purposes, consider the personality test item “I am rarely late for appointments” and an associated five-point Likert-type response scale that ranges from *strongly disagree* to *strongly agree*. Some individuals tend to respond to this item more toward the *strongly agree* end of the response scale in an applicant setting than when responding to the same item in a research setting or when taking the test for self-exploration. This phenomenon of changes in responses to such items across motivated (e.g., applicant) and nonmotivated settings has been referred to as *impression management*, *socially desirable responding*, *intentional distortion*, and *faking*.

Interest in the subject of intentional distortion is probably as old as interest in measuring personality through self-report methods. Although reviews of research on intentional distortion date back to 1946 and much is now known, more knowledge has led to more questions. Indeed, interest and research in this issue are as keen and perhaps as controversial as ever. Through the years, research has focused on four broad questions: (a) Can people distort self-descriptions of their personality? (b) Do applicants distort their self-descriptions? (c) What effect does intentional distortion have? (d) Are there remedies for intentional distortion?

CAN PEOPLE DISTORT (FAKE) SELF-DESCRIPTIONS OF THEIR PERSONALITY?

Research clearly demonstrates that when asked to do so, people can distort their responses in the desired direction. Laboratory studies with transparent personality items—that is, items for which the supposedly good or bad response options are readily apparent—show that the mean scores for respondents asked to describe themselves in as good a way as possible are significantly higher than the mean scores for respondents asked to describe themselves as they really are (honest responses). The differences are even greater between respondents asked to portray themselves in an undesirable way and those asked to portray themselves honestly.

DO APPLICANTS DISTORT (FAKE) THEIR SELF-DESCRIPTIONS?

Although people readily recognize answers to transparent items that enhance their self-description, whether or not real-life job applicants do enhance their self-descriptions is a separate question. Research suggests that at least some applicants do enhance their self-descriptions. Much of this research involves comparisons of job applicant and job incumbent test scores, and it is based on the assumption that job applicants are likely motivated to enhance their self-descriptions to increase their chances of being hired. Results of this research indicate that mean applicant test scores are notably higher than mean incumbent scores. Nonetheless, the size of the difference between incumbent and applicant mean scores varies depending on the particular personality characteristic, the type of job, and, undoubtedly, other factors, as well.

This research does not suggest that all applicants fake. Perhaps only 25% of job applicants enhance their self-descriptions on personality inventories consisting of transparent items. Moreover, job applicants who enhance their self-descriptions do so to different degrees. One applicant might raise her score by a couple of points on a scale, whereas another applicant might raise his score by several points, perhaps dramatically. Very little is known about the individual differences and situational factors that influence an individual's decision to distort or the amount of distortion. It is likely that people are differentially able to distort their scores. Certainly, one's true score on a characteristic influences the amount of distortion in a positive (or negative) direction. For example, an individual with an already high true score on a characteristic is simply unable to raise his or her score as much as someone whose true score is lower. Factors such as these seriously complicate the tasks of identifying those who have distorted their self-descriptions and determining the amount of the distortion.

WHAT EFFECT DOES INTENTIONAL DISTORTION HAVE?

Faking might have a number of possible effects on personality test scores and the usefulness of those scores. Some research has explored the extent to which faking affects the construct validity of personality measures. Generally, these studies have focused on factorial validity, comparing the factor structures of a personality measure across samples of honest

responders (typically incumbents) and people who have completed the measure in a motivated situation (typically applicants). It has been hypothesized that faking will increase the correlations between the scales and that a general faking factor will be observed in samples in which respondents were motivated to provide a positive self-impression. Research suggests this hypothesis is inaccurate. Evidence to date suggests that faking does not substantially change the factorial validity of personality measures.

Researchers have also investigated the effect of faking on the relationship between personality test scores and job performance (i.e., criterion-related validity). The expectation is that if scores on the test change (i.e., faked responses) but performance on the criterion (e.g., job performance) does not change, criterion-related validity will decrease. In other words, faked responses will lead to predictions of performance that are higher than would be predicted based on honest responses, and thus greater errors of prediction. Investigations into the effect of faking on criterion-related validity have provided mixed results, with some studies showing that faking has no effect on criterion-related validity and others showing a notable decrement in the correlation when faking is present. A review of these studies led Leaetta M. Hough to argue that the mixed results may arise from differences in setting or research context. That is, she showed that studies conducted in the laboratory tend to evidence a stronger impact of faking on the criterion-related validity of personality measures than those studies conducted in field settings (with actual applicants), where findings indicate a much smaller impact. Importantly, and consistent with Hough's conclusion, meta-analytic research indicates that criterion-related validities obtained in settings with real applicants for real jobs are similar to criterion-related validities obtained with real incumbents in real jobs. Thus, it would appear that intentional distortion has a minimal impact on the criterion-related validity of personality test scores.

Even though the criterion-related validity of a personality test might not be strongly influenced by faking in applicant settings, it remains possible that the quality of hiring decisions made using such tests will be adversely affected by faking. That is, for small selection ratios, the quality of selection decisions might be negatively affected to the extent that individuals who *appear* to have a high level of the trait (but who would be expected to perform in accordance with the actual trait standing) displace individuals whose test scores

are slightly lower but who actually have a high standing on the trait (and who would be expected to perform in a manner consistent with that trait standing). Some findings to date are consistent with this logic, suggesting that intentional distortion may detrimentally affect the quality of selection decisions, especially when the selection ratio is rather small. It should be noted, however, that much of this research has been conducted in laboratory settings or evaluated through simulation methods. Consistent with Hough's observation regarding the effects of faking on criterion-related validity, it is quite possible that lab and simulation studies overestimate the impact of faking on the quality of selection decisions. Moreover, not all research has reached the conclusion that faking harms the utility of personality tests. Findings from a recent simulation study by Neal Schmitt and Frederick L. Oswald suggest that removing fakers from the applicant pool changes mean levels of performance very little.

ARE THERE REMEDIES FOR INTENTIONAL DISTORTION?

Even though questions remain regarding the consequences of intentional distortion on the usefulness of applicant scores, many people assume that such distortion does degrade the validity of self-report responses for predicting later work performance. As applicant and client perceptions of fairness and validity are important, a search for and evaluation of remedies for intentional distortion is warranted.

Attempts to address issues of intentional distortion can be divided into two broad approaches. The first has been referred to as the *detection and correction* approach. The detection aspect of this approach involves the inclusion of a set of items in the personality test specifically designed to identify those individuals who may be attempting to respond in an overly desirable manner. These sets of items have been referred to as *faking scales*, *lie scales*, *unlikely virtues scales*, and *impression management scales*. The correction aspect of this approach involves adjusting scores on the various scales, often through a statistical procedure, based on scores on the impression management scale. In general, research suggests that the detection and correction approach makes little difference in terms of increasing the accuracy of individual scores or the criterion-related validity of the scores.

A second approach to dealing with faking is the prevention approach. In this approach, steps are taken to dissuade applicants from faking or to make it

difficult to intentionally raise one's scores. One prevention strategy is that of warning statements. In this strategy, a statement is included in the instructions of the test informing test takers that there are items in the test designed to identify individuals who are responding in an overly desirable manner. Meta-analytic research has demonstrated that personality test scores are notably lower when a warning statement is present in the instructions of the test. However, that benefit appears to occur only when test takers are informed that there are consequences, such as being dropped from the applicant pool, for being identified as having responded in an overly desirable manner. In other words, warnings appear to be an effective deterrent of faking only when the warning "has teeth."

A second prevention strategy involves the use of multidimensional forced-choice (MFC) item formats. An MFC item comprises two or more statements, each reflecting a different trait. The respondent must choose, rank order, or otherwise indicate preference among the statements presented in the item. Because the individual cannot make himself or herself look good on all of the statements within the item, it is thought that a respondent's capability to fake is reduced. Consistent with this line of thinking, research has shown less score inflation between motivated and nonmotivated testing situations on MFC scales than on scales with Likert-type formats. However, research also suggests that when completed under motivated testing situations, scores from MFC measures provide representations of trait standings that are no more accurate than scores from Likert-type measures. Thus, MFC formats, at least of the type that have most recently been discussed and explored, do not appear to be a remedy for faking.

SUMMARY

Personality tests are often used in personnel selection systems, and many of these tests are susceptible to socially desirable responding. Research shows that applicants can and will fake personality tests in applicant settings, although precise estimates of the percentage of applicants who fake is not well documented. The impact of faking on the criterion-related validity of personality test scores appears to be rather small, with larger effects observed in lab studies than in field studies. Likewise, studies with real applicants in real selection settings indicate the effects of intentional distortion are minimal. Lab and simulation studies suggest that faking may adversely affect the

quality of selection decisions when top-down selection is used and the percentage of the applicant pool hired is very low, although these findings need to be confirmed in field settings. Finally, with regard to remedies for faking, research suggests there are no methods that fully prevent faking or that effectively deal with the effects of faking after it has occurred. At present, the best recommendation is to include an impression management scale and warn applicants that high scores on the scale might result in their removal from the applicant pool.

—Eric D. Heggstad and Leaetta M. Hough

See also Big Five Taxonomy of Personality; Personality; Personality Assessment

FURTHER READING

- Dwight, S. A., & Donovan, J. J. (2003). Do warnings not to fake reduce faking? *Human Performance*, *16*, 1–23.
- Ellingson, J. E., Sackett, P. R., & Hough, L. M. (1999). Social desirability corrections in personality measurement: Issues of applicant comparison and construct validity. *Journal of Applied Psychology*, *84*, 155–166.
- Hough, L. M. (1998). Effects of intentional distortion in personality measurement and evaluation of suggested palliatives. *Human Performance*, *11*, 209–244.
- Hough, L. M., & Furnham, A. (2003). Importance and use of personality variables in work settings. In I. B. Weiner (Ed.) & W. Borman, D. Ilgen, & R. Klimoski (Vol. Eds.), *Handbook of psychology: Vol. 12. Industrial and organizational psychology* (pp. 131–169). New York: Wiley.
- Hough, L. M., & Ones, D. S. (2001). The structure, measurement, validity, and use of personality variables in industrial, work, and organizational psychology. In N. R. Anderson, D. S. Ones, H. K. Sinangil, & C. Viswesvaran (Eds.), *International handbook of work psychology* (pp. 233–377). London: Sage.
- Mueller-Hanson, R., Heggstad, E. D., & Thornton, G. C., III. (2003). Faking and selection: Considering the use of personality from select-in and select-out perspectives. *Journal of Applied Psychology*, *88*, 348–355.
- Schmitt, N., & Oswald, F. L. (in press). The impact of corrections for faking on noncognitive measures in selection settings. *Journal of Applied Psychology*.

INCENTIVES

In the field of human resources and compensation, *incentives* are specific rewards that are offered

contingent on the achievement of some predetermined level of performance, or the performance of some specific type of behavior viewed as desirable by the organization. It could be argued that the earliest systems of exchange between organizations and individuals were primarily incentive based (i.e., piece rate systems in which individuals were paid a fixed rate for producing a set number of units). However, with the introduction of scientific management around the beginning of the 1900s, organizations moved to paying a fixed base wage or fixed annual salary. For most jobs, with the exception of sales and some lower-level jobs, monetary incentives played a secondary role as a type of additional method of motivating desired performance beyond that offered by performance appraisal and merit raises.

For organizations today, incentives serve as a way of attempting to influence future behavior toward some behavioral or production goal. Thus, they serve as a supplement to base pay or annual salary. However, unlike the base pay a person receives, incentives can be lost as well as gained. That is, if individuals do not meet the desired level of performance, or fail to perform the desired behaviors, then they do not receive the promised reward. So, incentives differ from the pay one receives from one's job, in that incentives are directed at future behavior, whereas pay can be viewed as an exchange for past behavior. A second difference is that incentives can be lost if the behavior or performance does not occur, whereas one's base pay is guaranteed regardless of one's performance, given one works the required number of hours.

There are three general types of incentives commonly used by organizations. The first is monetary incentives. The second is nonmonetary, tangible incentives such as trips, gifts, or stock options. The third is praise or positive verbal reinforcement. Each type of incentive will be discussed briefly, primarily from the perspective of its practical application in modern organizations. This will be followed by a brief discussion of major theoretical approaches to the explanation of the effects of incentives on performance.

MONETARY INCENTIVES

A major incentive is money or pay. Most individuals receive some type of base pay in exchange for their labor. In addition to base pay, organizations may offer various types of incentive pay. This incentive pay is

often referred to as *pay-for-performance*, or *variable-based pay*.

Incentive pay is presented as a potential reward that is dependent on behavior, productivity, or the attainment of some identifiable goal. If the behavior occurs or the goal is achieved, then pay is allocated at the individual, group, or organizational level.

When pay is used as an individual incentive, behavior may be measured using objective criteria or subjective performance ratings. Behavior may also be measured, and incentives rewarded, at the team or organizational level. Such group incentive plans are often aimed at improvement in specific areas of concern to the organization, such as cost, quality, production, absenteeism, or safety. Popular schemes for allocating organizational incentives include profit sharing, gainsharing, and goal sharing.

Skill- and competency-based pay can also be considered to be types of monetary incentive systems. Skill-based pay provides rewards in the form of pay for the completion of training that results in the acquisition of various skills; competency-based plans provide rewards for the acquisition and demonstration of various behavioral competencies.

NONMONETARY INCENTIVES

Used in its broadest sense, *nonmonetary incentives* refer to pleasurable aspects of the job, benefits, and various perks. Normally, however, the pleasurable aspects of jobs and benefits are not at risk, but are fixed regardless of performance. Thus, the term *nonmonetary incentives* is used here to refer to perks such as small gifts, trips, or awards that might be offered in exchange for the attainment of specific performance goals. For example, salespeople might be offered a cruise for meeting goals for calling on potential new clients, or teachers might receive a dinner for perfect attendance.

Such nonmonetary incentives may be a particularly effective and low-cost method of motivating behavior that is not directly tied to individual production, such as absenteeism or organizational citizenship. Of course, in designing such plans, compensation professionals must carefully consider legal issues such as the tax consequences or, in the case of absenteeism, the implications of the Family Medical Leave Act.

Stock options might also be considered to be a type of nonmonetary incentive, although they clearly have monetary value. Stock options not only serve as a

reward but also impart a sense of organizational ownership.

PRAISE AS AN INCENTIVE

A special type of nonmonetary reward is praise, recognition, positive reinforcement, or affirmation. Praise is an ideal reward because it is easy to deliver in close temporal proximity to the target behavior and tends to result in positive emotional states for the recipient. It is also very inexpensive, yet very effective. In addition, as compared with financial rewards, praise can be argued to be more likely to result in increased intrinsic motivation. The effective use of praise by a supervisor can also lead to more positive perceptions of supervisor leadership and communication.

PSYCHOLOGICAL THEORIES

The concept of reward is often associated with behaviorism, and behavioral theorists have contributed a great deal to our understanding of the role of incentives in molding behavior in organizations. This has included research on reinforcement schedules, the use of praise as a reinforcer, shaping, modeling, and the use of behavior modification principles in attendance and safety interventions.

The major challenge to behaviorist theories as an explanation for the performance improvements occurring as a result of incentives is offered by goal-setting theories. According to these theories, it is the establishment and acceptance of hard but difficult goals that leads to improved performance, rather than the reward itself. Cybernetic and control-theory perspectives have expanded on the goal-setting and behavioral positions by exploring the informational and feedback role played by rewards.

EVALUATION OF INCENTIVES

It is very difficult to offer any overall evaluation of the use of incentives in organizations, in that the term *incentives* encompasses such a wide spectrum of reward options. There is a long history in psychology of research demonstrating the efficacy of both monetary and nonmonetary rewards, including praise, on behavior at the individual level. Clearly, incentives can change future behavior both through the desire for rewards and through the impact of incentives on goal setting and goal acceptance.

Incentives have also been shown to be effective in changing performance at the group or organizational level, particularly in areas such as safety and absenteeism. However, in using incentive plans for dealing with absenteeism, companies in the United States must now deal with the constraints imposed by the Family Medical Leave Act.

Monetary incentives for production or performance do appear to have an impact on retention rates. Under a monetary incentive plan, where pay is at risk, turnover tends to be lower among high-performing employees and higher among low-performing employees.

From an organizational utility perspective, the introduction of any type of incentive plan should have a positive impact on productivity and performance. However, and perhaps unfortunately, the ultimate impact of an incentive system will depend on the ability of the organization to fairly observe and measure the target behaviors.

—Dennis Doverspike

FURTHER READING

- Bartol, K. M., & Locke, E. A. (2000). Incentives and motivation. In S. L. Rynes & B. Gerhart (Eds.), *Compensations in organizations* (pp. 104–147). San Francisco: Jossey-Bass.
- Belcher, J. G., Jr. (1996). *How to design and implement a results-oriented variable pay system*. New York: American Management Association.
- Markham, S. E., Scott, K. D., & McKee, G. H. 2002. Recognizing good attendance: A longitudinal, quasi-experimental field study. *Personnel Psychology*, 55, 639–660.
- Milkovich, G. T., & Newman, J. M. (2005). *Compensation* (8th ed.). Homewood, IL: BPI/Irwin.
- Sturman, M. C., Trevor, C. O., Boudreau, J. W., & Gerhart, B. (2003). Is it worth it to win the talent war? Evaluating the utility of performance-based pay. *Personnel Psychology*, 56, 997–1035.

INCREMENTAL VALIDITY

Incremental validity is a predictor's ability to explain an outcome, beyond all other predictors. For example, assume predictor A accounts for 25% of the variance in an outcome of interest and, when entered separately, predictor B also accounts for 25% of the variance. Because their influences most certainly overlap, it is also important to understand the amount of

variance each predictor explains when considered in conjunction with the other. One scenario is that predictor A and predictor B account for much of the same variance, so predictor B can be said to have low incremental validity because it adds very little new information to the prediction equation. Another scenario is that their variances overlap very little, so predictor B can be said to have high incremental validity.

Although incremental validity is conceptually simple and straightforward, it becomes difficult to estimate in practice, for several reasons. First, it is impossible to know all possible predictors of a given outcome, so it is imperative to draw from relevant, well-developed theory when defining a subset of predictors to examine. Second, the incremental validity of a given predictor necessarily fluctuates from situation to situation. For example, the incremental validity of athletic ability over intelligence is likely quite large when attempting to predict the performance of an NFL quarterback but is likely nonexistent when predicting the performance of an accountant.

ESTIMATING INCREMENTAL VALIDITY

The most widely used method of assessing incremental validity is *hierarchical multiple regression*, which allows researchers to assess the amount of variability explained by the predictors, after previous predictors have already explained their share of variance. Adding predictors to a model necessarily increases its predictive power, so an important question becomes, How do you determine when incremental validity ceases to be significant?

Arguably, the most important consideration is parsimony—that is, defining a model that is as simple as possible, without sacrificing substantial predictive power. One way to do this is by examining a model's adjusted R^2 , which indicates the proportion of variance explained in the outcome after the estimate has been slightly decreased for each predictor included in the model. This is done because adding predictors to a model *always* increases its predictive power. So, to increase the adjusted R^2 value, the incremental validity of each added predictor must outweigh its subsequent decrement in the adjusted R^2 .

APPLYING INCREMENTAL VALIDITY

Of all forms of validity (e.g., construct, criterion), incremental validity is the most applied, in that it is

typically used to better predict valued outcomes in real-world settings and often influences (and is influenced by) other considerations, such as time, money, and effort. This is especially true in the area of personnel psychology, where incremental validity is given more attention than in “purer” forms of psychology. Some have even developed *utility analyses*, which are used to translate organizational incremental validity estimates into financial savings.

One particularly prevalent application of incremental validity has been predicting applicants’ future job performance. Here, research has led to the nearly unequivocal conclusion that general mental ability (GMA, or *g*) is the best predictor of job performance across nearly all occupations. However, tests of GMA do not predict performance perfectly, so an important finding is that, under certain circumstances, predictors such as personality inventories, structured interviews, and work samples add incremental validity to the prediction of job performance.

CONCLUDING THOUGHTS

Incremental validity is a relatively straightforward concept that can cause many practical difficulties. However, many complications can be avoided by remembering that (a) incremental validity varies from situation to situation (e.g., across occupations), so one should refrain from making absolute statements about the incremental validity of any predictor; (b) there is a nearly infinite number of predictors of a given outcome, so a subset of predictors should be chosen from well-developed theory; and (c) a point of diminishing returns is typically reached after including a relatively small number of predictors, so models should be as parsimonious as possible.

—Rustin D. Meyer

See also Inferential Statistics; Measures of Association/Correlation Coefficient; Utility Analysis; Validation Strategies; Validity

FURTHER READING

- Garb, H. N. (1984). The incremental validity of information used in personality assessment. *Clinical Psychology Review, 4*, 641–655.
- Hunsley, J., & Meyer, G. J. (2003). The incremental validity of psychological testing and assessment: Conceptual, methodological, and statistical issues. *Psychological Assessment, 15*, 446–455.

- Sechrest, L. (1963). Incremental validity: A recommendation. *Educational and Psychological Measurement, 23*, 153–158.

INDIVIDUAL ASSESSMENT

Although individual psychological assessment is one of the most widely offered services provided by practitioners in psychology, it takes on somewhat unique characteristics in the domain of industrial and organizational psychology. These unique characteristics occur for both the assessment measurements of the individual and the outcomes that are predicted from those measurements. From a measurement perspective, the emphasis is on assessing knowledge, skills, abilities, and personal characteristics (KSAPs) that are important to functioning in the work setting. These measurements are typically different from those, for example, that would be relevant in mental health or educational settings. With respect to outcomes, individual assessment in industrial and organizational settings is most frequently concerned with selection decision making, including predicting job success/performance and antecedents thereto, such as career development or perhaps organizational fit. In fewer circumstances, it has also been used for vocational guidance and outplacement. In short, *individual psychological assessment* can be defined as the measurement of one or more components of an individual’s KSAPs to make inferences about subsequent work-related behaviors and performance.

OTHER ASSESSMENT PROCESSES

For the purpose of this discussion, the topic of individual assessment will exclude other measurement strategies that are frequently used to predict work performance, such as the preemployment interview, group testing, or assessment centers. Furthermore, the discussion is focused on the measurement of normal behavioral and psychological characteristics, as opposed to abnormal traits and behavior that might be considered in the assessment of candidates for safety-sensitive jobs (e.g., nuclear power plant operator, pilot, police officer). Finally, the individual psychological assessment is typically focused on predicting future performance rather than measuring past or current performance.

It is also important to distinguish individual assessment from other forms of evaluation that occur in organizations. Two of the more frequently used processes are performance appraisal and multirater feedback surveys. Both processes are techniques for measuring observed behaviors of individuals at work, and often there is considerable structure underlying the evaluations. Although both individual psychological assessments and the two organizational evaluation processes can be designed to measure the same constructs (e.g., performance dimensions, competencies), the perspective of the assessor/evaluator differs. Consequently, it is this independent perspective and psychological understanding (frequently supported by measurements from psychological instrumentation) that differentiates the individual assessment and provides unique information in support of selection decision making. Moreover, individual assessment is often conducted to support selection decisions during the hiring process when the organization has not had the opportunity to observe the individual at work.

ORIGINS

The origins of individual assessment have been traced to selecting individuals for government service in ancient Greece on the basis of both cognitive and physical abilities. In the United States, psychological assessment had its roots in the military with the screening of army recruits for maladjustment during World War I, and in applications by the Office of Strategic Services (OSS) during World War II. Use of individual assessments in private industry derived mostly from the early assessment centers that were designed to predict the advancement potentials of managers at AT&T in the 1960s.

DESIGN AND IMPLEMENTATION

A properly designed and implemented individual assessment follows the traditional model for the use of selection procedures as practiced in the field of industrial and organizational psychology. The design begins with a study of the job (position) of interest. The emphasis is on obtaining sufficient information about the underlying requirements (KSAPs/competencies), as well as the context (work environment), so that the assessor can determine what measurements (e.g., tests, simulations) will be administered and how the resulting information will be integrated to support

the selection decision-making process. Once the assessment protocol has been administered, scored, and interpreted, the results must be reported. The organization, of course, will receive a report (verbal, written, or both). More uncertain (and sometimes controversial) is whether the assessee will receive feedback. If so, will the feedback be verbal, written, or both, and under what circumstances? Ideally, if there is to be feedback, it should occur relatively soon after the assessment data have been gathered, and in some circumstances the feedback occurs immediately after the formal data collection process as a conclusion to the psychological interview.

As previously mentioned, the design of the assessment protocol is based on the underlying requirements or competencies for the position or job. The assessing psychologist will select the relevant tests (if any) to be administered, and often these will be both cognitive and personality measures. Additionally, interests are sometimes measured, and various types of simulations (e.g., role-play, in-basket) are often used. Most assessments include an interview with the assessing psychologist. The interview is often behaviorally focused and otherwise has several potential uses: (a) It can contribute to the interpretation of various test scores; (b) it can assess important requirements and competencies not measured by other assessment components; (c) it can provide background information so that the assessor is able to learn some things about the assessee beyond the set of test scores; and (d) it can be integrated with the feedback process and, when relevant, help resolve any conflicting information that may have come forth during the assessment process.

INTERPRETATION OF ASSESSMENT INFORMATION

Given the results of a psychological test battery and an interview, the psychologist now makes a series of judgments regarding the fit between the assessee and the position/job requirements and context. Some believe the fit is really of a multidimensional nature: person–position; person–team; person–organization; and, for international assignments, person–culture. In all circumstances, the interpretation and integration of the assessment information is not a matter of examining one or more cutoff scores to determine who passes, but rather it is the making of inferences about future behavior in the work setting. Moreover, the psychologist recognizes that the data collected about

the assessee are not perfect; the instruments do not have perfect psychometric properties; and the data (including the interview) are influenced by the self-presentation of the assessee.

Apart from concerns that may be raised about the quality and accuracy of the assessment data, the assessing psychologist is influenced by other matters. For example, what is the purpose of the assessment—to make a hiring decision? To consider an assessee for promotion? Or perhaps to give career direction? Also of importance is whether or not the psychologist has available useful or relevant normative data for each assessment component. Assuming the availability of normative data, when and how is it used? And how does the psychologist determine when to follow normative versus ipsative interpretations? There are no prescriptive answers to these questions, but every assessing psychologist has very likely encountered them.

Finally, the faking of assessment information is well documented, and many instruments (primarily personality tests) provide indexes of faking. Given that the faking indexes are high (or perhaps very low), how does the assessing psychologist incorporate this information into the interpretation of the data? Although there is no single answer to this question, it is a problem that must be addressed by assessors when interpreting test scores.

INTEGRATION OF ASSESSMENT INFORMATION

Although the research literature has generally found statistical combinations of assessment results to be more accurate than clinical judgment, the typical individual assessment relies on the psychologist's integration of the relevant information. This integration, of course, includes melding data obtained from tests, simulations, and the assessment interview. It also should include knowledge about the psychometrics of the assessment results and the influences of various demographic characteristics (including culture, gender, ethnicity, and age) on the various predictors. The ideal would be that all assessment instrumentation would be free of any biases, but we know that is not the case.

PSYCHOMETRICS

The psychometrics of individual psychological assessment is a particularly important yet confounded topic. The reliability and validity of the assessment process

have not been studied very often, and published research has focused on one of two facets of the psychometric domain. Because of its complex nature, the measurement of reliability and validity of individual assessments have multiple components. The instruments themselves (e.g., tests, interview) have psychometric qualities, as do the interpretation of the assessment data and the final description or recommendation offered by the psychologist. Also, the overall assessment context (e.g., hiring, career counseling) and appropriate criteria (e.g., job performance, development success) have potentially unknown confounding influences on attempts to study the validity of the individual assessment processes.

UTILITY

Given a lack of comprehensive validity evidence, it is reasonable to ask why individual assessment continues to survive and even flourish. Perhaps the answer lies with utility. Again, there is little research on this topic, but what seems to prevail among assessment providers and users is the notion that assessment, although perhaps not perfect, makes an important contribution to organizations' decision making. This may be even more accurate for selecting or promoting individuals to very critical or senior-level positions. Thus, anecdotal stories, proclamations, and similar types of information have prevailed, given the absence of research evidence to either support or refute the use of individual assessment.

ETHICAL ISSUES

Individual assessment can potentially create a variety of different types of ethical issues. These issues typically must be addressed by the assessing psychologist but also may be matters decided by the using organization. Confidentiality, informed consent, administration, and marketing are some of the major topics that can involve ethical concerns. Both the American Psychological Association and the Society for Industrial and Organizational Psychology publish materials relevant to the ethical practice of individual psychological assessment.

LEGAL ISSUES

At this time there are no legal decisions regarding individual assessment in organizational settings that

directly bear on the application of the typical type of assessment procedures that have been described in this discussion. This is apparently the case even though the assessment process, like other employment practices, is under the purview of the various statutes regarding equal employment opportunity at both the federal and state levels. Accordingly, assessing psychologists should make every attempt possible to ensure that the assessment process is in compliance with legal, ethical, and professional practice standards.

SUMMARY

Individual psychological assessment is one of the most prevalent components of the practice of industrial and organizational psychology. It is intended to support organizational decision making by making predictions regarding an individual's job success and performance, development, or organizational fit. Although there is a scarcity of research regarding the assessment process and associated outcomes, individual psychological assessment represents a blending of both art and science. It is especially challenging because it requires the assessing psychologist to interpret and integrate a variety of information about an individual and make predictions about his or her future behavior in a unique organizational setting.

—Richard Jeanneret

See also Assessment Center; Assessment Center Methods; Computer Assessment; Personality Assessment; Physical Performance Assessment; Prescreening Assessment Methods for Personnel Selection

FURTHER READING

- Highhouse, S. (2002). Assessing the candidate as a whole: A historical and critical analysis of individual psychological assessment for personnel decision making. *Personnel Psychology*, 55, 363–396.
- Jeanneret, R., & Silzer, R. (Eds.). (1998). *Individual psychological assessment: Predicting behavior in organizational settings*. San Francisco: Jossey-Bass.
- Prien, E. P., Schippmann, J. S., & Prien, K. O. (2003). *Individual assessment as practiced in industry and consulting*. Mahwah, NJ: Lawrence Erlbaum.
- Silzer, R. (Ed.). (2002). *The 21st century executive: Innovative practices for building leadership at the top*. San Francisco: Jossey-Bass.

INDIVIDUAL DIFFERENCES

Individuals differ from one another behaviorally in myriad ways. *Differential psychology*, the scientific study of these individual differences, provides an organizational structure for this vast array of psychological attributes. By examining broad behavioral patterns and using systematic assessments of relatively stable personal attributes, differential psychology allows longitudinal forecasting of a variety of important life outcomes. Because much of the research in this area focuses particular attention on predicting long-term life outcomes, and because work is such a large and important feature of adult life, the relationships between many commonly investigated individual difference constructs and various aspects of work behavior (e.g., educational-vocational choice, acquisition of job-related knowledge, job performance, job satisfaction and tenure) are well understood.

MEASUREMENT METHODS

Traditionally, the measurement of individual differences has relied on psychometric scales based on the aggregation of many items. Because any single item on a scale represents only a sliver of information about a personal attribute, aggregation is used to create a composite of several lightly correlated items. This approach distills the communality running through the items and constitutes highly reliable and useful information about the human characteristic under analysis.

Although individuals are commonly described in the more popular press in terms of *types*, implying that people are members of distinct categories (e.g., extraverts or introverts), individual difference variables are rarely observed as discrete classes. Rather, the majority of individuals are found near the center of a continuous distribution, with few observations at either extreme. The distributional pattern of most individual difference variables is well represented by the normal (bell-shaped) curve.

MAJOR DOMAINS

The major dimensions of individual differences can be classified into three overlapping clusters: cognitive abilities, preferences (interests and values), and personality. Each will be reviewed in turn, but cognitive

abilities will be focused on here because of their importance for industrial/organizational psychologists.

Cognitive Abilities

General Intelligence. The predominant scientific conceptualization of cognitive abilities involves a hierarchical organization. Various models of additional specific abilities have been proposed, but the hierarchical nature of human abilities is salient in each. For example, John Carroll factor analyzed more than 460 data sets collected throughout the 20th century and found a general factor (*g*) at the apex that explained approximately half of the common variance among a heterogeneous collection of tests, revealing a communality running through many different types of more specialized abilities and the tests designed to measure them.

This general intelligence factor exhibits an extensive range of external correlates, implicating it as arguably the most scientifically significant dimension of human psychological diversity uncovered by differential psychology to date. It has repeatedly demonstrated its utility in the prediction of educationally and vocationally relevant outcomes, including the acquisition of job-related knowledge and job performance. For example, in a meta-analysis of 85 years of research on personnel selection methods, Frank Schmidt and John Hunter reported that *g* is the best single predictor of performance in job-training programs, exhibiting an average validity coefficient of .56. Schmidt and Hunter further reported that the validity of *g* in predicting job performance is second only to that of work sample measures. However, because the use of work samples is limited to use with incumbents and is much costlier to implement, *g* is usually considered more efficient.

The predictive validity of *g* in forecasting job performance varies as a function of job complexity, with stronger relationships among more complex positions. Hunter reports validity coefficients of .58 for professional and managerial positions, .56 for highly technical jobs, .40 for semiskilled labor, and .23 for unskilled labor. For the majority of jobs (62%), those classified as medium-complexity, a validity coefficient of .51 was observed.

Specific Abilities. The general factor of intelligence is supplemented by several more circumscribed, specific abilities that have demonstrated psychological

importance. David Lubinski and his colleagues have shown that at least three add incremental validity to the variance explained by *g*: verbal, mathematical, and spatial abilities. The importance of specific abilities may be even more apparent at higher levels of functioning. In examinations of numerous job analysis data sets, for example, Linda Gottfredson found that, although the functional duties of jobs were characterized primarily by their cognitive complexity (i.e., demands on general intelligence), jobs requiring above-average intelligence were more dependent on profiles of specific abilities than were those jobs requiring average or below-average general intelligence.

Specific abilities are relevant in the prediction of job performance, but they are also important in predicting the educational and vocational niches into which individuals self-select. This self-selection occurs even at extraordinary levels of general intellectual development. In a recent 10-year longitudinal study, for example, Lubinski compared the educational-vocational tracks chosen by three groups of profoundly gifted individuals (top 1 in 10,000 for their age): a high verbal group (individuals with advanced verbal reasoning ability, relative to their mathematical ability), a high math group (individuals with advanced mathematical reasoning ability, relative to their verbal ability), and a high flat profile group (individuals with comparably high verbal and mathematical abilities). Despite having similar levels of general cognitive ability, the three groups diverged in their professional developmental choices. High math participants were frequently pursuing training in scientific and technological professions, whereas high verbal participants were doing so in the humanities and arts. High flat participants were intermediate. Spatial ability provides unique information beyond *g* also in understanding development in educational and vocational contexts. It has been shown to be a necessary component in several career clusters, including engineering, the physical sciences, and the creative arts.

Preferences

Modeling preference dimensions (interests and values) can be helpful also for understanding how people approach and operate within educational-vocational environments. John Holland has proposed a model that is particularly useful for interests. The origins of this model stemmed from atheoretical, empirical keying methodology in which the likes and dislikes of

incumbents across a variety of occupational categories were contrasted. Under the assumption that people in different occupations share common interests, which differentiate them from people in other occupations, measures of vocational interests compare an individual's combination of interests with the average interest profiles of individuals from various occupational groups as a means for vocational counseling and selection. This empirical approach led the way to a more cohesive theory of interest that contributes valuable information regarding how people operate in learning and work environments.

Holland's model of interests organizes six general occupational themes in a hexagon with one theme at each vertex in the hexagon. The themes are ordered according to their pattern of intercorrelations: Adjacent themes in the hexagon are more highly correlated to one another, whereas opposite themes are least correlated. This model is known as the RIASEC model, an acronym for the six themes represented in the hexagon: realistic, investigative, artistic, social, enterprising, and conventional. Individuals with high realistic interests exhibit preferences for working with things and tools; those with high investigative interests enjoy scientific pursuits; high artistic interests reflect desires for aesthetic pursuits and self-expression; social interests involve preferences for contact with people and opportunities to help people; individuals high in enterprising interests enjoy buying, marketing, and selling; and those with conventional interests are comfortable with office practices and well-structured tasks. Individuals' relative normative strengths on each of the RIASEC's general occupational themes are commonly assessed using the Strong Interest Inventory.

Although the generalizability of the RIASEC model has emerged repeatedly in large samples, Dale Prediger has suggested that the model can be reduced to two relatively independent bipolar dimensions: *people versus things*, and *data versus ideas*. *People versus things* may be superimposed on the social and realistic themes, respectively. Running perpendicular to the first dimension, the second dimension, *data versus ideas*, locates *data* between the enterprising and conventional themes and *ideas* between the artistic and investigative themes. The *people versus things* dimension represents one of the largest sex differences on a trait uncovered in psychology (a full standard deviation, with women scoring higher on the desire to work with people, and men, with things),

revealing important implications for the occupations that men and women choose.

Values constitute another category of personal preferences germane to learning and work, which have demonstrated their utility in the prediction of both educational and occupational criteria. Values are validly assessed by the Study of Values, which reports the intraindividual prominence of six personal values: theoretical, economic, political, social, aesthetic, and religious. These dimensions provided an additional 13% of explained variance above the 10% offered by math and verbal abilities in the prediction of undergraduate majors in gifted youth assessed over a 10-year interval; moreover, this finding has recently been generalized to occupational criteria, measured in commensurate terms, over a 20-year interval. However, although preferences do seem to play an important role in predicting occupational group membership and tenure, once individuals self-select into occupational fields, the utility of preferences for predicting job performance in those fields is limited.

Personality

Empirical examinations of personality use trait models to understand a person's typical interpersonal style and behavioral characteristics. These models have historically relied on a lexical approach that assumes that important dimensions of human personality are encoded in human language. This method has been fruitful: Lewis Goldberg, among others, has factor analyzed the lexicons of many languages and found a five-factor model of personality with remarkable similarities across cultures (see also investigations by Robert McCrae and Paul Costa). Although the labels for each of the factors have varied, similar underlying constructs consistently emerge: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Extraversion is characterized by terms such as *talkative*, *sociable*, or *not reserved*; agreeableness by *good-natured*, *cooperative*, or *not cold*; conscientiousness by *responsible*, *thorough*, or *not disorganized*; neuroticism (sometimes referred to as *emotional stability*, *reversed*) by *anxious*, *emotional*, or *not calm*; and openness to experience (sometimes referred to as *culture* or *intellect*) by *imaginative*, *reflective*, or *not narrow*. The normative standing of individuals on each of the dimensions of the five-factor model of personality is commonly assessed using the NEO Personality Inventory,

although an analogous instrument, the IPIP-NEO (IPIP is International Personality Item Pool), is available in the public domain at <http://ipip.ori.org/>.

Collectively (and sometimes individually), these broad dimensions of personality are valid predictors of occupational training and subsequent performance. For example, across multiple occupational categories, conscientiousness alone exhibits validity coefficients in the low .20s for predicting training and job proficiency. However, when conscientiousness was assessed in conjunction with emotional stability, Denise Ones and her colleagues have documented a coefficient of .41 for predicting job performance. This particular combination of personality factors, conscientiousness and emotional stability, is found in tests of integrity commonly used in personnel selection. (Robert Hogan and his colleagues reviewed these and other studies of personality in selection in 1996.)

Relationships Among Attributes

Although each of the major classes of individual differences—cognitive abilities, preferences, and personality—has traditionally been examined in isolation from the other two, these classes are not independent. Cognitive abilities, preferences, and personality traits tend to covary systematically to create constellations of personal attributes; and these complexes have interdependent developmental implications. Phillip Ackerman, for example, has proposed a theory of adult development that models the dependencies among individual difference attributes to describe how intellectual processes and knowledge are relevant to occupational performance across the life span. The cornerstones of Ackerman's theory are intelligence-as-process, personality, interests, and intelligence-as-knowledge. Intelligence-as-process regulates the complexity and density of the knowledge assimilated, whereas the development of intelligence-as-knowledge is guided by interest and personality attributes. Thus, intelligence-as-process, through interactions with interests and personality, fosters intelligence-as-knowledge.

How each individual attribute operates in a given person will vary according to his or her full constellation of attributes. Because all three classes of individual differences—cognitive abilities, preferences, and personality—influence the development of particular

knowledge structures over time, great variability exists among the knowledge bases of individuals who are similar on some dimensions but dissimilar on others. For example, two individuals with similar ability profiles, but with contrasting interests and personality traits, might exhibit markedly diverse behavioral patterns. Using a multidimensional approach to individual differences has important implications for understanding professional development: Richard Snow has outlined the importance of trait complexes in educational contexts, and Rene Dawis and Lloyd Lofquist have done so in a discussion of taxons in vocational settings.

Although vocational counseling and personnel selection frequently attend to individuals' strengths and salient interests and personality traits, another feature of personal profiles is relevant to these applications. Just as an individual's strengths and preferences influence the niches people self-select into and their subsequent likelihood of acceptable job performance and satisfaction with those occupations, their weaknesses and dislikes are relevant here, too. At the individual level, relative weaknesses and dislikes influence domains that people choose to avoid, but these attributes likely influence subsequent performance and satisfaction-related job tenure, as well.

CONCLUSION

Individual differences attributes and the constellations they form differentially attune people to contrasting educational-vocational opportunities (*affordances* for learning and work). From an individual's perspective, an appreciation of one's cognitive abilities, preferences, and personality provide invaluable insight for directing one's career development in personally rewarding ways. From an organizational perspective, one may use this information—available through measures of individual differences—to estimate the likelihood of desirable work behavior (e.g., citizenship, job performance, satisfaction, and tenure). Creating optimal niches for personal development and satisfaction (for the individual) and meeting the environment's goals and demands (for the organization) may be achieved simultaneously using an individual differences approach.

—Rose Mary Webb and David Lubinski

See also Cognitive Abilities; Factor Analysis; Personality

FURTHER READING

- Ackerman, P. L. (1996). A theory of adult intellectual development: Process, personality, interests, and knowledge. *Intelligence*, 22, 227–257.
- Carroll, J. B. (1993). *Human cognitive abilities: A survey of factor-analytic studies*. Cambridge, UK: Cambridge University Press.
- Dawis, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment: An individual differences model and its applications*. Minneapolis: University of Minnesota Press.
- Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist*, 48, 26–34.
- Gottfredson, L. S. (2003). The challenge and promise of cognitive career assessment. *Journal of Career Assessment*, 11, 115–135.
- Hogan, R., Hogan, J., & Roberts, B. W. (1996). Personality measurement and employment decisions. *American Psychologist*, 51, 469–477.
- Holland, J. L. (1996). Exploring careers with a typology. *American Psychologist*, 51, 397–406.
- Hunter, J. E., & Hunter, R. F. (1984). Validity and utility of alternate predictors of job performance. *Psychological Bulletin*, 96, 72–98.
- Lubinski, D. (2000). Scientific and social significance of assessing individual differences: “Sinking shafts at a few critical points.” *Annual Review of Psychology*, 51, 405–444.
- Lubinski, D. (2004). Introduction to the special section on cognitive abilities: 100 years after Spearman’s (1904) “‘General intelligence,’ objectively determined and measured.” *Journal of Personality and Social Psychology*, 86, 96–111.
- McCrae, R. R., & Costa, P. T., Jr. (1997). Personality structure as a human universal. *American Psychologist*, 52, 509–516.
- Ones, D. S., Viswesvaran, C., & Schmidt, F. L. (1993). Comprehensive meta-analysis of integrity test validities: Findings and implications for personnel selection and theories of job performance. *Journal of Applied Psychology Monograph*, 78, 679–703.
- Prediger, D. J. (1982). Dimensions underlying Holland’s hexagon: Missing link between interests and occupations? *Journal of Vocational Behavior*, 21, 259–287.
- Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin*, 124, 262–274.
- Snow, R. E., Corno, L., & Jackson, D., III. (1996). Individual differences in affective and conative functions. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of educational psychology* (pp. 243–310). New York: Macmillan.

INDUSTRIAL RELATIONS

Industrial relations refers to relationships between employers and workers. In common parlance, the term is particularly associated with trade unions and the exercise of overt conflict, most notably by workers in the form of strikes, picketing, and work-to-rules, although employers’ lockouts of workers and explicit resistance to trade unions’ attempts to recruit workers are also significant. *Trade unions* are associations of workers that provide a distinctive form of empowerment, as they are independent of management and have an existence beyond the boundaries of the organization. In most countries, trade union rights are protected by the state, although this protection may take a variety of forms. Trade union rights may be part of a country’s constitution, as is the case, for example, in Germany, Italy, Sweden, Brazil, and South Africa. In contrast, in North America and the United Kingdom, where no such constitutional rights exist, there are laws defining the processes of the certification of trade unions so their independence from management is protected.

INDUSTRIAL RELATIONS AS A FIELD

Industrial relations has also been defined, especially in North America, the United Kingdom, and Australasia, as a field of study within the social sciences. Spawned by the rise of trade unions and the conflict associated with the management–worker relationship, it was particularly strong in the immediate postwar period. As the study developed, attempts to define its scope stressed that it extended beyond trade unionism so it included forms of regulation other than collective bargaining and, particularly, the law and unilateral rule making by management or work groups. It was also concerned with substantive labor problems such as low pay, job insecurity, health and safety risks, poor working conditions, and unequal opportunities, and not just procedural problems involved in the handling of conflict, as well as the more general issues of economic efficiency and social justice.

Nonetheless, much academic study was centered on trade unions, as they were seen as a vital concomitant of industrialization and political liberalization in most countries. As trade unions’ influence grew to unprecedented heights in developed countries in the

1950s, social theorists saw them as a key ingredient of the capitalist economy and symbols of the maturity of liberal democratic societies, which within the Cold War era were contrasted with communism. Trade unions were seen to offer workers a channel to air their grievances and ensure due process in the workplace. Their core activity, collective bargaining with management, provided a means by which the benefits of productivity growth could be distributed in a fair way, and in the wider political arena, trade unions could serve as vital intermediary organizations in pluralist societies.

THE ROLE OF TRADE UNIONS

Yet through the 1960s and 1970s, particularly in the United States and United Kingdom, the activities of trade unions increasingly became a source of concern among employers, governments, and the public. The purported role of unions in fueling inflation, and their potential negative effect on cost reduction, technological innovation, and productivity growth, were given particular prominence. Research has confirmed that wages tend to be higher in unionized firms, although the effect of unions on productivity and technical change is less clear-cut.

A core foundation of the industrial relations field is that unions have two sides, a monopoly and a voice face, and that because of this duality they can potentially affect organizational performance positively or negatively. The monopoly face is likely to reduce organizational performance as their power to bargain for better wages and fringe benefits means that unions secure for their members a greater proportion of the company's surplus revenue and hence reduce profits. Moreover, unions can negotiate rules regulating jobs (often known as *restrictive practices*) that may constrain the optimal allocation of labor. These rules cover issues such as internal job mobility, redundancy, the allocation of overtime, demarcations between occupations, and working conditions.

In contrast, through their voice face, unions may have positive effects on performance. By providing a conduit for employees to have their say, unions help to retain skilled labor and to motivate employees, because workers can use the union to redress grievances and dissatisfactions rather than leave the organization. Moreover, employee voice may be used to suggest improvements in working practices, training methods, and safety procedures. This cooperative

dimension of employment relations is part of what is increasingly being labeled a *partnership approach*, in contrast to the adversarial one traditionally assumed to dominate union behavior. An additional way in which trade unions may contribute positively to organizational performance is in their role as agents of effective management. More specifically, union representatives, as a result of their involvement in collective bargaining, both legitimize and help to police agreements.

PUBLIC POLICY AND THE TRANSFORMATION OF INDUSTRIAL RELATIONS

The public policy concerns generated by the problems of industrial relations in the 1970s and 1980s particularly focused on the monopoly side of trade unions and served to heighten interest in the field. Much study had a pragmatic orientation, as many scholars, viewing collective bargaining as the best way to conduct industrial relations, were concerned with improving such bargaining. They focused on reforming the institutions of industrial relations—for example, by consolidating the growing importance of bargaining at the organizational rather than the industrial level.

Nonetheless, fueled greatly by neoclassical economics and neoliberal political theory, the roles of collective bargaining and trade unions were increasingly questioned as their negative effects on economic performance at both the firm and national level were emphasized. Governments, and particularly neoliberal governments such as Ronald Reagan's administration in the United States (1980–1988) and the Conservative governments in the United Kingdom (1989–1997), acted on these criticisms by introducing new state controls on the trade unions. The 1980s marked a transformation of industrial relations in these and other countries, and much study of industrial relations in the late 20th century focused on the nature and causes of this development.

A major element of the changing landscape of industrial relations has been the almost universal decline in trade union membership and influence, accompanied by a decline in strikes, particularly in the private sector. This is true even in countries such as Germany and the Netherlands where there is a dual industrial relations system, in which collective bargaining is predominantly at the industry level and is supplemented by legally based works councils at the organizational level. The exceptions to such broad

trends in declining union influence are mainly in countries freed from military dictatorships or other forms of political repression in the past 20 years, such as Brazil and South Africa.

Coinciding with this union decline, increasing attention has been given to new forms of human resource management (HRM) practices associated with the so-called high performance organization model (often referred to as *high-involvement management*), many of which were pioneered in large non-unionized U.S. firms such as IBM. These are taken to reverse many of the practices associated with scientific management and Taylorist forms of organization, the negative effects of which had helped to fuel a desire for unionism. The new HRM has even been seen by some as a means by which management is aiming to substitute the union for unilateral management control—for example, through directly communicating with workers, linking pay more directly to performance, and enhancing the role of team leaders at the expense of union representatives. Mirroring these changes in unions, some have questioned industrial relations as a field of study, both from outside and within, suggesting, for example, that it will be subsumed within the study of HRM.

THE BROADENING OF THE FIELD OF INDUSTRIAL RELATIONS

There is little evidence to suggest that HRM is substituting for trade union representation, and certainly elements of both coexist in many organizations in a variety of countries. The field of industrial relations has, nonetheless, broadened to encompass the study of the development of high-performance practices and other elements of HRM. It is thus now accommodating wider developments in management to a greater extent than it has in the past. Moreover, the law and other institutions of the state have played an increasingly important role in most societies, both in regulating the institutions of industrial relations and in directly addressing labor problems such as low pay, health and safety risks, and unequal opportunities. Through studying these and other developments, the field has moved well beyond its past overemphasis on trade unions. Increasing salience has also been given to alternative forms of representation to trade unionism, notably works councils, which, as legally constituted in some European countries, are independent from management. This has also fueled a renewed

interest in comparing industrial relations practice across countries, particularly in light of the emphasis in political theory on varieties of capitalism (e.g., coordinated and liberal market economies). As employee voice is no longer equated with trade unions, it is increasingly acknowledged that the use of multiple channels for employee (and employer) voice is likely to be the norm. Thus the field of industrial relations is giving way to a broader notion of employment relations centered on different voice regimes. Symbolic of this, the United States' main professional body, the Industrial Relations Research Association, changed its name in 2005 to Labor and Employment Relations Association.

INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY AND INDUSTRIAL RELATIONS

Industrial/organizational psychology has contributed to the study of industrial relations in a variety of ways, although its influence compared with disciplines such as economics, sociology, and political science has been relatively small. First, psychology has contributed through studying conflict and modes of resolution, particularly through its emphasis on perceptions and attitudes. For example, the study of the way in which group consciousness forms, which involves social comparison processes, is important for defining what an individual considers to be fair treatment and appropriate rewards. Second, psychology has contributed through studying why people join and participate in trade unionism, and more broadly why they value certain types of participation and voice in the workplace. Third, psychologists have studied many of the substantive issues that lie behind the grievances that constitute labor problems, including job insecurity, job design, discrimination, and most recently workplace violence and bullying. In addition, the methods used in empirical studies by industrial relations scholars have been influenced by psychology, most notably their use of factor analysis and structural equation modeling. The attempts by psychologists to make qualitative research more systematic may yet be significant in the study of employment relations.

—Stephen J. Wood

See also Conflict at Work; High-Performance Organization Model; Human Resource Management; Job Security/Insecurity; Union Commitment; Unions

FURTHER READING

- Barling, J., Fullagar, C., & Kelloway, E. K. (1993). *The union and its members: A psychological perspective*. New York: Oxford University Press.
- Godard, J. (2005). *Industrial relations, the economy, and society* (3rd ed.). North York, Ontario: Captus Press.
- Katz, H., & Kochan, J. (2004). *Collective bargaining and industrial relations, with instructor's manual*. New York: Irwin/McGraw-Hill.
- Kaufman, B. (2004). *The global evolution of industrial relations: Events, ideas and the IIRA*. Geneva: International Labour Office.
- Tetrick, L., and Barling, J. (Eds.). (1993). *Changing employment relations: Behavioral and social perspectives*. Washington, DC: Association for Psychological Science.
- Wall, T. D., Wood, S. J., & Leach, D. (2004). Empowerment and performance. In I. Robertson & C. Cooper (Eds.), *International and organizational psychology* (pp. 1–46). London: Wiley.

INFERENCE STATISTICS

A frequent goal of collecting data is to allow inferences to be drawn about a population from a sample. In such cases, inferential statistics provide the bases on which to draw such conclusions that go beyond the observed data. An example of a common inference is evaluating the likelihood that an observed effect (e.g., difference in group means) is not attributable to chance. Unlike descriptive statistics that simply summarize observed data, inferential statistics are used to make more general statements about the world beyond the data. Most of the frequently reported inferential statistics are derived from the general linear model. Some examples are *t* tests, analysis of variance (ANOVA), linear regression analysis, and factor analysis.

Inferential statistics are based on the notion of sampling and probability. The problem to be overcome in conducting research is that data are typically collected from a sample taken from a larger population of interest. If the data collected from the sample are not representative of the data associated with the population, inferences drawn from the sample data are not warranted. For example, consider the case in which a researcher is interested in how employees feel about a new organizational policy and chooses to sample 20 individuals from the larger organization consisting of

1,000 employees. The inferences drawn from this sample are likely to be less justified than if the sample had been larger (e.g., 100). In addition to sample size, characteristics of the sample are also important. Using the previous example, 20 randomly selected individuals may be more representative than 100 individuals who share some unique characteristics (e.g., all work the night shift) and thus may provide a stronger basis for drawing inferences about employee attitudes.

Probability is another important concept related to inferential statistics. Probability theory provides the basis for accepting or rejecting hypotheses. Traditional hypothesis testing casts inferential statistics as providing the basis of a dichotomous decision. In short, if the null hypothesis were true (i.e., no effect), what is the probability of observing the effect? To the extent that the answer to this question is a low value (typically less than 5%), the null hypothesis is rejected and the inference is made that the observed effect was not likely the result of chance. Instead, the effect is considered real.

As an alternative to null hypothesis significance testing, confidence intervals may be used as the basis for drawing inferences. The fundamental idea underlying confidence intervals is that a given effect may be overestimated or underestimated in a specific study. Confidence intervals are derived from the point estimate of the observed effect, and the width of the interval is determined by the standard error of the estimate of the effect. A benefit to using confidence intervals is that they provide more information (i.e., a range of reasonable values for the estimated parameter) than traditional dichotomous hypothesis tests.

Generally, inferential statistics require four pieces of information. First, a measure of the size of the observed effect is required. This effect size estimate can take the form of an observed difference between groups (e.g., *d*) or can be expressed in terms of the magnitude of relationship between variables (e.g., *r*). These effects are referred to as *estimates of the population parameter of interest*. Such estimates provide for stronger inferences, to the extent that they are unbiased. All else being equal, the larger an observed effect, the more likely it is that an inference will be drawn that the effect is real. Second, sample size influences the inferences drawn from data. In general, larger samples permit drawing stronger inferences than smaller samples. Third, the Type I error rate (i.e., *p*) associated with the statistical test of the observed effect influences the inferences drawn from observed

results. Finally, the power of the statistical test influences the extent to which inferences are justified. Greater power leads to stronger inferences.

—Ronald S. Landis

See also Descriptive Statistics; Sampling Techniques

FURTHER READING

Gelman, A., & Nolan, D. (2002). *Teaching statistics: A bag of tricks*. Oxford, UK: Oxford University Press.

Kranzler, G., & Moursund, J. (1999). *Statistics for the terrified* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

INITIAL SCREENING

See PRESCREENING ASSESSMENT
METHODS FOR PERSONNEL SELECTION

INNOVATION

Innovation is defined as the successful implementation of a creative idea. Some suggest that although creativity needs to be truly novel, innovation can be the adaptation of ideas in the current environment (so the idea is novel in this organization, but not completely novel). Others see *innovation* as a more inclusive term including both idea generation and its implementation. *Innovation* has also been defined as only the implementation aspect, excluding the idea generation and development phase. Common to all these definitions is the focus on the implementation of an idea, process, or product. Therefore, much of the work on innovation focused on the antecedents and consequences for successful implementation.

ANTECEDENTS

Much of the work done to understand the factors that influence organizations in adopting innovation has focused on organizational determinants. Organizational climate in particular has received attention as a contributing factor. Support for innovation, support for risk, and trust have emerged as important climate factors. Studies investigating the role of leadership in

innovation have found that transformational leaders create a climate that provides support for innovation, as well as providing the intellectual stimulation that is necessary for innovation. In addition, an important role for the leader in supporting innovation is removing obstacles—such as providing information, resources, administrative support, and clarity, as well as serving as a champion for innovation. Flexible organizational structures and jobs have been linked to innovation. Specifically, jobs that allow for more discretion and autonomy and organizational structures that are less centralized and adapt quickly have been linked to the promotion and adoption of innovation.

Team factors that emerged as contributing to innovation are group composition and group processes. To facilitate innovation, the group must possess the required skills and knowledge. Groups heterogeneous in skills and knowledge may be more likely to innovate successfully. However, diversity of background may also lead to group conflict, which would result in less innovation. It has been suggested that there is an optimal level of diversity that will facilitate innovation based on the task and group processes. Group processes that focus on participation, commitment, and managing conflict effectively are suggested to enhance innovation. With regard to conflict, it has been suggested that some degree of task conflict (focusing on the task) may facilitate innovation but personal or relational conflict (focusing on interpersonal relationships) can hinder innovation. In addition, research on minority dissent and innovation shows that minority dissent can lead to more innovation in teams if team climate is constructive and supportive of risk and participation.

Individual factors are the focus of idea generation and creativity research; however, some innovation research has looked at individual factors. Because innovation requires the successful implementation of a novel idea, one important individual characteristic contributing to innovation is perseverance. Original ideas tend to be rejected because they are new, untried, and therefore risky. For innovation implementation to occur, someone, either the idea generator or a champion, must persistently present the idea and its merits for it to be adopted.

Finally, the external environment is also seen as an important antecedent to innovation. It has been suggested that innovation occurs as a result of threat or demands from the external environment. Moreover, it has been suggested that external demands will have a

negative impact on idea generation but a positive impact on innovation.

OUTCOMES

Innovation is typically considered the criterion in most studies. Although empirical research has looked at the effect of individual creativity and its effect on team creativity and innovation, only limited empirical work is available on the consequences of innovation. Much of that research has focused on the organizational and financial consequences of innovation, such as new products, increase in market share, and organizational adaptation and survival.

—Roni Reiter-Palmon, Anne E. Herman,
and Justin M. Yurkovich

See also Creativity at Work

FURTHER READING

- Howell, J. M., & Boies, K. (2004). Champions of technological innovations: The influence of contextual knowledge, role orientation, idea generation, and idea promotion on champion emergence. *Leadership Quarterly, 15*, 130–149.
- Klien, K. J., & Sorra, J. S. (1996). The challenge of innovation implementation. *Academy of Management Review, 21*, 1055–1080.
- West, M. A. (2002). Sparkling fountains of stagnant ponds: An integrative model of creativity and innovation implementation in work groups. *Applied Psychology: An International Review, 51*, 355–424.

INPUT–PROCESS–OUTPUT MODEL OF TEAM EFFECTIVENESS

Much of the work in organizations is accomplished through teams. It is therefore crucial to determine the factors that lead to effective as well as ineffective team processes and to better specify how, why, and when they contribute. Substantial research has been conducted on the variables that influence team effectiveness, yielding several models of team functioning. Although these models differ in a number of aspects, they share the commonality of being grounded in an input–process–output (IPO) framework. *Inputs* are the conditions that exist prior to group activity, whereas

processes are the interactions among group members. *Outputs* are the results of group activity that are valued by the team or the organization.

The IPO model has historically been the dominant approach to understanding and explaining team performance and continues to exert a strong influence on group research today. The framework is based on classic systems theory, which states that the general structure of a system is as important in determining how effectively it will function as its individual components. Similarly, the IPO model has a causal structure, in that outputs are a function of various group processes, which are in turn influenced by numerous input variables. In its simplest form, the model is depicted as the following:

Input → Process → Output

INPUTS

Inputs reflect the resources that groups have at their disposal and are generally divided into three categories: individual-level factors, group-level factors, and environmental factors. *Individual-level factors* are what group members bring to the group, such as motivation, personality, abilities, experiences, and demographic attributes. Examples of group-level factors are work structure, team norms, and group size. Environmental factors capture the broader context in which groups operate, such as reward structure, stress level, task characteristics, and organizational culture.

PROCESSES

Processes are the mediating mechanisms that convert inputs to outputs. A key aspect of the definition is that processes represent interactions that take place among team members. Many different taxonomies of teamwork behaviors have been proposed, but common examples include coordination, communication, conflict management, and motivation.

In comparison with inputs and outputs, group processes are often more difficult to measure, because a thorough understanding of what groups are doing and how they complete their work may require observing members while they actually perform a task. This may lead to a more accurate reflection of the true group processes, as opposed to relying on members to self-report their processes retrospectively. In addition, group processes evolve over time, which means

that they cannot be adequately represented through a single observation. These difficult methodological issues have caused many studies to ignore processes and focus only on inputs and outputs. Empirical group research has therefore been criticized as treating processes as a “black box” (loosely specified and unmeasured), despite how prominently featured they are in the IPO model. Recently, however, a number of researchers have given renewed emphasis to the importance of capturing team member interactions, emphasizing the need to measure processes longitudinally and with more sophisticated measures.

OUTPUTS

Indicators of team effectiveness have generally been clustered into two general categories: group performance and member reactions. *Group performance* refers to the degree to which the group achieves the standard set by the users of its output. Examples include quality, quantity, timeliness, efficiency, and costs. In contrast, *member reactions* involve perceptions of satisfaction with group functioning, team viability, and personal development. For example, although the group may have been able to produce a high-quality product, mutual antagonism may be so high that members would prefer not to work with one another on future projects. In addition, some groups contribute to member well-being and growth, whereas others block individual development and hinder personal needs from being met.

Both categories of outcomes are clearly important, but performance outcomes are especially valued in the teams literature. This is because they can be measured more objectively (because they do not rely on team member self-reports) and make a strong case that inputs and processes affect the bottom line of group effectiveness.

STEINER'S FORMULA

Consistent with the IPO framework, Ivan Steiner derived the following formula to explain why teams starting off with a great deal of promise often end up being less than successful:

$$\text{Actual productivity} = \text{potential productivity} - \text{process loss}$$

Although potential productivity is the highest level of performance attainable, a group's actual productivity often falls short of its potential because of the existence of process loss. *Process loss* refers to the suboptimal ways that groups operate, resulting in time and energy spent away from task performance. Examples of process losses include group conflict, communication breakdown, coordination difficulty, and social loafing (group members shirking responsibility and failing to exert adequate individual effort). Consistent with the assumptions of the IPO model, Steiner's formula highlights the importance of group processes and reflects the notion that it is the processes and not the inputs (analogous to group potential) that create the group's outputs. In other words, teams are a function of the interaction of team members and not simply the sum of individuals who perform tasks independently.

LIMITATIONS OF THE IPO MODEL

The major criticism that has been levied against the IPO model is the assumption that group functioning is static and follows a linear progression from inputs through outputs. To incorporate the reality of dynamic change, feedback loops were added to the original IPO model, emanating primarily from outputs and feeding back to inputs or processes. However, the single-cycle, linear IPO path has been emphasized in most of the empirical research. Nevertheless, in both theory and measurement, current team researchers are increasingly invoking the notion of cyclical causal feedback, as well as nonlinear or conditional relationships.

Although the IPO framework is the dominant way of thinking about group performance in the teams literature, relatively few empirical studies have been devoted to the validity of the model itself. In addition, research directly testing the input–process–output links has frequently been conducted in laboratory settings, an approach that restricts the number of relevant variables that would realistically occur in an organization. However, although the IPO model assumes that process fully mediates the association between inputs and outputs, some research has suggested that a purely mediated model may be too limited. Therefore, alternative models have suggested that inputs may directly affect both processes and outputs.

SUMMARY

Without question, the IPO model reflects the dominant way of thinking about group performance in the groups literature. As such, it has played an important role in guiding research design and encouraging researchers to sample from the input, process, and output categories in variable selection. Recent research is increasingly moving beyond a strictly linear progression and incorporating the reality of dynamic change. In addition, alternatives to the traditional IPO model have been suggested in which processes are not purely mediated.

—Susan Mohammed and Katherine Hamilton

See also Groups; Justice in Teams; Team-Based Rewards; Team Building; Team Mental Model; Virtual Teams

FURTHER READING

- Hackman, J. R. (1987). The design of work teams. In J. Lorsch (Ed.), *Handbook of organizational behavior* (pp. 315–342). New York: Prentice Hall.
- Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. (2005). Teams in organizations: From input–process–output models to IMOI models. *Annual Review of Psychology*, 56, 517–543.
- Steiner, I. D. (1972). *Group process and productivity*. New York: Academic Press.

INTEGRITY AT WORK

You need look no further than the newspaper headlines to see that issues of integrity have become paramount in the workplace. Scandal, abuse of power, theft, and assorted other problems have contributed to poor public images for many organizations and led to the downfall of others. The problem with integrity is twofold. First, how do we understand what integrity is, and second, how can we identify integrity in a functional sense?

INTEGRITY CONCEPTUALIZED

Integrity may be defined as demonstrating honesty and reliability at work, and generally behaving in accord with established standards and practices of an organization. In fact, for many years the words *integrity* and *honesty* were used interchangeably. It is

only lately that the definition of *integrity* has been expanded to include other forms of counterproductive (or *deviant*) behaviors, the common elements of which are that the behaviors (a) do not contribute, either directly or indirectly, to the functioning of the organization and (b) constitute a violation of either implicit or explicit norms or policies of the organization or surrounding community.

This leaves a great deal of leeway in understanding what *integrity* means in practice. It may be as simple as employee theft, or as complicated as the accounting frauds that plagued a number of high-profile organizations in recent years. The blanket definition of *integrity* also subsumes behaviors such as the use of illegal drugs, alcohol, and sometimes tobacco products, misappropriation of petty cash, and unwarranted absenteeism. Because all of these behaviors cost organizations money, it is of both theoretical and practical value to move beyond conceptualizing integrity purely in terms of honesty and to consider it in a broader context.

Costs of Low Integrity

Whether the definition chosen for *integrity* is broad or narrow, however, it is clear that organizations are rightly becoming more concerned with identifying individuals low in integrity. Estimates of employee theft in the United States alone were in excess of \$400 billion annually in recent years, although it is worth noting that even the definition of *theft* is inconsistent. Some organizations (and indeed, some approaches to assessing integrity) treat an employee who takes a long lunch as stealing time, treating wages lost while the individual was not at his or her desk as accountable theft, whereas others do not.

Higher-profile examples of low integrity also abound. Enron, WorldCom, and a variety of other organizations have recently come under fire for what might kindly be called low-integrity accounting practices. Although estimates vary on the actual costs the failure of such companies may have had for shareholders (depending on the source, Enron shareholders lost between \$1.2 million and \$70 billion, while WorldCom shareholders may have lost as much as \$100 billion), there can be no doubt that there have been nonmonetary consequences to a great many organizations as a result. Such demonstrations of low integrity can severely damage corporate reputations, leading to loss of business, profits, and jobs. They

also engender problems with loyalty, organizational commitment, motivation and retention, and, perhaps most damaging, trust. This lack of trust—on the part of both employees and the general public—in whether organizations have the best interests of both the community and the organization’s many stakeholders at heart can easily be the difference between success and failure.

Perhaps the major difficulty with integrity is identifying individuals who lack integrity *before they have the opportunity to harm the organization*. Although the assessment of integrity is treated in more detail elsewhere in this volume, it is important for us to understand three key pieces of what scientists refer to as the *operationalization* of integrity. That is, if we wish to identify individuals who are high and low in integrity, what do we look at?

INTEGRITY OPERATIONALIZED

It should be clear from the previous discussion that a great deal is subsumed under the heading *integrity*, and there are many potential signs that integrity either is or will become an issue for any member of the organization. When asked to describe how they might identify people low in integrity, there is a temptation on the part of many to simply say, “I know it when I see it.” The issue is much more complicated than that, however, and the fact of the matter is that few people are exceptionally good at recognizing individuals who are likely to demonstrate low integrity based on a casual (or even not-so-casual) interaction. Integrity has behavioral, attitudinal, and trait components, each of which will be discussed in turn.

Behavioral Integrity

Behavioral integrity is what concerns many organizations. Indeed, most of the examples noted above are behavioral in their focus. Theft is a behavior in which a member of the organization takes the organization’s resources—money, toner cartridges, or paper clips—for personal use and/or without the sanction of the organization. Embezzlement, fraud, the use of drugs on the job, and countless other behavioral examples abound of low integrity.

The difficulty with using an individual’s behaviors as a means of judging integrity is that although low-integrity behaviors may be common in organizations

(remember that \$400 billion in annual theft?), actually catching people in the act, or having them admit to such behaviors, is not. By the time lack of behavioral integrity is evident, the damage has been done. The ability to say that mistakes were made, that someone of questionable integrity was put into a position from which he or she could harm the organization, is less valuable than the capacity to identify such individuals in advance. Therefore, although many organizations focus on behavioral aspects of integrity, these may prove less valuable than the other methods of functionally defining integrity.

Attitudinal Integrity

One of the precursors of low-integrity behavior is necessarily an attitude that such behaviors are, if not acceptable, then at least normal. Individuals with the potential to cause integrity-related problems for organizations may say things like, “You can’t weed out all the problem employees, since everyone gives in to temptation from time to time.” Such statements, although potentially true, may reveal a great deal about the speaker, even if they must be interpreted with caution. A statement such as “There’s no way to stop people from stealing office supplies” may reflect an acceptance of a theft norm, or it may simply reflect a level of learned helplessness on the part of a person who has tried (and failed) to stop such behaviors.

The notion of *norms* becomes very important in understanding attitudinal integrity. When an employee begins to accept theft, fraud, or whatever other counterproductive behavior is common in the organization as a recognized part of daily operations, the psychological prohibitions against engaging in such behaviors break down. Pundits have noted that it is unlikely, for example, that the employees of Enron could have remained completely unaware that their organization was engaging in unethical business practices. Indeed, the individual credited with being a whistle-blower in the Enron case did not go public with the damaging information, choosing instead to keep it internal in an attempt to prevent the organization from suffering in the public eye. The norms of the organization were strong enough that even though she uncovered significant accounting problems, she reportedly did not go to the board of directors, did not go to the media, and did not resign. When an organization’s norms (and, in this case, the financial futures of many of its employees) allow for or encourage unethical or immoral

behaviors, it should come as a minimal surprise when the attitudes of its employees shift toward an acceptance of lower integrity.

Employers, then, need to be aware of potential indicators of attitudinal indicators of potential integrity problems. Questions such as “Would you say everyone is a little dishonest?” (a variation on which appears in a number of published measures of integrity) are relatively unambiguous. More ambiguous statements (e.g., “Close enough for government work!”), which *may* indicate low integrity, should be viewed with caution and in some respects resemble a projective personality test. If we are truly concerned with personality as a means of understanding integrity, research indicates that we would be much better served by using a trait-based approach.

Trait Integrity

A third approach to functionally identifying individuals likely to engage in low-integrity behavior is to begin with the notion that integrity is actually a trait, or a constellation of traits, that is part of an individual's personality. One of the most widely researched facets of personality is the conscientiousness factor, common to the five-factor model of personality, as well as other approaches. Conscientiousness subsumes a number of other traits, including orderliness, diligence, and general honesty; the conscientious person tends to show up for work on time, do her work in as professional a manner as possible, and generally demonstrate the behaviors taken to be indicative of high integrity. It should come as no surprise that this personality trait has sometimes made its way into our understanding of integrity. Other personality facets that have sometimes been considered as aspects of integrity include emotional stability as well as factors such as locus of control and achievement orientation that were likely socialized into individuals at a young age.

SUMMARY

What constitutes integrity at work? Clearly, this is a complex issue. With behavioral, attitudinal, and trait components, and based as it is on both organizational and cultural norms, the meaning of *integrity* can be difficult to pin down. What cannot be disputed is its importance; the costs of low-integrity behaviors are well documented in the research and popular

literatures, and it can only be to the benefit of organizations to encourage integrity in their employees.

—Morell E. Mullins Jr.

See also Integrity Testing; Organizational Culture; Personality

FURTHER READING

- Herriot, P. (2001). *The employment relationship: A psychological perspective*. Philadelphia: Routledge.
- Mumford, M. D., Connelly, M. S., & Leritz, L. E. (2005). Integrity in professional settings: Individual and situational influences. In S. P. Shohov (Ed.), *Advances in psychology research* (Vol. 34, pp. 221–257). Hauppauge, NY: Nova Science.
- Payne, B. K., & Gainey, R. R. (2004). Ancillary consequences of employee theft. *Journal of Criminal Justice*, 32, 63–73.
- Sackett, P. R., Burris, L. R., & Callahan, C. (1989). Integrity testing for personnel selection: An update. *Personnel Psychology*, 42, 491–529.
- Van Iddekinge, C. H., Taylor, M. A., & Eidson, C. E. (2005). Broad versus narrow facets of integrity: Predictive validity and subgroup differences. *Human Performance*, 18, 151–177.
- Wanek, J. E., Sackett, P. R., & Ones, D. S. (2003). Towards an understanding of integrity test similarities and differences: An item-level analysis of seven tests. *Personnel Psychology*, 56, 873–894.

INTEGRITY TESTING

Paper-and-pencil tests designed to measure integrity, honesty, dependability, and related constructs have been in existence since at least the 1950s and have long been used in the retail sales, banking, and food service industries. Following the 1988 Employee Polygraph Protection Act, a federal law that restricted the use of the polygraph (i.e., the so-called lie detector), integrity testing grew substantially and spread into a wider range of industries and applications.

Although the individual tests differ in a number of specifics, there are a number of features common to virtually all integrity tests. In particular, integrity tests usually include items that refer to one or more of the following areas: (a) direct admissions of illegal or questionable activities, (b) opinions regarding illegal or questionable behavior, (c) general personality traits

and thought patterns thought to be related to dishonesty (e.g., the tendency to constantly think about illegal activities), and (d) reactions to hypothetical situations that may or may not feature dishonest behavior.

OVERT VERSUS PERSONALITY-BASED TESTS

A distinction is usually drawn between tests that inquire directly about integrity, asking for admissions of past theft, or asking about the degree to which the examinee approves of dishonest behaviors (often labeled *overt* tests), and tests that indirectly infer integrity on the basis of responses to questions that are not obviously integrity-related (often labeled *personality-based* tests). However, the distinction between overt and personality-based tests is not always a simple one. Many overt tests include items, scales, and so forth that are not obviously related to honesty, and many personality-based tests contain items that might alert the respondent to the true purpose of the test.

Overt tests usually include direct or indirect measures of perceptions of norms relating to honesty. The rationale for this type of measure is that individuals who believe dishonesty, theft, and so on are common and widely accepted are more likely to engage in these behaviors themselves. Even questions that ask for admissions of wrongdoing are probably best understood as measures of perceived norms. Individuals who admit to theft, dishonesty, and rule breaking when responding to an integrity test often believe that the behaviors they are admitting to are in fact widespread and at least implicitly accepted.

Personality-based tests often measure constructs such as thrill seeking, socialization, and resistance to authority. More recent tests have incorporated broad dimensions of personality that have been empirically linked to theft and counterproductive behavior, notably conscientiousness, agreeableness, and emotional stability.

Integrity tests (both overt and personality-based) appear to measure a range of constructs, and there is disagreement over the assumption that a general honesty or integrity factor underlies these tests. Various tests use unique scoring systems, and it is unwise to assume that tests are interchangeable.

VALIDITY OF INTEGRITY TESTS

Early reviews of integrity test validity came to discouraging conclusions, but since the late 1980s, both

narrative reviews and meta-analyses of integrity test validity have suggested that integrity tests are useful for a variety of purposes.

In discussing validity evidence, it is important to identify the specific criteria used in different studies. Some studies have validated integrity tests against measures of counterproductive behavior, whereas others have validated these tests against measures of general job performance. For example, scores on integrity tests show average correlations of .21 and .33 with measures of job performance and counterproductivity, respectively (correcting for unreliability and a variety of statistical artifacts, the estimated population correlations are .34 and .47, respectively). These two criteria are clearly not independent; employees who engage in a wide variety of counterproductive behavior are unlikely to be good performers. Nevertheless, there are important differences between the two criteria and, more important, differences in the criterion-related validity of integrity tests for predicting the two.

Construct Validity

There are several challenges in evaluating the construct validity of integrity tests. It is exceedingly difficult to define honesty, integrity, or whatever attributes these tests are designed to measure. Different tests seem to focus on very different attitudes, beliefs, or behaviors. For example, there are a number of definitions of *employee theft*. Researchers often distinguish between trivial and nontrivial theft; conclusions about the extent of theft depended largely on whether taking articles of little value (e.g., pencils, paper, supplies) was included in one's definition of *theft*. Goldbricking, taking long lunch breaks, using company time to carry out personal business, and similar activities are sometimes labeled *time theft*.

A related issue has been a source of controversy for nearly a century—the question of whether honesty is a distinct trait. Most researchers believe that situational factors have a strong impact on the tendency to engage in honest versus dishonest behaviors and that labeling a person as honest or dishonest is a serious oversimplification.

Informed consent is a potentially serious issue in integrity testing. Integrity test publishers often advise against informing examinees of their test scores. This implies that if an individual is denied employment on the basis of a score on an integrity test, he or she should not be so informed. The Standards for

Educational and Psychological Testing and the Ethical Principles of Psychologists make it clear that psychologists involved in integrity testing are obliged to inform examinees of the risks and consequences of taking the test versus refusing to take the test, the purpose and nature of the test, and the way in which test scores will be used.

Finally, there are serious concerns over the way in which integrity tests are scored and in which scores are reported. It is common to use some sort of dichotomous scoring (e.g., pass–fail) in integrity testing. More sophisticated tests sometimes report test scores in terms of a small number of zones: high danger, moderate danger, average danger, or low danger of theft, substance abuse, and so on. Test scores that are reported on a pass–fail basis are inherently suspect because they blur potentially meaningful differences between individuals in each of the two categories (e.g., it is unlikely that all individuals who fail present the same risks).

OVERALL ASSESSMENT OF INTEGRITY TESTS

Integrity testing was the focus of a great deal of controversy and debate in the late 1980s, when these tests first emerged into the mainstream. The American Psychological Association appointed a task force to examine integrity testing; their general conclusions provide a useful framework for evaluating integrity tests. In their 1991 report, they noted that integrity tests shared many of the strengths and weaknesses of other psychological tests and that well-developed tests showed acceptable evidence of reliability and validity to justify their use. There are still valid concerns about the use of bad tests and unwise testing practices when assessing integrity, but these concerns are not categorically different from concerns that can be raised in contexts where most psychological tests are used. Integrity tests are not broadly accepted as potentially useful assessment tools.

Integrity testing was once regarded as a field at the fringe of respectability. Integrity test publishers were regarded as secretive and (ironically) unreliable. In the last 20 years, there has been considerable progress in integrity testing and a very healthy interchange between test publishers and researchers interested in understanding the causes and consequences of integrity in the workplace. It now seems clear that the controversies over integrity testing in the 1980s and 1990s have proved beneficial to both test developers,

who have improved both their products and the process by which tests are developed and researched, and the users of integrity tests, who have increasing access to empirically validated measures that provide information about the dependability of job applicants.

—Kevin R. Murphy

See also Counterproductive Work Behaviors; Graphology; Integrity at Work; Personality Assessment; Selection Strategies; Theft at Work

FURTHER READING

- APA Task Force. (1991). *Questionnaires used in the prediction of trustworthiness in pre-employment selection decisions: An APA Task Force Report*. Washington, DC: American Psychological Association.
- Murphy, K. (1993). *Honesty in the workplace*. Monterey, CA: Brooks/Cole.
- Ones, D. S., Viswesvaran, C., & Schmidt, F. L. (1993). Comprehensive meta-analysis of integrity test validities: Findings and implications for personnel selection and theories of job performance. *Journal of Applied Psychology, 78*, 679–703.
- Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin, 124*, 262–274.
- Wanek, J. E., Sackett, P. R., & Ones, D. S. (2003). Towards an understanding of integrity test similarities and differences: An item-level analysis of seven tests. *Personnel Psychology, 56*, 873–894.

INTERGROUP RELATIONS

Intergroup relations involve the feelings, evaluations, beliefs, and behaviors that groups and their members have toward another group and its members. Negative intergroup relations typically involve prejudice (negative feelings and evaluations), stereotypes (beliefs about groups and their members), and discrimination (unfair treatment). However, intergroup bias does not necessarily require negative orientations. Bias may reflect unusually favorable attitudes and beliefs about members of one's own group and preferential treatment toward them. The nature of intergroup relations is determined by psychological processes associated with social categorization, by the personalities and

motivations of group members, and by the functional relationship between the groups. These processes apply to a wide range of groups, including work teams, divisions within an organization, companies, and countries.

SOCIAL CATEGORIZATION AND INTERGROUP RELATIONS

Social categorization involves identifying people primarily on the basis of overt similarities and presumed group membership. Because group membership is critical to human functioning and survival, the tendency to categorize people as members of different groups is fundamental to social perception. This social categorization process, however, involves more than distinguishing people by group membership. The recognition of different group memberships initiates a number of biases that influence intergroup relations in systematic ways. Social identity theory and, more recently, self-categorization theory address the fundamental processes associated with social categorization.

When people are categorized into groups, even if the groups have no obvious functional relationship or enduring meaning, actual differences between members of the same category tend to be perceptually minimized, whereas differences between groups tend to be exaggerated. Moreover, people critically distinguish between individuals who are members of their group (the in-group) and those who are members of other groups (the out-groups). In general, when the intergroup boundary between the in-group and out-group is salient, people remember positive information better about in-group than about out-group members, discount negative actions by in-group members more than for out-group members, and ascribe positive attributes more strongly to the character of in-group than of out-group members. In addition, people behave in more favorable, intimate, and helpful ways toward in-group members. Feeling more positively about one's own group relative to others can enhance one's self-esteem. Thus, the mere awareness of the existence of different group memberships, when the groups are not interdependent and group membership is arbitrarily determined, typically produces bias.

These intergroup biases are particularly evident when people's social identity (their identity based on group membership) is more salient than their personal identity (their identity as a unique individual). For example, people are less trusting and behave in a

greedier fashion when collective identities are salient than when personal identities are salient.

INDIVIDUAL DIFFERENCES AND INTERGROUP RELATIONS

In addition to differences in the strength of group identity, individual differences in personality and values can influence the nature of intergroup relations. The personality variable of authoritarianism has historically received substantial attention with respect to intergroup attitudes and relations. Research in the 1950s concluded that the authoritarian personality, which is rooted in unhealthy family dynamics, is associated with unusual respect for authority and hierarchy, as well as strong distinctions between the in-group and out-group. Recent research has found that people high on right-wing authoritarianism have negative attitudes toward members of a number of other groups, particularly when the groups are perceived to violate society's morals and standards.

Social dominance theory, an alternative perspective, assumes that people who are strongly identified with high-status groups and who see intergroup relations in terms of group competition will be especially prejudiced and discriminatory toward out-groups. People high in social dominance orientation, an individual difference measure, believe that group hierarchies are inevitable and desirable, see the world as involving competition between groups, pursue activities and professions that tend to enhance intergroup hierarchy, and exhibit bias toward a range of other groups.

FUNCTIONAL INTERDEPENDENCE AND INTERGROUP RELATIONS

Whereas social categorization and individual difference approaches to understanding intergroup relations focus on how the motivations and orientations of people, independent of the actual relationship between groups, can produce negative intergroup relations, other psychological and sociological perspectives emphasize that the nature of intergroup relations is shaped substantially by the functional relationship between the groups. Specifically, cooperation between groups, particularly when it has successful consequences, fosters positive intergroup relations; competition between groups, whether for material resources or intangible qualities such as status, promotes prejudice and discrimination.

Theories based on functional relations often point to competition and consequent perceived threat as a fundamental cause of intergroup prejudice and conflict. Realistic group conflict theory, for example, posits that perceived group competition for resources produces efforts to reduce the access of other groups to the resources. Individual differences, such as the tendency to see intergroup relations as zero-sum (i.e., when one group gains, the other automatically loses), which is associated with people high in social dominance orientation, can amplify the effects of competitive group functional relations, producing particularly adverse effects on intergroup relations.

The functional relationship perspective also emphasizes how changing the nature of intergroup interdependence can substantially alter intergroup relations. In the classic Robber's Cave study, for example, two groups of boys at a summer camp first developed their separate group identities through a series of collective activities, unaware of the presence of the other group. When the two groups of boys were brought together under competitive circumstances, negative intergroup relations developed. The boys not only called each other names but also engaged in hostilities. Simply bringing the groups together did not improve intergroup relations; in fact, it intensified conflict. However, more harmonious intergroup relations were created when the groups worked together to attain superordinate goals (objectives that both groups desired but that could be achieved only jointly through cooperation) and their combined efforts were successful.

Group status is another aspect of the functional relationship between groups that influences intergroup relations. In general, members of high-status groups view intergroup relations as more favorable than do members of low-status groups. In part as a consequence, members of low-status groups, particularly when they see the status difference as illegitimate and unstable, are more motivated to alter the relationship between the groups than are members of high-status groups. High-status groups, in contrast, tend to endorse and promote system-justifying ideologies, which are sets of beliefs (e.g., stereotypes about the different characteristics of women and men) that legitimize, and thus reinforce, the role and status differences between the groups.

The impact of functional relations on intergroup orientations occurs, in part, by influencing social categorization processes. For example, whereas

competition between the groups of boys at the summer camp intensified the distinction between the in-group and out-group, between *us* and *them*, cooperation to achieve the superordinate goal led them to see each other as members of a common in-group. Thus, social categorization, individual difference, and functional relationship approaches can be seen as complementary perspectives rather than as alternative, competing positions. Understanding these processes also contributes to developing effective interventions for improving intergroup relations, such as the contact hypothesis.

INTERGROUP CONTACT AND INTERGROUP RELATIONS

For more than 50 years, the contact hypothesis has represented psychologists' most popular and effective strategy for promoting harmonious intergroup relations. This hypothesis proposes that simple contact between groups is not sufficient to improve intergroup relations. For contact between groups to reduce bias successfully, the contact must involve equal status between the groups, cooperative (rather than competitive) intergroup interaction, opportunities for personal acquaintance between the members, especially with those whose personal characteristics do not support stereotypic expectations, and supportive norms by authorities within and outside the contact situation. These conditions of intergroup contact are prominent elements of specific strategies for improving intergroup relations, such as cooperative learning and jigsaw classroom interventions, in which students are interdependent on one another in problem-solving exercises.

Several different processes, related to both the functional relationships between groups and social categorization, contribute to the positive effect of appropriately structured intergroup contact on intergroup relations. For example, cooperation can induce greater intergroup acceptance because of dissonance reduction serving to justify this type of interaction with the other group. Also, when intergroup contact is favorable and productive, the rewarding properties of achieving success may become associated with members of other groups, thereby increasing attraction and reducing intergroup anxiety.

Intergroup contact can also influence how people conceive of the groups and how the members are socially categorized. Close and personalized interaction between members of different groups can induce

people to think of others more in terms of their personal identity than as members of another group, thereby weakening the in-group–out-group distinction. Cooperative, equal-status interaction between groups can induce people to reconceive of themselves primarily as one common group, which can redirect the forces of in-group favoritism to improve attitudes toward others previously seen only in terms of their out-group membership. Moreover, developing a common group identity does not require people to abandon their separate group identities entirely. Retaining original group identities, but in a context that emphasizes cooperation (e.g., art students and science students working together on a task that requires both types of skills) or within a complementary common identity (accountants and marketers within the same company), can reduce threat to original group identity while creating more positive intergroup relations.

SUMMARY

Intergroup relations are determined critically by how people socially categorize others, by perceptions shaped by personal needs and values, and by the actual functional nature of the relationship between groups. These processes typically operate in concert. In part because the mere categorization of people into groups is sufficient to initiate intergroup bias, research in this area has typically focused on how to reduce intergroup bias and conflict. Nevertheless, the principles of social categorization, social identity, contact, superordinate goals, and functional interdependence may be applied initially in intergroup contexts to promote positive and constructive intergroup relations. Under these conditions, the unique contributions of the different groups can be recognized and appreciated, and the efforts of the members of the different groups can be coordinated to achieve mutually desirable goals.

—John. F. Dovidio

See also Attitudes and Beliefs; Diversity Training; Group Cohesiveness; Stereotyping

FURTHER READING

Brown, R., & Hewstone, M. (2005). An integrative theory of intergroup contact. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 37, pp. 255–343). San Diego: Academic Press.

- Esses, V. M., Jackson, L. M., & Armstrong, T. L. (1998). Intergroup competition and attitudes toward immigrants and immigration: An instrumental model of group conflict. *Journal of Social Issues, 54*, 699–724.
- Gaertner, S. L., & Dovidio, J. F. (2000). *Reducing intergroup bias: The common ingroup identity model*. Philadelphia: The Psychology Press.
- Pettigrew, T. F., & Tropp, L. R. (2000). Does intergroup contact reduce prejudice? Recent meta-analytic findings. In S. Oskamp (Ed.), *Reducing prejudice and discrimination* (pp. 93–114). Hillsdale, NJ: Lawrence Erlbaum.
- Sherif, M., Harvey, O. J., White, B. J., Hood, W. R., & Sherif, C. W. (1961). *Intergroup conflict and cooperation: The Robbers Cave experiment*. Norman: University of Oklahoma Book Exchange.
- Sidanius, J., & Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression*. New York: Cambridge University Press.
- Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Oxford, UK: Basil Blackwell.

INTERPERSONAL COMMUNICATION

Interpersonal communication is a dynamic and complex human phenomenon that includes at least two communicators. These communicators intentionally orient toward each other as both subject and object whose actions embody each other's perspectives both toward self and toward other. In essence, interpersonal communication is a goal-driven interaction between at least two people that typically occurs in a face-to-face environment. However, scholarly trends are moving toward studying mediated interpersonal communication via communication technologies. Interpersonal communication in organizations represents an interaction process including a variety of relational situations. These internal situations involve superior–subordinate and peer communication. This article centers on internal interpersonal communication. First, an overview of the process of interpersonal communication will be provided. Second, interpersonal communication is situated in organizations by examining superior–subordinate communication and peer communication. Finally, the process of interpersonal communication is contextualized by reviewing the impact of trust

and technology on interpersonal communication in organizations.

THE PROCESS OF INTERPERSONAL COMMUNICATION

The process of interpersonal communication is viewed from a general communication perspective provided by Claude Shannon and Warren Weaver. This model, in its most basic format, includes the sender, the message, the channel, and the receiver. Noise provides an additional component.

The first two components of interpersonal communication are the sender and the message. The sender mentally composes a message to relay to another person, taking into account the reason, or intention, for sending the message. Perhaps it is meant to persuade, or to inform. The act of transferring this message from thought to words is called *encoding*.

The *channel* in this model refers to the mode of communication used to relay the message. Familiar channels include television, radio, and newspaper. However, interpersonal communication differs from mass communication in this respect because the channel used is face-to-face communication in which messages are relayed through verbal interaction at one location.

The fourth component of this model is the receiver. This person is responsible for taking the sender's message and decoding it. The action of decoding results in the assignment of meaning by the receiver.

The exchange described is one basic unit of interaction between communicators. Once the receiver decodes the message and gives meaning to it, that person can encode another message to relay to the sender. The resulting action is characterized as *feedback*. Feedback helps to clarify the original message or to enhance it. In the feedback process, the original receiver then becomes the sender who encodes the message, and the original sender becomes the receiver who decodes the message. Again, the channel of communication remains face-to-face. This process can continue in a cyclical manner, creating a dialogue between both people.

An additional component affecting the interaction represented in this model is noise. *Noise* refers to anything that could interfere with the transmission of the message from the sender to the receiver, and it can be attributed to a number of sources. Physical sources are often much easier to recognize and would include a

loud truck driving by while the sender was talking to the receiver during a meeting, or if the receiver was having difficulty with his hearing aid while listening to the sender speak.

Noise related to differences in perception can also interfere with the ability for communicators to relay a message. This type of noise is attributed to a number of factors, including nonverbal communication and cultural differences. Differences in perception can lead to conflict among the communicators.

SUPERIOR-SUBORDINATE COMMUNICATION

The supervisory-subordinate relationship is the primary interpersonal relationship structured by the organization. Individuals' relationship with their supervisor is one of the most important communication facets of their organizational life. This relationship is so critical that it may determine how individuals identify with the organization, as well as the individuals' job and organizational satisfaction and commitment. Particularly, the quality of supervisory communication and information exchanges have been linked to revenue and productivity measures of the overall organization.

Most organizations typically have superior-subordinate relationships among organizational members. Generally, research in the area of superior-subordinate interpersonal communication centers on exchanges of information and influence between organizational members, at least one of whom has formal authority, granted by the organizational structure, to direct and evaluate the activities of other organizational members. Daniel Katz and Robert Kahn suggested that superior to subordinate communication typically centers on information regarding organizational procedures and practices, indoctrination of goals, job instructions, job rationale, or feedback on performance. Similarly, subordinate to superior communication typically focuses on information about the subordinates themselves, their colleagues, and their work-related or personal problems; information about tasks to accomplish; or about organizational policies and practices.

A. F. Smith and S. A. Hellweg found in 1985 that subordinates are more satisfied with their work when communication between subordinate and supervisor is good. A strong predictor of subordinate satisfaction is the superior's ability to listen, respond quickly to messages, and be sensitive, empathic, and understanding.

V. R. Waldron and M. D. Hunt further posited in 1992 that subordinates reporting high-quality relationships with their supervisors were more likely to engage in informal, friendly interactions with their supervisors, to conform to formal and informal requests, to attempt to clarify expectations, and to accept criticism from supervisors than were individuals reporting lower-quality relationships.

Leader–member exchange (LMX) theory frequently informs superior–subordinate relationships. The LMX theory has been linked to a variety of communication behaviors and suggests that leaders have limited time and resources and share both personal and positional resources differently with their subordinates. In sum, Jaesub Lee and colleagues suggested in 1999 that leaders tend to develop and maintain exchanges with their subordinates that vary in degrees of quality. These relationships range from high (in-group) to low (out-group) exchanges. In-group exchange is considered a high-quality relationship reflected by high levels of information exchange, mutual support, informal influence, and trust, and greater negotiating latitude and input in decision influence. Alternatively, out-group exchange reflects a low-quality relationship characterized by formal supervision, less support, and less trust and attention from the supervisor.

RESEARCH ON SUPERIOR–SUBORDINATE RELATIONSHIPS

There are several areas of research examining issues of superior–subordinate communication. These include the following:

- **Interaction patterns.** Research that studies the communication patterns between supervisors and their subordinates. How much time is spent communicating with each other? Who initiates the communication? What is the importance of the interactions?
- **Openness in communication.** This line of research examines two dimensions of openness in the superior–subordinate relationship: message sending (delivering bad news, candor in communication, providing important company facts) and message receiving (encouraging frank expressions of alternative views).
- **Upward distortion.** This occurs when persons of lower hierarchical rank in organizations communicate with persons of higher rank. Upward distortion falls into four general categories:

1. Subordinates tend to distort upward information, saying what they think will please their supervisors.
 2. Subordinates tend to filter information and tell their supervisors what they, the subordinates, want them to know.
 3. Subordinates often tell supervisors what they think the supervisor wants to hear.
 4. Subordinates tend to pass personally favorable information to supervisors while not transmitting unfavorable information about themselves to supervisors.
- **Upward influence.** This line of research focuses on two dimensions of influence: (a) the effects a superior's influence in the hierarchy has on his or her relationships with subordinates and (b) subordinates' use of influence with their supervisors.
 - **Semantic-information distance.** This research describes the gap in agreement and/or understanding on specific issues between superiors and subordinates (e.g., job duties and leaders' authority).
 - **Effective versus ineffective superiors.** Examines prescriptive characteristics of effective and ineffective communication behaviors among organizational supervisors, as well as communication qualities of effective leaders.
 - **Personal characteristics.** These study the mediating effects of personal characteristics of superiors and subordinates (e.g., communication apprehension, communication competence, locus of control, and communicator style).
 - **Feedback.** Research focusing on relationship between feedback and performance, feedback and motivation, feedback and attributional processes, the use of rewards and punishments as feedback, and the feedback-seeking behavior of individuals.
 - **Conflict.** Research examining the role of communication in superior–subordinate conflict (e.g., conflict management style, organizational level, power, perceptions of skills, perceptions of subordinate's personality).

Peer Communication

Peer communication is an important interpersonal facet in everyday organizational life. This area of study focuses on coworker communication within and between work groups. Peer communication is important for three reasons:

1. Peer interpersonal communication differs from superior–subordinate communication (e.g. relationship rules, message strategy choices).

2. Peer communication and the use of groups to accomplish work goals in organizations is increasing.
3. Peer interpersonal communication is an important source of support, friendship, and job satisfaction and commitment.

Peers communicate about job requirements, provide social support, and are in a position to give advice without formally evaluating performance. Peers also may help each other solve organizational problems or issues and utilize the best strategies to use with supervisors. However, peer communication is not without problems. Peers can withhold information from one another, which makes accomplishing individual and group goals difficult.

Research on Interpersonal Communication in Organizations

Interpersonal communication is complex. It is a difficult proposition to communicate effectively with others while maintaining an authentic sense of self. Communication may be difficult with others owing to the wide array of interactions on a regular basis. Communication partners have different interpersonal communication experiences that contribute to how they communicate and interact with others. Exposure to multiple communication partners can be confusing if one is not familiar with recognizing and adjusting to different styles and patterns of communication.

Several factors contribute to the interpersonal communication process in organizations. They include interpersonal trust, the use of nonverbal communication, cultural differences between the partners, and technology in interpersonal relationships.

Interpersonal Trust in Organizations

The role of interpersonal communication in the development of relationships is a popular area of study for communication researchers. Interpersonal communication may occur between people who have had continual interaction or between people who do not have past experiences with each other, allowing a reduction in drawing on a historical frame of reference. Regardless of the interpersonal situation, trust is a critical factor in all interpersonal relations. Although a general term, *trust* is defined as positive expectations about the behavior of others based on roles, relationships, experiences, and interdependencies, as noted by

Pamela Shockley-Zalabak in 2002. Shockley-Zalabak, Kathleen Ellis, and Ruggero Cesaria discussed in 2000 the central role that organizational communication plays in the behavior components of trust. These scholars highlight three primary areas of organizational trust that strengthens communication:

1. *Accurate information.* Information flow that is forthcoming
2. *Explanations for decisions.* Adequate and timely feedback on decisions
3. *Openness.* Managers and supervisors freely exchange thoughts and ideas with their employees

TECHNOLOGY AND INTERPERSONAL COMMUNICATION

Interpersonal communication is typically restricted to communication that occurs in a face-to-face environment. However, with an increase in the use and access of technologies in organizations, mediated interpersonal communication is becoming a salient area of inquiry. Knowledge of interpersonal communication has become more important in recent years, especially as organizations have expanded their activities to other countries and relied on computer-mediated communication to overcome physical distances. The rapidly increasing use of computer-mediated communication to connect members of an organization has resulted in more research relating to both computer-mediated communication and globalization. It raises questions regarding key assumptions of face-to-face interaction and highlights the need to understand interpersonal communication. This higher level of awareness is more likely to produce organizational members who recognize their own and others' communication needs, resulting in communicators who are more effective.

Technology is changing the way we view and engage each other in our relationships. Communication technologies have eradicated boundaries of brick-and-mortar buildings, where face-to-face interactions were predominant, to expand time and spatial restrictions that inform interpersonal and work communication. Individuals accomplish work through various time zones, cultural differences, and particularly geographic locations. Because of this, we work with people without much information about their background, history, or experiences, much less their worldviews, values, and ideology. This may create

opportunities for effective interpersonal communication or may greatly hinder it, depending on how well individuals react to this new way of working. Teleworking (individuals who work at home or in other organizationally controlled spaces) and virtual teams (individuals who work as part of a team remotely solely using communication technologies) are new interpersonal communication configurations informed by technology.

—Shawn D. Long and Laura Vaughan

See also Globalization; Interpersonal Communication Styles; Organizational Communication, Formal; Organizational Communication, Informal; Trust

FURTHER READING

- Cupach, W. R., & Spitzberg, B. H. (Eds.). (1994). *The dark side of interpersonal communication*. Hillsdale, NJ: Lawrence Erlbaum.
- Jablin, F. M., & Krone, K. J. (1994). Task/work relationships: A life-span perspective. In M. L. Knapp & G. R. Miller (Eds.), *Handbook of interpersonal communication* (pp. 621–675). Thousand Oaks, CA: Sage.
- Lee, J., Jares, S. M., & Heath, R. L. (1999). Decision-making encroachment and cooperative relationships between public relations and legal counselors in the management of organizational crisis. *Journal of Public Relations Research*, 11(3), 243–270.
- Littlejohn, S. W. (2002). Communication in relationships. In *Theories of human communication* (7th ed., pp. 234–262). Belmont, CA: Wadsworth.
- Miller, K. (1995). Conflict management processes. In *Organizational communication: Approaches and processes* (pp. 231–250). Belmont, CA: Wadsworth.
- Shockley-Zalabak, P. (Ed.). (2002). *Fundamentals of organizational communication: Knowledge, sensitivity, skills, values*. Boston: Allyn & Bacon.
- Shockley-Zalabak, P., Ellis, K., & Cesaria, R. (2000). *Measuring organizational trust*. San Francisco: International Association of Business Communicators.
- Smith, A. F., & Hellweg, S. A. (1985, May). *Work and supervisor satisfaction as a function of subordinate perceptions of communication competence of self and supervisor*. Paper presented to the Organizational Communication Division of the International Communication Association Convention, Honolulu, HI.
- Trenholm, S., & Jensen, A. (2004). *Interpersonal communication* (5th ed.). New York: Oxford University Press.
- Waldron, V. R., & Hunt, M. D. (1992). Hierarchical level, length, and quality of supervisory relationships as

predictors of subordinates' use of maintenance tactics. *Communication Reports*, 5, 82–89.

INTERPERSONAL COMMUNICATION STYLES

Interpersonal communication style is the manner in which one communicates. It includes the way one interacts to create expectations for future behavior on the part of both participants. *Communication* is the transmission of information and meaning from one individual to another. The communication process, whether verbal or nonverbal, involves a sender and a receiver. Whether we realize it or not, people are constantly shaping our behavior by the ongoing style they use as they talk to us.

INTERPERSONAL COMMUNICATION STYLE RESEARCH

Scholars have extensively studied communication styles in interpersonal relationships. Research in this area has primarily focused on the effect of gender on communication style, the relationship between the communicators and its effect (i.e., type of relationship and length of time, supervisor and subordinate), culture, situation, and the expectations of communicators. Also, research on the effect of mediated communication on communication styles as it relates to interpersonal communication is of recent interest.

DESCRIPTIONS OF INTERPERSONAL COMMUNICATION STYLES

Robert Norton developed nine specific communicator styles typically used in the communication process that inform the nature of the relationship between communicators. These styles have been studied extensively in several organizations to assess communication satisfaction and commitment.

- **Dominant communication style.** The dominant style of communication is characterized by speaking frequently, strongly, in a dominating and take-charge manner. Communicators using a dominant style are

often perceived by others as individuals who possess high levels of self-confidence. This perception is reinforced by their willingness to speak often in a conversation using a strong and steady voice, as well as their ability to control the environment in which the communication occurs. Communicators who prefer this style also rely on the use of body language including recurring eye contact and the negotiation of others' personal space to emphasize communicative dominance.

- **Dramatic communication style.** This style of communication requires the communicator to merge both physical and verbal techniques to create a performance of the message. Communication using this style is often accomplished through storytelling, the application of jokes, and the use of hyperboles. The actual meaning of a dramatic communicator's message may be hidden and could require background knowledge of the communicator to uncover it. Communicators may use this style to deal with negative information they cannot convey to someone else at face value. Other reasons for selecting a dramatic style of communication are to reinforce a communicator's status in the group or to alleviate stress among group members.
- **Contentious communication style.** This style of communication is similar to a dominant style of communication. Communicators using a contentious style of communication are often described as being argumentative. People who use this style are not afraid to challenge others, especially if they have evidence to support their position. Consequently, they expect their communication partners to present similar substantiation when making a claim. Contentious communicators are very precise about the words they use and view communication as being straightforward without any area for delineation. Individuals interacting with someone who uses this style may feel the need to defend themselves, which may result in less focus on the message.
- **Animated communication style.** Animated communicators typically reveal more about their thoughts and emotions through body language than through verbal communication. When interacting with communication partners, people who use this style rely heavily on facial expressions to convey meaning. Some of these expressions include eye contact to show interest in a communication partner or to reveal emotions, smiling to show pleasure, and nodding to show support or agreement. Communicators using an animated communication style also gesture frequently, using their hands in addition to posture and body positioning to indicate thoughts.
- **Impression-leaving communication style.** This communication style is somewhat difficult to distinguish from others because it relies heavily on the impression formed of the sender by the receiver. People who use this style deliver messages in a manner that is unique and easy for receivers to differentiate from other communication partners. This quality makes people using an impression-leaving style easy to remember. It is possible that people who use an impression-leaving style could use another style but communicate in such a way that differentiates them from other people who use that style.
- **Relaxed communication style.** Communicators who approach communication in a relaxed style appear calm when interacting with their communication partners, even in high-stress situations. This demeanor often provides reassurance to their partners because they do not appear anxious and can make others feel comfortable. Relaxed communicators speak in a natural but confident manner and do not seem to be nervous when observed by communication partners.
- **Attentive communication style.** This communication style is characterized by the actions of the sender rather than the verbal communication of that person. Someone who has an attentive communication style is a good listener and lets communication partners know they are being heard. Body language such as eye contact and nodding let communication partners know that the attentive communicator is listening. People who use this style of communication are often regarded as empathetic and are able to internalize their partner's message, which is one reason that communication partners tend to open up to them.
- **Open communication style.** People who use an open style of communication are not afraid to express their thoughts and emotions and will generally let others know how they feel. Open communicators reveal personal information rather quickly when interacting with communication partners, with little regard to the potential outcome. Adjectives used to describe this type of communicator are *talkative*, *approachable*, and *conversational*. An open communication style could be considered a positive or a negative attribute and would depend a great deal on the communication partner's perception.
- **Friendly communication style.** Communicators who use a friendly style of communication have a positive effect on their communication partners. This effect results in people seeking interaction with them. Friendly communicators use both body language and verbal communication to reinforce the self-image of others by showing them that they

attract people who are friendly. This style of communication is also characterized by the recognition of the accomplishments and value of communication partners.

SUMMARY

Communication styles are an essential factor in studying interpersonal communication. Communicators may use different communication styles in different situations but generally rely on a particular style because they are comfortable using it. Factors affecting communication style include the relationship of the communication partners, social norms, and the specific organizational situation.

—Shawn D. Long and Laura Vaughan

See also Impression Management; Interpersonal Communication

FURTHER READING

- Coeling, H. V., & Cukr, P. L. (2000). Communication styles that promote perceptions of collaboration, quality, and nurse satisfaction. *Journal of Nursing Care Quality, 14*(2), 63–74.
- Norton, R. (1983). *Communicator style: Theory, applications, and measures*. Beverly Hills, CA: Sage.
- Rehling, L. (2004). Improving teamwork through awareness of conversational styles. *Business Communication Quarterly, 67*(4), 475–482.

INTRINSIC AND EXTRINSIC WORK MOTIVATION

Intrinsically motivated people engage in an activity because they experience it as interesting and enjoyable. Intrinsic motivation is the prototype of autonomous motivation, for people engage in the activity with a sense of self-initiation, freedom, and volition. In contrast, extrinsically motivated people engage in the activity because it is instrumental to a separate, though desirable consequence—for example, attaining a reward or avoiding a punishment. With extrinsic motivation, satisfaction comes not from the activity itself but, rather, from the extrinsic consequences to which the activity leads. Research has shown that optimal challenge, positive performance feedback, and choice about activities stimulate interest and

enhance intrinsic motivation. In contrast, contingent rewards, surveillance, and threats highlight contingencies that enhance extrinsic motivation.

Although some motivation theories argue that intrinsic and extrinsic motivation have additive effects on performance and satisfaction, research has shown that the two types of motivation tend to interact. Specifically, when extrinsic rewards are offered to a person for doing an intrinsically motivated activity, the rewards can either enhance or diminish the person's intrinsic motivation. In particular, tangible rewards have been found to decrease intrinsic motivation. This often-replicated finding led many writers to assert that intrinsic and extrinsic motivation are invariantly antagonistic. Self-determination theory (SDT) makes clear, however, that the two types of motivation tend to be compatible when the extrinsic motivation has been well internalized.

THE SELF-DETERMINATION CONTINUUM

Self-determination theory proposes that extrinsic motivation varies in the degree to which it is autonomous depending on the degree to which it has been internalized. Activities that are not interesting (i.e., that are not intrinsically motivating) require extrinsic motivation, so their initial enactment depends on the perception of a contingency between the behavior and a consequence such as the manager's approval or a tangible reward. When so motivated, the activity is said to be *externally regulated*—that is, initiated and maintained by contingencies external to the person (e.g., I work hard because I will be rewarded for doing so). This is the classic type of extrinsic motivation that was found to undermine intrinsic motivation, and it is the prototype of being controlled—that is, of being pressured to behave, think, or feel a particular way.

External regulations can, however, be internalized, in which case the external contingencies are no longer required and people continue to work even when the boss is not watching. According to SDT, there are three different degrees to which a regulation and its underlying value can be internalized. The least complete form of internalization is referred to as *introjection*, in which people take in a contingency without accepting it as their own. Thus, it is as if the contingency, which is now internal, still controls them. For example, when people behave so others will acknowledge them, they are externally regulated, but when they introject the regulation they behave to feel like a

worthy person—that is, to experience the self-esteem that has become contingent on the behavior. Another example of introjected regulation is behaving to protect an ego involvement. Introjected regulation, although internal to the person, is still a *controlled* form of extrinsic motivation because people feel pressured to behave by the introjected contingency.

When people *identify* with a regulation, they engage in an activity because it is congruent with personal values, goals, and identities. Through identification, they accept the regulation as their own and feel greater freedom and volition. A day care worker who strongly values children's comfort, growth, and well-being and who understands the importance of doing the unpleasant tasks that foster the children's well-being would feel relatively autonomous when changing dirty diapers or cleaning up vomit.

Finally, if a regulation were *integrated*, people would have a full sense that the behavior is an integral part of who they are. This type of regulation would result when an identification has been integrated with other aspects of the person's self—that is, with other identifications, interests, and values. The day care worker would not only have identified with the importance of the unpleasant aspects of caring for the children, but would have accepted the job as an integral part of his or her life and would even be more likely to do unpleasant tasks that helped other children. Integrated regulation represents the most autonomous form of extrinsic motivation. However, it is not the same as intrinsic motivation, because intrinsic motivation is characterized by being *interested* in the activity itself, whereas autonomous extrinsic motivation is characterized by the activity being *instrumentally important* for personal goals or values.

The different types of regulation can be aligned along an autonomy continuum ranging from *amotivation*, which means that the person is not motivated and thus is wholly lacking in autonomy, through the four types of extrinsic motivation (i.e., external, introjected, identified, and integrated, which, respectively, represent increasing autonomy), to intrinsic motivation, which is the most autonomous type of motivation. This autonomy continuum does not, however, mean that SDT is a stage theory, nor does it imply that people must invariantly move through the regulations sequentially for a particular behavior. Rather, the degree of internalization depends on aspects of the person, the task, and the context within which the person engages the task.

Conceptualizing extrinsic motivation in terms of internalization effectively changed the central distinction in motivation from intrinsic versus extrinsic to autonomous versus controlled. Intrinsic motivation and identification/integration constitute autonomous motivation, whereas external and introjected regulation constitute controlled motivation.

In organizational settings, workers' motivation can be assessed with an instrument that asks, for example, why they try to do well at their job. Various reasons are then presented that reflect the types of motivation. Participants rate the degree to which each is true for them. Examples of reasons offered include the following: for external reasons, so as not to upset the boss; for introjected reasons, to feel like a good person; for identified and integrated reasons, to fulfill personal goals and values; for intrinsic reasons, to experience interest and enjoyment; and for amotivation, not trying or knowing why. Research has supported the control-to-autonomy continuum by showing that each type of motivation correlates most positively with the other types located closest to it on the continuum and less positively or more negatively with types located farther from it.

AUTONOMY AND THE SOCIAL CONTEXT

Considerable work has examined aspects of the social context that enhance versus undermine autonomous motivation. Some studies have examined effects of the social context on intrinsic motivation, whereas others have examined contextual effects on internalization. Dozens of studies led to the SDT proposition that people have three basic psychological needs—for competence, autonomy, and relatedness—and that contextual factors that provide satisfaction of these needs enhance autonomy, and those that thwart satisfaction of the needs diminish autonomy and promote either controlled regulation or amotivation.

Significantly, various studies have also shown that satisfaction of the basic needs promotes more effective job performance, better learning, greater persistence at difficult tasks, enhanced engagement with a job, more positive work attitudes, decreased stress, and better adjustment and well-being. These findings have emphasized the importance of examining the factors that promote autonomy through support for the basic psychological needs.

Laboratory experiments have shown that external factors such as tangible rewards, deadlines, surveillance,

and evaluations tend to thwart the need for autonomy and undermine intrinsic motivation, and negative feedback tends to undermine intrinsic motivation by thwarting the need for competence. In contrast, external factors such as acknowledging feelings and providing choice tend to enhance feelings of autonomy and increase intrinsic motivation, and positive feedback tends to increase intrinsic motivation by enhancing feelings of competence.

Of course, intrinsic motivation in the workplace is very important, but intrinsic motivation requires that work activities be interesting—for example, that there is variety or challenge to the work and that there are opportunities to make choices or decisions relevant to the job. When work activities cannot be made more interesting, internalization of extrinsic motivation becomes the critical issue. Significantly, internalization also occurs when the work environment allows satisfaction of the basic needs.

Of significance to industrial/organizational psychologists, research has shown that work climates, managerial approaches, and leadership styles that support employees' competence, autonomy, and relatedness—for example, by encouraging self-initiation, problem solving, group interaction, and collective responsibility—promote employees' identification and integration of extrinsic motivation. Additional work-climate factors that have been found to facilitate internalization are providing a *meaningful rationale* for doing an uninteresting behavior and *acknowledging feelings* about the various aspects of the jobs. Facilitating internalization is important in organizations because autonomous extrinsic motivation is more predictive than intrinsic motivation of behaviors that are not interesting and require discipline or determination.

When a job involves only simple and repetitive tasks, there is typically not a performance advantage to autonomous relative to controlled motivation, but even in those situations, autonomous motivation is associated with greater job satisfaction and well-being. This implies that, overall, autonomous motivation is preferable in organizations because even with boring jobs, there is an advantage to autonomous motivation for job satisfaction and well-being, which are likely to yield better attendance and lower turnover.

REWARDS AND MOTIVATION

As mentioned earlier, studies have shown that tangible rewards tend to have a detrimental effect on intrinsic motivation, and a meta-analysis of more than

100 studies confirmed this effect. Verbal rewards (i.e., positive feedback), on the other hand, were found to enhance intrinsic motivation. The meta-analysis also found limiting conditions to the negative effects of tangible rewards. When rewards were given independent of specific task engagement (as might be the case with a salary), or when the rewards were not anticipated (as might be the case with unexpected bonuses), tangible rewards did not significantly undermine intrinsic motivation. The conditions under which rewards were most likely to negatively affect intrinsic motivation were when people expected them while working on a task and when the rewards were contingent on doing the task or performing well at it. When rewards were contingent on performing well, they tended not to be as detrimental as when they were contingent just on doing the task or completing it. This is because the positive feedback inherent in rewards that are given for performing well enhances people's feelings of competence, and that tends to offset some of the negative effect of rewards that is caused by the thwarting of autonomy.

Some studies have gone further to show that when rewards are administered *informationally*—that is, when they signify competence, convey appreciation, and acknowledge the person's initiative in doing a good job—they can have a positive rather than negative effect on intrinsic motivation. However, creating these rewarding conditions tends to be quite difficult. Furthermore, if positive feedback (without being accompanied by tangible rewards) is administered informationally, it leads to greater intrinsic motivation than informationally administered performance-contingent rewards that implicitly convey the same positive feedback. Thus, one can conclude that, although the use of tangible rewards may at times have a positive effect on intrinsic motivation when administered as a nonpressured expression of appreciation for a good job, informationally administered positive feedback appears to be an even more powerful means of maintaining and enhancing people's intrinsic motivation on the job.

Because intrinsic motivation is associated with better performance than controlled extrinsic motivation, the undermining of intrinsic motivation by extrinsic rewards is negative for organizational effectiveness. Research has shown that contingent tangible rewards and other extrinsic factors, such as competition and evaluations, can be detrimental to outcomes such as creativity, cognitive flexibility, attaining difficult goals, problem solving, and well-being. For example, a negative relation between the perception of extrinsic

rewards and the amount of intrinsic motivation was found in one study, and another study found that the introduction of a merit-pay program led to workers' feelings of decreased autonomy and intrinsic motivation. Still another found that pay-for-performance plans led to lower well-being in blue-collar workers who had monotonous jobs. Moreover, one meta-analysis showed that programs using financial incentives had smaller positive effects than did programs using training and goal setting.

Taken together, the various results have three implications for organizations. First, unexpected bonuses may not be undermining, but unexpected bonuses must be used very sparingly or they will soon be expected. Second, salaries, which do not emphasize links between specific behaviors and rewards, are less likely to undermine intrinsic motivation than are pay-for-performance systems. Indeed, it is best to keep rewards relatively nonsalient in organizations rather than to think of them as a central means of motivating employees. People need to feel that they are being equitably rewarded, but using rewards as a central motivational strategy is likely to backfire. Third, if contingent rewards are to be used, it is important that they be used to acknowledge good performance and that they be given in an informational way. This will minimize people's feelings of being controlled and will reduce the negative effects of the rewards on performance and well-being. In short, rewards are an important aspect of organizational life, but the research indicates that reward structures in organizations are likely to be most effective when they are not used as a means of motivating specific behavior.

—Marylène Gagné and Edward L. Deci

See also Motivational Traits; Work Motivation

FURTHER READING

- Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, *125*, 627–668.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*, 227–268.
- Gagné, M., & Deci, E. L. (2005). Self-determination theory as a new framework for understanding organizational behavior. *Journal of Organizational Behavior*, *26*, 331–362.
- Jenkins, C. D., Jr., Mitra, A., Gupta, N., & Shaw, J. D. (1998). Are financial incentives related to performance?

A meta-analytic review of empirical research. *Journal of Applied Psychology*, *83*, 777–787.

- Losier, G. F., & Koestner, R. (1999). Intrinsic versus identified regulation in distinct political campaigns: The consequences of following politics for pleasure versus personal meaningfulness. *Personality and Social Psychology Bulletin*, *25*, 287–298.

ITEM RESPONSE THEORY

Item response theory (IRT), also called latent trait theory, is a psychometric theory that was created to better understand how individuals respond to individual items on psychological and educational tests. The underlying theory is built around a series of mathematical formulas that have parameters that need to be estimated using complex statistical algorithms. These parameters relate to properties of individual items and characteristics of individual respondents. The term *latent trait* is used to describe IRT in that characteristics of individuals cannot be directly observed; they must be inferred by using certain assumptions about the response process that help estimate these parameters.

Item response theory complements and contrasts classical test theory (CTT), which is the predominant psychometric theory taught in undergraduate and graduate programs. Classical test theory differs from IRT in several ways that will be discussed throughout this entry. In general, though, IRT can be thought of as analogous to an electron microscope for item analysis, whereas CTT would be more like a traditional optical microscope. Both techniques are useful for their own purposes. Just like the electron microscope, IRT provides powerful measurement analysis; IRT is useful if you have a need for specific, precise analysis. On the other hand, CTT can be just as useful as IRT when the research questions are vague and general. In medical research, sometimes the optical microscope is preferred to the electron microscope. Likewise, CTT may be preferred in some situations.

THE ITEM RESPONSE FUNCTION

Item response theory relates characteristics of items and characteristics of individuals to the probability of affirming, endorsing, or correctly answering individual items. The cornerstone of IRT is the *item response function* (IRF), which is the graphical representation

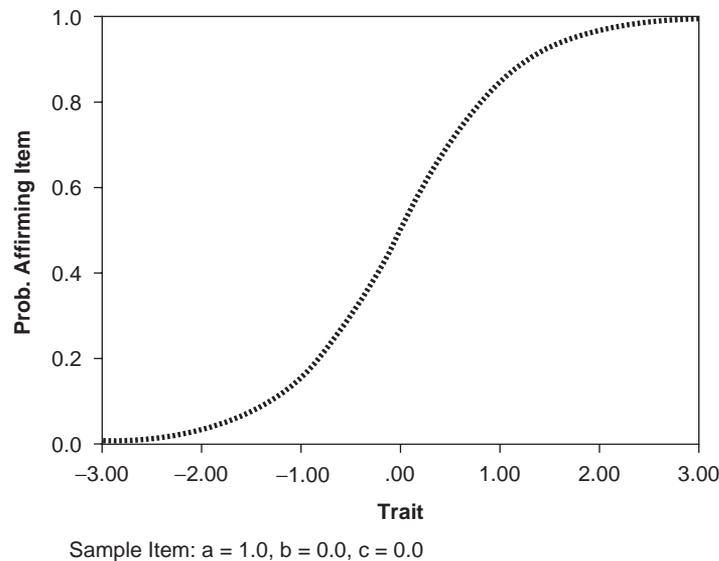


Figure 1 Graphical Representation of a Hypothetical Item Response Function

of a mathematical formula that relates the probability of affirming item i with the value of a latent trait, θ . Figure 1 presents a graphical representation of a hypothetical IRF.

In Figure 1, the x -axis relates to the level of the characteristic being measured by the test. This trait, θ , is typically scored like a z score, with scores at zero being average and scores above zero being above average; scores below zero are below average. Typical θ distributions range from -3 to $+3$. The y -axis relates to the probability of affirming an item. For ability items, the y -axis measures the probability of answering an item correctly. For items without correct answers (e.g., attitude or personality items), the y -axis refers to the probability of choosing the keyed option (i.e., the option that taps high conscientiousness). The IRF relates the level of θ with probability of affirming the item. As can be seen in Figure 1, as θ increases, the probability of affirming the item also increases. This property of monotonicity is common with IRT models. As can be seen in Figure 1, an individual with a $\theta = 0$ would have an expected probability of affirming the item of roughly 50%. The corresponding probabilities for a person of $\theta = -3$ and $\theta = +3$ are roughly 0% and 100%, respectively.

There are many different forms of the IRF. For dichotomously scored items (e.g., right versus wrong or true versus false), the two-parameter logistic model (2PL) and the three-parameter logistic model

(3PL) are commonly used. The formula for the 3PL model is

$$P(u_i = 1 | \theta) = c_i + (1 - c_i) \frac{1}{1 + e^{-1.7a_i(\theta - b_i)}} \quad (1)$$

where the probability that a person with a latent trait, θ , affirms an item i (i.e., $u_i = 1$) is a function of three parameters: a_i , a discrimination parameter; b_i , a location parameter; and c_i , a pseudo-guessing parameter. The probability of affirming items with large a parameters varies sharply as a function of θ , whereas the probability of affirming items with low a parameters varies weakly as a function of θ . Mathematically, the a parameter determines the slope of the IRF at its most discriminating point. Items with low a parameters are generally considered poor, undiscriminating items. Items with large, positive b parameters will be endorsed only by respondents with large, positive θ s, whereas items with large, negative b parameters will be endorsed by everyone except people with the most extreme negative θ s. With ability tests, items with large positive b parameters are judged to be difficult, whereas those items with large negative b parameters are judged to be easy. With items that do not have correct answers, the b parameter is often called a *location* or *threshold* parameter. The c parameter introduces a nonzero lower asymptote to the IRF so that respondents

with large negative θ s will have a nonzero probability of affirming the item; this nonzero asymptote may result from guessing or other processes.

The 2PL formula is a submodel of the 3PL and can be obtained by setting the c parameter to zero. This model has the implicit assumption that people with the lowest θ values will have a zero probability of affirming the item. The 2PL model is useful in situations, such as personality measurement in a research setting, in which there should be little or no guessing involved. An even simpler model, the Rasch model, is obtained by setting the a parameter to be constant across all items. Each of these models assumes that each item is measuring only one θ dimension. In general, it is best to choose the simplest model (i.e., the one with fewest parameters), given the typical sample sizes that industrial/organizational psychologists face. Simpler models make the most efficient use of data. By plotting the IRFs, researchers can compare the functioning of items, determine the extent of guessing, and determine the range of θ that the item is most discriminating.

Other, more complex models exist to measure more complicated types of data. Polytomous IRT models can be used to model data that have more than two scored options. These models replace the IRFs with option response functions (ORFs). Instead of characterizing an item with just one function, an item, as modeled with a polytomous IRT model, has an ORF for each option. Therefore, a five-option item would have five different ORFs. With ORFs, the x -axis still measures θ , whereas the y -axis then becomes the probability of choosing each particular option. There are different polytomous IRT models that have differing assumptions. Some models work with ordinal data, and assume that option 1 has a more negative threshold than does option 2, which in turn has a more negative threshold than does option 3. This assumption would be appropriate for Likert-scale-type data. Other, more flexible models do not make assumptions about the ordering of options. These models might be more appropriate in cases, such as multiple-choice exams, in which it would be difficult to determine a priori the rank ordering of options. Besides polytomous IRT models, other models exist that allow for nonmonotonic functions, as well as for multiple dimensions of θ to affect responses. New IRT models are introduced on a frequent basis. Often, however, newer complex models are difficult to estimate without prohibitively large data sets.

APPLICATIONS OF ITEM RESPONSE THEORY

Item response theory has had a significant impact in psychology by allowing for more precise methods of assessing properties of tests compared with classical test theory. In addition, IRT has had a big impact on psychology by making possible several tools that would be difficult to create without IRT. Psychometric applications, such as computerized adaptive testing, detecting item bias, equating tests, and identifying aberrant individuals, have been greatly improved with the development of IRT. In particular, computerized adaptive testing merits additional discussion.

Computer adaptive tests work by choosing items that are best suited for identifying the precise level of θ for an individual respondent. Specially, there is an IRT concept called *information* that is important for adaptive tests. Item-level information is related to the amount of uncertainty about a θ estimate that can be reduced by administering that item. Information differs by the level of θ . Some items will have high information for low levels of θ , whereas other items may have high levels of information for high levels of θ . Imagine a mathematics test. A basic algebra item may provide high amounts of information for people who possess extremely low ability. That same item, however, would do little to differentiate between individuals of moderate and high math ability. To differentiate between those individuals, a more complex item would need to be given. Information functions can be plotted for individual items (or for tests) to see for what level of θ the item is best suited.

Computerized adaptive tests work by choosing items that have large amounts of information for the respondent's estimated θ . Theta estimates are revised after each item response, and then a computer algorithm selects the next item to present based on the information level of items at the revised theta estimate. By choosing only items with large amounts of information, adaptive tests can maintain measurement precision at the levels of conventional tests even though fewer items are administered.

Item response theory has already had a major effect on educational testing through its impact on computerized adaptive testing (CAT). In the 1990s, Educational Testing Service implemented a CAT version of the Graduate Record Examination (GRE). The success of adaptive testing would not be possible without development of IRT. Large-scale adaptive testing would not be possible using CTT.

In the future it is likely that item response theory will yield progress, not only in improvement of measurement technologies but also by making contributions in substantive areas, such as decision-making theory. Graduate students, researchers, and practitioners who are interested in psychological measurement should invest some time to learn more about IRT technology. Computer programs, such as BILOG, MULTILOG, and PARSCALE, are available to conduct IRT analyses.

—Michael J. Zickar

See also Classical Test Theory; Differential Item Functioning

FURTHER READING

- Embretson, S. E., & Reise, S. P. (2000). *Item response theory for psychologists*. Mahwah, NJ: Lawrence Erlbaum.
- Zickar, M. J. (1998). Modeling item-level data with item response theory. *Current Directions in Psychology*, 7, 104–109.

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JOB ADVERTISEMENTS

Job advertisements are mechanisms used by organizations to communicate employment need. Globally, job advertisements are commonly used by all types of organizations and represent the most prominent form of early contact job seekers have with employers. On any given day, newspapers, magazines, and Web sites feature ads extolling the virtues of employment in millions of jobs. Across different channels of communication, job advertisements can take many forms, from colorful full-page ads in a business magazine to the more traditional classified entries found in newspapers.

The impact of job advertisements depends on the framing and quality of their content, and their impact is often debated in the research literature and among practitioners. Specifically, employers typically find that job ads yield relatively fewer quality applicants than other recruitment sources, but the value of such ads extends beyond the context of employment communication. Because of this extended value, a discussion of job advertisements would be incomplete without consideration of the impact of such ads on a broader audience. The paragraphs below provide insight into how and why job seekers, as well as a broader group of organizational stakeholders, react to job advertisements.

PURPOSE OF JOB ADVERTISEMENTS

Job advertisements present a powerful marketing device for organizations. Through such advertisements,

organizations can communicate multiple messages to a variety of audiences. A variety of conceptual frameworks have been used to describe job advertisements as communication mechanisms. For example, the act of placing job advertisements can be seen as an organization providing outsiders with a signal of its strength and growth. On the other hand, the placement of such ads can be seen from an impression management perspective as an attempt to communicate the values, or espoused values, that make an organization a unique business partner and employer. In this sense, organizations may place such ads with an idea of how they should be perceived by internal (e.g., employees) and external (e.g., job seekers) stakeholders. Job advertisements can also be seen as rational acts of an organization constantly balancing labor supply and demand. To this end, organizations not only place ads in papers, but also place ads in targeted professional outlets based on demand for specific knowledge and skills. Regardless of placement or intent, the primary purpose of a job advertisement is to attract job seekers to employment opportunities and motivate them to take active steps in pursuit of an available job.

The framework used to create most job advertisements either implicitly or explicitly includes four informational dimensions: organizational identity, human resource need, information needed to fill the need, and information that allows an applicant to contact the organization. Employers first must describe their organizational identity, or the values on which their business practices are based and that make them unique from other firms. Organizations can choose to describe themselves in a variety of ways but often employ more symbolic language to add a richness

to job advertisements. Job seekers reviewing such advertisements can gain insight into the defining features of an organization. Research suggests that from this language, readers extract a perception of an organization's personality. To the extent that a job seeker's personality fits with that of an organization, employment pursuit should follow.

The three other dimensions of employment ads pertain to facilitating tangible next steps in the pursuit of employment. First, the organization with a vacancy must clearly identify its human resource need (e.g., truck driver, financial analyst) and then clearly specify what is required of applicants to fill the position. Traditional job advertisements focus on tangible requirements for a job, such as years of experience or educational requirements. As organizations move toward more strategic management of their human resources, the infusion of language around required or preferred competencies associated with a job has become more popular. Such language can help promote applicant self-selection by providing an added level of insight into the type of applicant an employer seeks. Finally, job advertisements would not be complete without information that enables would-be applicants to take next steps in their employment pursuit.

As previously mentioned, the effectiveness of job advertisements as a recruitment source has been a subject of debate when measured by traditional ROI (return on investment) metrics, but not when evaluated as a broader organizational communication vehicle. Rather, employment advertisements should be seen as strategic communication vehicles targeted not only at the job-seeking public but also at competitors, employees of an organization, and the general public. Because of this, the framing of advertisements and specific content that organizations choose to include in such ads can be seen as having multiple messages. For example, a strategy of advertising that is commonly employed in job advertisements is to manipulate the perceived amount of employment opportunities available within an organization. Research in this area has shown that job seekers perceive jobs that are presented as being more scarce as having more positive attributes, such as higher salaries or better hours. At an industry level, firms that suggest they have job openings that are "going fast" signal organizational health as well as status as an employer of choice. Because job advertisements can send such signals, organizations often run

employment advertisements even though they have little hiring intent.

The subtleties of employment advertisements as communication vehicles to multiple audiences involve their physical attributes, as well. Job advertisements of healthier, more mature organizations typically contain more detailed and descriptive language reflecting an organization's position of power and tradition. In addition to the detailed language employed in a job advertisement, the prominence of an employment ad on a page has also been found to have an impact on how job seekers process information. In fact, research findings have supported the notion of a *set size effect*, which suggests that more information in job advertisements will increase readership of ads. More information in an ad, coupled with its relative size compared with others on a page, has a positive impact on its readership. Further, job advertisements that contain pictures are processed differently than purely text-based job advertisements. This phenomenon has recently become a subject of more intense inquiry as job advertisements have been deployed on the Internet, changing the nature of aesthetic flexibility afforded organizations as they promote employment opportunities.

SUMMARY AND FUTURE ISSUES

Job advertisements represent a significant source for recruiting job applicants as well as an important channel through which organizations can communicate to broader audiences. The impact of job advertisements on potential applicants can be attributed to those features that help employers frame and communicate organizational and employment information. Despite the widespread use of job advertisements, research and practical evidence suggests that such ads, in and of themselves, are not a particularly instrumental source of job applicant generation. However, because they represent such a highly visible communication channel, they should be evaluated within the context of their impact on multiple target audiences. Therefore, the future of research and applied interest in job advertisements may shift from attention to the transactional properties of job advertisements that move job seekers to become applicants toward a more strategic perspective on their function and importance.

—Richard T. Cober

See also Recruitment; Recruitment Sources

FURTHER READING

- Cober, R. T., Brown, D. J., Blumental, A. J., Doverspike, D., & Levy, P. E. (2000). The quest for the qualified job surfer: It's time the public sector catches the wave. *Public Personnel Management*, 29(4), 479–495.
- Highhouse, S., Beadle, D., Gallo, A., & Miller, L. (1998). Get 'em while they last! Effects of scarcity information in job advertisements. *Journal of Applied Social Psychology*, 28, 779–795.
- Lievens, F., & Highhouse, S. (2003). The relation of instrumental and symbolic attributes to a company's attractiveness as an employer. *Personnel Psychology*, 56(1), 75–102.
- Thorsteinson, T. J., & Highhouse, S. (2003). Effects of goal framing in job advertisements and organizational attractiveness. *Journal of Applied Social Psychology*, 33(11), 2393–2412.
- Williamson, I., Lepak, D. P., & King, J. (2003). The effect of company recruitment Web site orientation on individuals' perceptions of organizational attractiveness. *Journal of Vocational Behavior*, 63, 242–263.

JOB ANALYSIS

Job analysis is a label given to the process of obtaining information about jobs, which includes both the description of what is done at work and the specification of what capabilities are needed to perform the work. It is one of the most widely used organizational data collection techniques and forms the foundation on which virtually all other human resource management systems are built. Finally, its use is essential to meet legal requirements. Despite changes in the work environment, job analysis remains an essential tool for industrial and organizational psychologists.

As a process, job analysis involves a series of choices, including the type of information to collect, the method by which the data will be collected, and the source of the data. The specific choices made, however, will depend on the purpose of the job analysis (or the reason it is being conducted). Job analyses can be conducted for a number of purposes, including the following:

- Developing job descriptions that describe the essential nature of the job
- Classifying jobs into clusters or families of related jobs

- Developing selection systems, in which the job analysis is used to describe the knowledge, skills, abilities, and other characteristics needed for successful task performance
- Developing performance appraisal systems, in which the job analysis is used to identify the key tasks and work behaviors performed on the job
- Evaluating the worth of different jobs for compensation purposes
- Designing or redesigning jobs to make them more interesting or efficient to perform
- Developing training programs, in which the job analysis is used to identify the key tasks that workers must be able to perform

TYPE OF INFORMATION TO COLLECT

The type of information to collect is dictated by the purpose of the job analysis. Thus, it is essential to articulate the purpose clearly prior to starting a job analysis. With the purpose clearly defined, a variety of information can be gathered about a job. One of the most common types of information collected in a job analysis concerns work activities. *Work activities* are the observable behaviors performed by workers. There are several ways to examine work activities, varying on a continuum from very detailed actions to global behaviors. These include elements, tasks, duties, and generalized work activities. An *element* can be thought of as the smallest unit into which it is practical to divide any work activity without analyzing separate movements, motions, and mental processes. Tightening a bolt on a water pump would be an example of an element of an auto mechanic's job. There are often hundreds of elements for a job, which often makes them impractical units for most purposes. A *task* is a collection of related elements performed closely in time. Tasks have an identifiable beginning and end and are directed toward the achievement of specific job objectives. Replacing the water pump to ensure adequate engine cooling would be an example of a task from an auto mechanic's job. Most jobs can be summarized with between 30 and 100 tasks, which makes the task level very useful for numerous purposes. For example, when designing a training program, it is often helpful to have a very detailed understanding of the tasks performed on the job. This informs the content of the training program in terms of specific tasks workers need to learn.

A *duty* is a collection of related tasks that have a common focus or purpose. Rebuilding automobile engines would be an example of a duty for an auto mechanic's job. Most jobs can be summarized in terms of 6 to 12 duties. The duty level is also very useful. For example, when designing a performance appraisal system, the duties of a job can be used as the key performance dimensions on which workers are rated or judged. Finally, a *generalized work activity* is a collection of similar job activities that underlie the accomplishment of major work functions. It is similar to elements, tasks, and duties in that it focuses on what is accomplished at work, but it differs in that it focuses on higher-order behaviors. Some examples highlight the differences. Handling and moving objects, resolving conflicts and negotiating with others, and implementing ideas, programs, systems, or products are all examples of generalized work activities. Because these are more general behaviors, generalized work activities can be used across different jobs, whereas elements, tasks, and duties are typically job specific.

Another common type of information collected in job analysis is *worker requirements*, which are the underlying characteristics workers need to perform the tasks of a job. There are numerous types of worker requirements, but common requirements include knowledge, skills, abilities, and personality characteristics. *Knowledge* is defined as conceptual, factual, and procedural information that is related to task performance. Knowledge is often very specific to a job and can be divided into *declarative* knowledge (knowledge of what) and *procedural* knowledge (knowledge of how). For example, an accountant needs to have knowledge of relevant laws (declarative) as well as knowledge of how to file a tax return (procedural). *Skill* is defined as the proficiency or competency to perform a task or closely related set of tasks. Skills can be divided into *basic* skills, which facilitate learning or the acquisition of new knowledge (e.g., reading skills), and *cross-functional* skills, which are developed capabilities that facilitate job performance across job contexts (e.g., problem-solving skills). *Ability* is defined as a relatively enduring capacity for performing a range of tasks. Abilities and skills are similar, but the main distinction is that abilities are thought to be relatively enduring, whereas skills are thought to improve with experience and training. Higher-order abilities include cognitive (e.g., verbal and quantitative), psychomotor

(e.g., dexterity, reaction time), and physical (e.g., strength, hearing). *Personality characteristics* are those distinctive traits unique to an individual. It is thought that certain traits will lead to success on the job. Examples of common personality characteristics sought in workers are dependability, honesty, stress tolerance, and adaptability.

Although work activities and worker requirements are the two most commonly collected types of information in a job analysis, several other types of information can be gathered, as well. These include such things as the work context, or the broader environment within which the job is performed. For example, the work environment might be subject to extremes of temperature, noise, or danger. Another important type of information concerns licensure or certification requirements. Some jobs may require licenses or other certification prior to working on a job. For example, both lawyers (bar exam) and accountants (CPA exam) have to pass exams to work in their field. Another important type of information concerns the equipment, tools, or machines that are used on the job. Because some jobs rely heavily on certain types of equipment, tools, or machines, it would be impossible to understand them without considering these elements. Finally, *critical incidents* are often collected via job analysis. *Critical incidents* are short examples of highly effective or ineffective work behavior. They typically include a description of the situation, what the worker did, and the outcome of the worker's actions. Critical incidents are often helpful in developing anchored rating scales that can be used in the development of selection or performance appraisal tools.

JOB ANALYSIS METHODS

Once it is decided what type of information to collect, it is necessary to choose the method(s) through which to collect the data. Each method offers a slightly different perspective on the job and has different strengths and weaknesses. It is good practice to use multiple methods to collect job analysis data. There are four main methods through which job analysis data can be collected. First, the job analyst can observe the workers as they do the job. Direct observation involves recording what is done on the job, how it is done, and why the various parts of the job are performed. An advantage of direct observation is that it is

not subject to reporting biases on the part of the worker. Unfortunately, it may not be possible to observe key aspects of the job, particularly if the job involves a great deal of mental activity. For example, if one were to observe a patent examiner (who decides whether to issue a patent for a new product) as she judges the prior art (similar past products), there would be few outward manifestations of this cognitive processing.

The second method, however, overcomes this limitation of direct observation. Individual interviews involve recording workers' descriptions of what they do on the job. This format is flexible because it allows the job analyst to collect virtually any type of information. Through this method it is possible to acquire very detailed information about the job. If additional details are needed, the worker can be prompted for more information. If the worker makes statements that are questionable (e.g., an entry-level worker indicating he has very high-level responsibilities), the job analyst can directly question the validity of the statement. Drawbacks to this method are that workers may not be able to describe all that they do and it can be very time-consuming to conduct individual interviews.

The third method addresses the inherent inefficiency of individual interviews by gathering a number of workers or other subject matter experts and conducting a group interview. In addition to being more efficient, group interviews enable the job analyst to gather consensus about key job aspects. Yet there are potential problems with conformity and social loafing in group settings. Ways to overcome these problems are to structure the group interaction such that all members must contribute to the group and disagreements are actively solicited. The fourth method involves the use of surveys to collect detailed information about the job. Surveys enable the efficient collection of a wide range of types of information. For example, it is possible to collect work activity or worker requirement information on the extent to which a capability is needed at entry to the job (as well as other aspects of the capability, including level, frequency, importance, criticality, and relative time spent using). In addition, surveys enable the job analyst to quantify the work activities and worker requirements and use this information to make decisions about the job. Potential drawbacks include careless responding and nonresponses to lengthy surveys.

SOURCE OF JOB ANALYSIS INFORMATION

There are numerous sources of job analysis information, including the worker, a supervisor of the worker, a job analyst (i.e., a person trained in job analysis techniques), and archival job information (including past job analyses and databases such as the Occupational Information Network). Sources are the places where the information is collected. As with the method, each source provides a slightly different perspective on the job and has different strengths and weaknesses. When conducting a job analysis, it is important to collect information from a variety of sources to balance their strengths and weaknesses, resulting in a more accurate picture of the job. Some of the strengths and weakness of the sources are as follows. The worker (or job incumbent) typically has very high familiarity with the job (assuming adequate experience on the job) and thus should have high levels of job knowledge. Unfortunately, job incumbents are not always able to fully describe their job or otherwise articulate what it is they do in terms that are useful for job analysis purposes. In addition, workers are sometimes not motivated to provide accurate and reliable information.

Supervisors, on the other hand, are often in an excellent position to understand what worker requirements are needed for success on the job. In addition, they are less likely to be motivated to bias job analysis results. Yet supervisors may lack detailed information about the job, particularly if they have never performed it. Job analysts typically generate highly reliable ratings, have little motivation to bias the results, and are able to integrate large amounts of information and make fine distinctions among different jobs. Yet job analysts may lack adequate information about a job, particularly if there are numerous infrequently occurring tasks. In addition, because job analysts typically have prior knowledge of the job they are investigating (perhaps from a previous job analysis), they may harbor stereotypes about the job that bias their judgment. Archival job information from a source such as the Occupational Information Network is useful because it is provided at no cost to the user and it contains a great deal of comparative information on a wide range of jobs. Yet the jobs contained in archival databases may not match the jobs in the organization. In addition, the data may not be current and the specific detail

needed may be absent, requiring original data collection.

—Frederick P. Morgeson

See also Job Analysis Methods; Job Description

FURTHER READING

- Brannick, M. T., & Levine, E. L. (2002). *Job analysis: Methods, research, and applications for human resource management in the new millennium*. Thousand Oaks, CA: Sage.
- McCormick, E. J. (1979). *Job analysis: Methods and applications*. New York: AMACOM.
- Peterson, N. G., Mumford, M. D., Borman, W. C., Jeanneret, P. R., Fleishman, E. A., & Campion, M. A., et al. (2001). Understanding work using the occupational information network (O*NET): Implications for practice and research. *Personnel Psychology, 54*, 451–492.
- Sackett, P. R., & Laczko, R. M. (2003). Job and work analysis. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 21–37). New York: Wiley.

JOB ANALYSIS METHODS

A variety of job analysis methods have been developed over the years. These include work-oriented methods, which seek to describe what a worker does, worker-oriented methods, which seek to identify the characteristics needed to successfully perform job tasks, and hybrid methods, which combine elements of work- and worker-oriented methods. Because of space constraints, only methods that are widely used or prototypic are discussed here. The Further Reading section identifies other methods for the interested reader.

WORK-ORIENTED METHODS

Several work-oriented methods have been developed, including task analysis, functional job analysis, and the critical incident technique. Task analysis is perhaps the most commonly used work-oriented method for describing what a worker does.

Task Analysis

Task analysis involves a comprehensive listing of all the tasks performed in a job, such that a *task*

is defined as a collection of related elements performed closely in time. Tasks have an identifiable beginning and end and are directed toward the achievement of specific job objectives. Once all the tasks are identified, they are typically placed into a job analysis survey and rated by workers and supervisors in a variety of ways, including how frequently the task is performed, how important the task is to the job, and whether it is important to be able to perform the task as soon as one starts on the job. Because the tasks performed are typically unique to a given job, separate task analyses need to be conducted for each job.

There are at least four steps associated with conducting a task analysis. The first step involves developing a comprehensive listing of tasks. Typically, workers and their supervisors are asked to help generate lists of all the tasks that are performed on the job. This can be done through individual brainstorming, group meetings, or individual interviews. In addition, job analysts often observe the job and consult any existing documentation (e.g., training manuals, checklists, performance appraisal forms) for additional insight into the tasks. Effective task statements typically begin with an action verb that describes what the worker does, how he or she does it, and to whom or what (object) and why a worker does it.

The second step involves taking the listing of tasks and developing a job analysis survey. Similar tasks are typically grouped by duty on the survey. One key issue in this step concerns what kinds of response scales to use. It is possible to collect multiple kinds of information about the tasks. For example, it may be important to know if a worker performs the task as part of his or her job. Other potentially important information may involve how much time a worker spends on each task, how difficult the task is to perform, how frequently the task is performed, how critical or important the task is to job success, the consequences of performing the task incorrectly, and whether one needs to be able to perform the task when one starts the job (or whether it can be learned on the job). The choice of response scale(s) should be dictated by the purpose of the job analysis and the conclusions one hopes to reach. It is important to realize, however, that there is often considerable overlap between different response scales and that it is fairly easy to overload respondents with multiple, similar response scales.

The third step involves administering a job analysis survey to collect quantitative data. Choices that arise during administration include whether to use a paper-and-pencil or Web-based (or computerized)

survey and who should complete it. The choice of paper-and-pencil versus Web-based survey should be driven largely by the capability of the survey designers and the familiarity of the potential respondents with the different methods. The choice of who should complete the survey is slightly more complex. It is important to make sure that whoever completes the survey has adequate knowledge of the job in question. As such, individuals who have been working on the job for a short period of time are often excluded (or at least their data is not used when conducting analyses). It is often a good idea to collect data from both workers and supervisors because of their different perspectives on the job. It is often best to sample widely to collect as representative a sample as possible. Regardless of who completes the job analysis survey, demographic information should be collected (e.g., age, work experience, gender, education, ethnicity) so that the sample can be described and the data can be analyzed for potential differences among demographic groups.

The fourth step involves summarizing the data and developing a report. There are many ways in which task data can be summarized. Means and standard deviations are typically reported for each task. It is sometimes helpful to also report means and standard deviations for all the tasks that a particular duty comprises. In addition, it can be useful for those who are less familiar with statistics to report the percentage of respondents responding in each response category or the percentage of respondents responding above a particular predefined level (e.g., percentage of respondents who indicate a task is “important” or “very important”). In addition, depending on the application, it might be useful to report data divided by demographic group, location, or other meaningful grouping.

WORKER-ORIENTED METHODS

Several worker-oriented methods have been developed, including the Position Analysis Questionnaire (PAQ), the job element method, and the ability requirements scales. The PAQ has been the most researched and implemented worker-oriented method.

Position Analysis Questionnaire

The PAQ is a worker-oriented method that focuses on the worker behaviors that are involved in work activities. The PAQ can be used across any type of job (in contrast to task surveys). One advantage of the

PAQ is that it can be used to examine the similarities and differences among multiple jobs.

The PAQ contains 187 items assessing worker activities and work context variables (it also includes 7 items assessing pay). It has six major divisions, which include information input (where and how a worker gets needed information), mental processes (what decision-making, reasoning, and other cognitive activities are involved on the job), work output (the physical activities and tools/equipment used), relationships with other persons (the nature of interpersonal relationships required in the job), job context (the physical and social context of the job), and other job characteristics (anything else not covered in the major divisions). Within each of these major dimensions are more specific work activities, work conditions, or job characteristics.

The PAQ uses six response scales to gather data on the different items (only one scale applies to a particular item). The response scales (with their scale anchors) are as follows: (a) extent of use (nominal/very infrequent to very substantial); (b) importance to job (very minor to extreme); (c) amount of time (less than a tenth of time to almost continually); (d) possibility of occurrence (very limited to high); (e) applicability (does not apply or does apply); and (f) special scales, which are specific to a particular item.

The PAQ is best used by trained analysts because of the relatively high reading level and complexity of some aspects of the questionnaire. Typically, use of the PAQ begins with an analyst observing several workers as they perform the tasks of the job. Then the job analyst interviews workers and completes the PAQ. The analyst uses the information gathered in the interview and observed on the job to decide how to rate the job on the PAQ items. The complete forms are then scored by computer, and summary results are provided.

A large amount of research has been conducted on the PAQ since its introduction in the 1960s. Despite some criticisms, this research has generally shown the PAQ to produce reliable and valid ratings on jobs. Convergence across job analysts has been good, and the PAQ dimension scores have been shown to be related to compensation and worker ability levels.

HYBRID METHODS

Hybrid methods use elements of both work- and worker-oriented job analyses. Examples include the Occupational Information Network, the combined job

analysis method, and the Multimethod Job Design Questionnaire. The Occupational Information Network (or O*NET) is the U.S. Department of Labor's replacement for the Dictionary of Occupational Titles (DOT). As such, in many respects it represents the future of job analysis.

Occupational Information Network (O*NET)

As a result of changes in the nature of the workplace, the U.S. Department of Labor decided to replace the task-based DOT with a more modern and flexible job analysis system. The O*NET was designed with several features in mind: (a) the inclusion of multiple descriptors or content domains to capture the range of ways in which work can be described, (b) the development of cross-job descriptors to enable comparisons between different jobs, and (c) the use of a taxonomic approach to occupational classification to enable exhaustive coverage within a content domain. Using these principles, a content model was developed that identified six content domains and specific categories within each domain.

The first domain includes those *worker characteristics* that are thought to be enduring individual attributes that influence the capacities workers can develop, as well as the willingness of workers to engage in certain kinds of activities. This domain includes abilities, occupational values and interests, and work styles (or personality characteristics). The second domain includes *worker requirements*, which are general attributes that are developed through education and experience and thus are more amenable to change than worker characteristics. This domain includes knowledge, skills, and education. The third domain includes the *occupational requirements* that represent descriptors of the work itself instead of descriptors of the worker. This domain includes generalized work activities, work context, and organizational context.

The fourth domain includes those *experience requirements* that reflect the types and quantities of experience required in specific occupations, including worker experience in other jobs, job-related training, on-the-job training, and licensure or certification requirements. The fifth domain includes individual *occupation characteristics*, which reflects three aspects of the labor market: labor demand, labor supply, and other labor market information. The sixth domain includes *occupation-specific requirements*, and it

focuses on information that is unique to a particular job, including occupation-specific skills and knowledge, tasks and duties, and machines, tools, and equipment. Because this information is unique to a particular job, this domain differs from the other five domains.

The O*NET uses different response scales, depending on the domain. For example, for abilities, data is collected on the level and importance of a particular ability to the job. For work context, on the other hand, the frequency with which a particular contextual feature is present is measured. Research has shown relatively strong relationships between different response scales for the same descriptor, suggesting redundancy in the scales. In contrast to the analyst-derived ratings of the Dictionary of Occupational Titles (DOT), O*NET relies on the judgments of the workers themselves. Because the O*NET is new, there is less information on the reliability and validity of the various domain descriptors, although initial results suggest the ratings are reliable.

The O*NET differs from previous job analysis methods in several ways. First, it focuses on occupations as opposed to jobs. In some instances occupations are the same as jobs, and in other instances multiple jobs would be combined under a single occupational title. For example, the DOT summarized information on more than 12,000 jobs; the O*NET includes roughly 1,000 occupations. Although some of the 12,000 job titles in the DOT are either redundant or obsolete, it is not clear that the dramatic reduction in occupational titles will meet all the needs of potential users of O*NET. Second, it combines a wider range of data that resides at many levels of analysis. For example, O*NET collects information on the economic, organizational, job, and individual levels. One of the challenges of this wide array of data, however, is that it is not clear that all of these levels make sense at the occupational level. Third, the O*NET is an Internet-based system that is accessible by any potential user. In fact, there is a Web site (<http://www.onetcenter.org/>) where one can access the O*NET surveys or database. It is even possible to download the latest version of the database and perform additional analyses. Thus, O*NET represents an excellent starting point when conducting a job analysis study.

—Frederick P. Morgeson

See also Job Analysis; Job Description; Occupational Information Network (O*NET)

FURTHER READING

- Bownas, D. A., & Bernardin, H. J. (1988). Critical incident technique. In S. Gael (Ed.), *The job analysis handbook for business, industry, and government* (Vol. 2, pp. 1120–1137). New York: Wiley.
- Brannick, M. T., & Levine, E. L. (2002). *Job analysis: Methods, research, and applications for human resource management in the new millennium*. Thousand Oaks, CA: Sage.
- Campion, M. A. (1988). Interdisciplinary approaches to job design: A constructive replication with extensions. *Journal of Applied Psychology*, 73, 467–481.
- Fine, S. A., & Cronshaw, S. F. (1999). *Functional job analysis: A foundation for human resources management*. Mahwah, NJ: Lawrence Erlbaum.
- Fleishman, E. A., & Mumford, M. D. (1988). Ability requirements scales. In S. Gael (Ed.), *The job analysis handbook for business, industry, and government* (Vol. 2, pp. 917–935). New York: Wiley.
- Peterson, N. G., Mumford, M. D., Borman, W. C., Jeanneret, P. R., & Fleishman, E. A. (1999). *An occupational information system for the 21st century: The development of O*NET*. Washington, DC: American Psychological Association.
- Peterson, N. G., Mumford, M. D., Borman, W. C., Jeanneret, P. R., Fleishman, E. A., & Campion, M. A., et al. (2001). Understanding work using the occupational information network (O*NET): Implications for practice and research. *Personnel Psychology*, 54, 451–492.
- Sackett, P. R., & Laczko, R. M. (2003). Job and work analysis. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 21–37). New York: Wiley.

JOB CHARACTERISTICS THEORY

The primary objectives of job characteristics theory (JCT) are to explain how properties of the organizational tasks people perform affect their work attitudes and behavior, and to identify the conditions under which these effects are likely to be strongest. The most recent version of the theory is shown in Figure 1. As shown in the figure, the theory posits that five core characteristics of the work itself affect a variety of personal and work outcomes via their effects on three psychological states of employees. In addition, the theory argues that these core characteristics have their strongest effects when employees score high on three

individual conditions: growth need strength, context satisfaction, and knowledge and skill.

The conceptual core of the theory is the set of three psychological states that mediate between job attributes and outcomes. They are as follows:

- *Experienced meaningfulness*. The degree to which the jobholder experiences the work as inherently meaningful, as something that counts in his or her own system of values.
- *Experienced responsibility*. The degree to which the jobholder feels personally accountable and responsible for the results of the work he or she does.
- *Knowledge of results*. The degree to which the jobholder has confident knowledge about how well he or she is performing.

Job characteristics theory posits that the simultaneous presence of these three psychological states results in a number of favorable personal and work outcomes. Specifically, the jobholder should (a) be internally motivated at work (i.e., feel good when performing well, and feel bad or unhappy when performing poorly), (b) be satisfied both with the opportunities for personal growth and development at work and with the job in general, and (c) perform effectively at work (i.e., produce work that is high in both quantity and quality). However, if one or more of the psychological states is absent or at very low level, fewer of these desirable outcomes should emerge.

The three psychological states are internal to individuals and therefore do not represent properties of the work itself that might be changed or redesigned. Job characteristics theory identifies five characteristics of jobs that, when present at high levels, increase the chances that a jobholder will experience the three psychological states and, through them, shape the personal and work outcomes. The specific job characteristics that are expected to most strongly influence each of the psychological states are (a) skill variety, (b) task identity, (c) task significance, (d) autonomy, and (e) feedback. These characteristics are described in the following paragraphs.

Experienced meaningfulness is shaped by three job characteristics: skill variety, task identity, and task significance. *Skill variety* is the degree to which carrying out the work of the job requires a number of activities, which involve the use of a number of skills and talents of the jobholder. Work that stretches one's skills and abilities invariably is experienced as more meaningful than work that is simple and routine. *Task Identity* is the

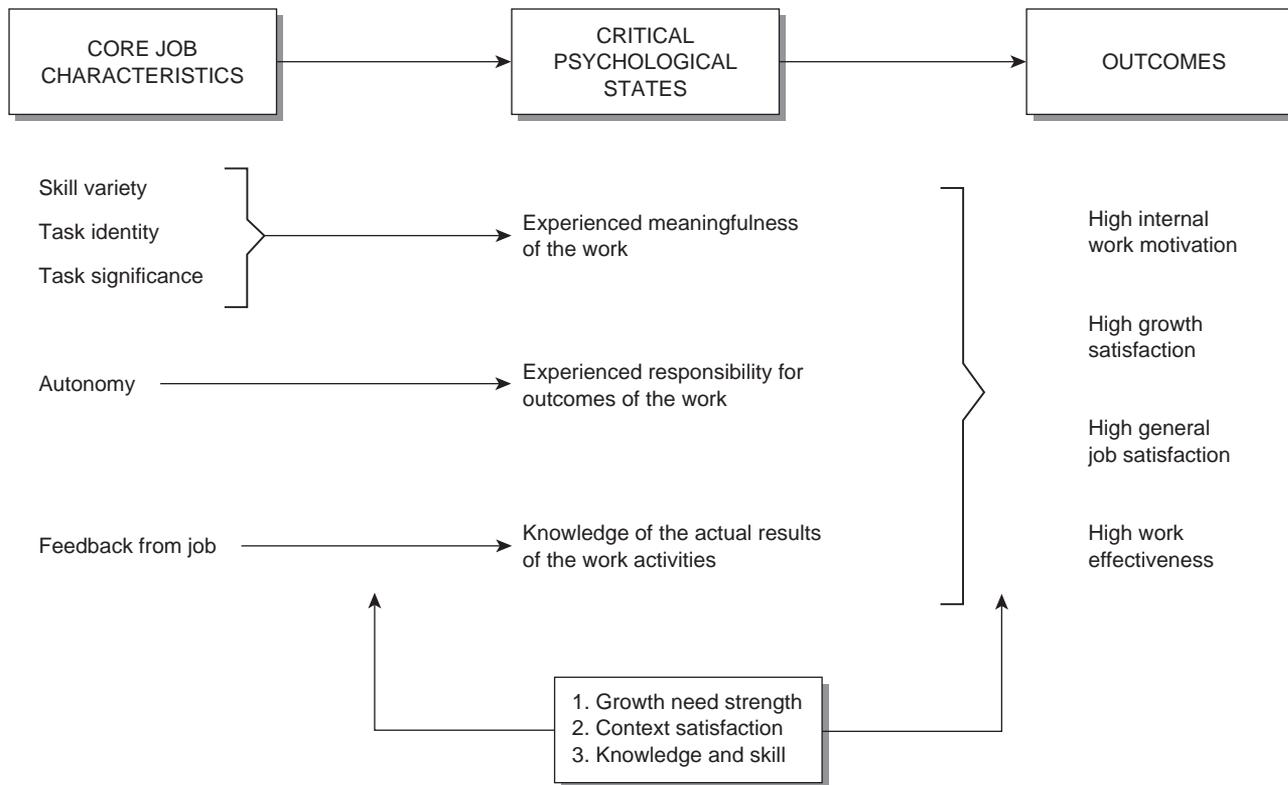


Figure 1 Job Characteristics Theory

Source: Hackman and Oldham, *Work Redesign* (1980, p. 90). Copyright © 1980 by Pearson Education. Reprinted by permission of Pearson Education, Upper Saddle River, New Jersey.

degree to which the job requires completion of a whole and identifiable piece of work—doing a job from beginning to end with a visible outcome. Putting together an entire product or providing a complete unit of service is inherently more meaningful than being responsible for only a small part of the work. *Task significance* is the degree to which the work has a substantial impact on the lives of other people, whether in the immediate organization or in the external environment. An activity that is consequential for the psychological or physical well-being of others is typically experienced as more meaningful than is work that makes little difference to anyone else. These three job characteristics are expected to be additive, in that meaningfulness is enhanced to the extent that any or all of them are present.

Experienced responsibility is shaped by the amount of autonomy the job provides. *Autonomy* is the degree to which the work is structured to provide the employee with substantial freedom, independence, and discretion in scheduling the work and in determining the

procedures to be used in carrying it out. For high-autonomy jobs, the outcomes of the work depend on the jobholder’s own efforts, initiatives, and decisions, rather than on the instructions of a manager or a manual of job procedures. In such circumstances, the jobholder feels greater personal responsibility for his or her own successes and failures at work.

Knowledge of results is shaped by *feedback* from the job—that is, the degree to which carrying out job-specified work activities provides the jobholder with direct and clear information about the effectiveness of his or her performance. When someone receives information about his or her performance from the work itself (e.g., when a salesperson closes a deal and receives payment from a customer), that feedback is direct and immediate and therefore contributes substantially to his or her overall knowledge of results about work outcomes.

The degree to which a job has an overall high standing on the five characteristics described here, and therefore is likely to prompt favorable personal

and work outcomes, is summarized by an index called the Motivating Potential Score (MPS). To engender all three of the psychological states, a job must have a high standing on one or more of the three characteristics that boost meaningfulness and be high on both autonomy and feedback, as well. The MPS score indicates the degree to which that is the case through the following formula:

$$\text{MPS} = (\text{skill variety} + \text{task identity} + \text{task significance})/3 \times \text{autonomy} \times \text{feedback}$$

Thus, a low score on either autonomy or feedback will substantially reduce a job's MPS, because both experienced responsibility and knowledge of results must be present for personal and work outcomes to be high, and those two job characteristics produce the corresponding two psychological states. Conversely, a low score on one of the three job characteristics expected to foster experienced meaningfulness may not necessarily compromise a job's MPS, because the absence of any one of those three attributes can be compensated for by the strong presence of the others.

As shown in Figure 1, the theory identifies three individual conditions (i.e., growth need strength, context satisfaction, and knowledge and skill) as moderators of the impact of the core job characteristics on an employee's responses. Jobholders are expected to respond most positively to jobs high in motivating potential when they score high on all three of these individual conditions.

Growth need strength (GNS) is the strength of an individual's need for personal accomplishment, learning, and development at work. The theory posits that jobholders who have strong growth needs value the opportunities for accomplishment and self-direction provided by jobs high on the five core characteristics and, as a result, respond positively to them. Low-GNS jobholders, by contrast, place less value on the opportunities provided by high-MPS jobs and therefore respond less positively to them.

Context satisfaction refers to the extent to which employees are well satisfied with major elements of the work context (e.g., pay, job security, coworkers, and managers). When individuals are satisfied with the context of their work, they are likely to focus their attention on the properties of a job high in motivating potential. As a result, they should appreciate and respond positively to those properties. However, dissatisfaction with the context may distract employees'

attention from the core job characteristics and orient their energy instead toward coping with the experienced problems.

Knowledge and skill refers to the extent to which the employee has the skills and competencies necessary to complete a job high on the five core characteristics. When individuals have such skills, they have the potential to successfully complete jobs high in motivating potential and, therefore, to reap the personal and psychological rewards provided by those jobs. By contrast, when employees are missing these skills and competencies, they are likely to experience a good deal of frustration and unhappiness on jobs high in motivating potential, precisely because these jobs offer psychological rewards for effective performance, but the employees are unable to perform well enough to obtain these rewards.

Many of the empirical tests of JCT have used the Job Diagnostic Survey (JDS), a research instrument that was developed to assess many of the constructs specified by the theory. Specifically, the JDS assesses jobholders' perceptions of the five core job characteristics, their experienced psychological states, their GNS, and affective outcomes including internal motivation, growth and job satisfaction, and satisfaction with several aspects of the work context. The JDS does not assess jobholder work effectiveness or knowledge and skill.

RESULTS OF RESEARCH

More than 200 studies have used the JDS to test all or portions of JCT, and the results of these studies provide some support for many of the major tenets of the theory. In particular, results suggest that the higher the job is on each of the five core job characteristics, the higher the jobholder's growth and job satisfaction, internal motivation, and work effectiveness. Also, results from numerous organizational change projects suggest that when jobs are boosted on the five core characteristics, improvements in jobholder satisfaction and work effectiveness result. For example, these studies show that changing the jobs so that employees receive more direct feedback from the work itself and have more personal freedom and independence at work typically results in higher levels of work effectiveness and job satisfaction.

Research also shows that the core job characteristics affect the personal and work outcomes via their effects on the three psychological states specified by

the model. That is, the presence of the five job characteristics increases the experience of the three psychological states, which then positively influence the jobholder's satisfaction, internal work motivation, and work effectiveness. Finally, there is some evidence that individuals respond most positively to jobs high on the core characteristics when they have high GNS. Specifically, employees who work on jobs high in motivating potential tend to be more effective and internally motivated when they have strong needs for personal accomplishment and development.

Although research supports many of the basic tenets of JCT, other parts of the theory have received relatively little research support. One of these involves the summary index of the overall motivating potential of jobs, MPS. Previous studies suggested that the MPS index is *not* more predictive of outcomes than a simpler index computed by merely adding up scores on the five core job characteristics that have been derived from the JDS. Although the MPS index does make conceptual sense, it is likely that these weak results are a function of the psychometric properties of the JDS, which do not allow for the multiplication of variables specified in the formula for the MPS score.

Another element of JCT that has received little support involves the proposed moderating effect of context satisfaction. Although some studies show that individuals respond more positively to jobs high in motivating potential when they are satisfied with the context, others indicate that satisfaction with the context has little to do with their reactions to the core job characteristics. Given these results, the role of context satisfaction in JCT remains unclear. Finally, no previous studies have examined the effects of jobholders' knowledge and skill on their reactions to the core characteristics, and therefore it is not yet clear if individuals respond more positively to the job characteristics when they have high levels of knowledge and skill.

More research is now needed that investigates the effects of an individual's skills and context satisfaction on the relation between the job characteristics and the personal and work outcomes. Because JCT posits that employees respond most positively to the core job characteristics when GNS, context satisfaction, and knowledge and skill are *all* present at high levels, a reasonable start might be to directly test this argument by including in a study measures of all of these conditions in addition to measures of the job characteristics and the personal and work outcomes. Results of

such a study could provide important information about the conditions that should be present if jobs high in motivating potential are to have positive effects on employees' personal and work outcomes.

—Greg R. Oldham

See also Empowerment; Job Design; Person–Job Fit

FURTHER READING

- Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology, 40*, 287–322.
- Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology, 60*, 159–170.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16*, 250–279.
- Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison-Wesley.
- Kopelman, R. E. (1985). Job redesign and productivity: A review of the evidence. *National Productivity Review, 4*, 237–255.
- Oldham, G. R. (1996). Job design. In C. Cooper & I. Robertson (Eds.), *International review of industrial and organizational psychology* (Vol. 11, pp. 33–60). New York: Wiley.
- Oldham, G. R., & Hackman, J. R. (2005). How job characteristics theory happened. In K. Smith & M. Hitt (Eds.), *Great minds in management: The process of theory development* (pp. 151–170). New York: Oxford University Press.
- Oldham, G. R., Hackman, J. R., & Pearce, J. L. (1976). Conditions under which employees respond positively to enriched work. *Journal of Applied Psychology, 61*, 395–403.

JOB CHOICE

The topic of job choice subsumes all the activities involved in the process of deciding where to work. The concept underlying job choice research is that individuals are motivated to find work consistent with their preferences and goals. Job seekers engage in a goal-directed search process and compare each potential job relative to alternatives. The job choice literature has been heavily informed by the literature on recruiting and person–environment fit. The unique contribution of research on job choice is the focus on

the individual job seeker and his or her information acquisition and decision-making strategy.

EXPECTANCY AND JOB CHOICE

Most job-choice models start from some variant of expectancy theory. Job seekers begin from a set of alternative jobs and then evaluate the attractiveness of each alternative based on key attributes. Examples of relevant attributes include instrumental attributes such as compensation and working conditions, affective or interpersonal attributes such as relationships with coworkers, and cognitive attributes such as intrinsic interest in job tasks and achievement on the job. Each job's attractiveness is based on valence, instrumentality, and expectancy:

- *Valence*: the personal importance weights (e.g., valences) each job seeker attaches to each attribute that a job might possess. Job seekers vary in the emphasis they put on each attribute, so some job seekers will be most interested in getting a well-paying job, whereas others will be comparatively more interested in a job with a good social environment, and others will be more interested in work that provides a sense of accomplishment.
- *Instrumentality*: the probability of acquiring each of the attributes for each job. Attributes are represented as probabilities, because although job seekers have beliefs about the likely attributes of each job, these attributes are not known with certainty. A job seeker who actually knows someone who works at a company will have more confidence in his or her estimates of the job's attributes than a job seeker who knows about a company only through a recruiter. The job seeker with the inside connection will therefore place a higher instrumentality on the job attributes than will the job seeker who has only recruiter information.
- *Expectancy*: job seekers' evaluations of their ability to obtain a job and perform well if hired. Self-efficacy or self-esteem increase the expectancy related to each job's positive attributes, whereas the perceived difficulty of obtaining a job during the selection phase and difficulty performing well once on the job decrease expectancy.

The final decision process is represented by the underlying triple product term of expectancy \times instrumentality \times valence. The higher the value of this product term, the more likely it is that a job seeker will pursue a given job.

The expectancy model of job choice has fared well as a predictive device, although its accuracy is far from perfect. Expectancy's strictly rational perspective on job choice and individual outcomes is misleading if taken in isolation, given research demonstrating the importance of heuristics, moods, and emotions in decision making. Prospect theory suggests that individuals are risk averse when it comes to positive events and risk seeking when it comes to negative events. For example, prospect theory suggests that decision makers will prefer a job with high probability of a few positive elements and a low chance of several negative elements relative to a job with low probability of several positive elements and a high chance of a few negative elements, even if a strictly linear model such as expectancy would anticipate that the jobs are otherwise equivalent. Moreover, other decision-making research suggests that the weighting of job attributes is not a mathematical combination of all relevant attributes but rather is a more affect-driven process centered on a small number of salient attributes.

Expectancy models raise a number of informative questions about job attributes and individual valences but do not provide a system for understanding the processes underlying the assessment of jobs. Factors such as the intensity of job search, contextual limitations on job choice activities, and even the social connections at work must be addressed from other theoretical perspectives. In addition, expectancy theory formulations leave unanswered questions about how job seekers develop beliefs about the attributes of each job option. By adding behavioral decision making and process-oriented versions of job search to the expectancy formulation, a more complex picture of choice is emerging that uses the decision maker's active participation in the process as a central theme.

DEVELOPING A CHOICE SET

Job seekers actively attempt to improve their match with their work environment during the job search process. Theoretically, those with more information will be better able to assess the extent to which they will match with their new positions. Therefore, the process of searching for a job is a major component of the job choice literature.

A job search process is initiated when an individual determines that his or her current employment situation is not meeting key employment goals. Thus, the

first choice that an individual makes in the job choice process is that a new job is needed. Meta-analytic research has demonstrated that individuals with higher financial need and employment commitment engage in more intense job search, which is consistent with the concept that these individuals place greater valence on a new job relative to those with less financial need or lower employment commitment. Evidence shows that those higher in self-esteem and self-efficacy engage in more active job search behavior, which is consistent with the concept that such individuals have greater expectancy of finding and obtaining a new job than do those with less self-confidence.

Job seekers use several techniques to find information regarding jobs and create their estimates of job attributes and the associated probabilities of obtaining each attribute. Evidence suggests that for most individuals, a social network is critical to the process of job search. Many of these networks are informal, including word of mouth provided by family and friends. Such sources are deemed more trustworthy in persuasion research and therefore produce descriptions of job features that have higher instrumentality. An important secondary source of information used by job seekers is formal organizational announcements regarding open positions. Because the organization is believed to have a vested interest in increasing application activity, job seekers attach lower instrumentality to these promised rewards. Job seekers also make inferences regarding culture based on the image an organization projects through product advertising and media coverage in professional magazines. Some organizations, cognizant of the importance of image, have begun to carefully craft an employment "brand" for themselves using techniques from marketing. Many of these techniques are designed to supplement rational information regarding options with appealing emotional images regarding alternatives.

VALENCE OF OUTCOMES: JOB ATTRIBUTES

Once individuals are aware of potential jobs, the question of how they evaluate job attributes arises. Attraction to an organization is at least partially determined by the set of recruiting activities described elsewhere in this encyclopedia. But attraction is also shaped by factors that are more directly related to the rewards that come with a job, characteristics offered by the work, and organizational reputation. Certainly, some job preferences differ from person to person, but

research also suggests that some job characteristics have high valence for nearly all job seekers.

Research in the area of labor economics suggests, not surprisingly, that most voluntary turnover involves a change from a lower paying job to a higher paying job, which demonstrates that most individuals do place a high valence on monetary compensation. Simulation studies, in which respondents indicate which of several potential alternative positions is most attractive, support the central importance of compensation in job choice, as well. Among managerial employees, the perceptions that a job offers opportunity for advancement, challenging or interesting work, positive organizational climate, and benefits are also rated as highly valenced features. Advancement usually entails higher compensation, further underscoring the importance of monetary rewards in the job choice process. Advancement also provides the promise of achievement and interesting new work tasks. There is less information regarding the specific job characteristics preferred by other populations, including professionals, service workers, and blue-collar workers.

Another factor that might influence an individual's decision to apply for or accept a job offer is the reputation of the employing organization. The publication of guides to the best companies to work for in America and the like suggest that there is a keen interest in the corporate culture from potential employees. Such guides often describe the social aspects of work and suggest that valence is attached to more than just money. In terms of employment reputation, a perception of corporate concern for employee well-being is associated with job choice intentions among potential applicants. One related possibility is that firms can attract applicants with a progressive stance on certain social issues. Although there is limited evidence on this issue, there is some data to suggest that applicants do take elements of an organization's social responsibility into account.

DIFFERENT VALENCES: PERSONALITY AND JOB PREFERENCES

One major implication of studying the active decision maker is that individual differences should be considered. Whereas expectancy theory suggests individuals have different valences, matching models take this proposition a step further and investigate *why* different job seekers prefer different jobs. Matching models propose that individuals bring certain productive

characteristics or “supplies,” including their skills and abilities, as well as their preferences or “demands” for work environments with them into a new job. Organizations similarly have work environments or “supplies” to provide to workers, as well as job requirements or “demands” for employees. A match occurs when the supplies of workers match the demands of organizations and the demands of workers match the supplies of organizations.

The dominant paradigm in the literature on personality and job preferences comes from the program of research on the realistic–investigative–artistic–social–enterprising–conventional (RIASEC) circumplex. The basic propositions of the RIASEC model are that there are stable differences in preferences and abilities related to work characteristics, and that individuals who are in jobs that match their preferences will be more satisfied. Job preferences using the RIASEC model are measured by having individuals read descriptions of major job tasks from a variety of occupations and indicate which sound appealing to them and which they can do well. Each individual is given a profile consisting of his or her most suitable occupational types. Basic definitions for tasks found under each of the six types are as follows:

- *Realistic*: engaging in physical activities, including working with machines, objects, or related tools
- *Investigative*: solving problems, gathering information, analyzing data, and other scientific or research-related activities
- *Artistic*: creating new ideas, using creativity, and producing innovative solutions
- *Social*: working closely with others in providing information, collaborating, or directly providing assistance to customers, clients, or patients
- *Enterprising*: persuading others, leading groups, and managing organizational resources
- *Conventional*: completing detail-oriented tasks with a clear system for evaluating outcomes, or with directions provided by others

Jobs call on varying levels of each of these activities. For example, work as an industrial/organizational psychologist is highest on the investigative dimension, whereas work as a business executive is highest on the enterprising dimension. The RIASEC inventories are used frequently by vocational counselors as a tool to aid job seekers.

The RIASEC types are stable over time and are related to other measures of personality. Individuals

high in artistic and investigative interests tend to also be high in openness to experience. Individuals high in enterprising and social interests tend to be more extroverted. The relationships of conscientiousness, agreeableness, and emotional stability with any of the RIASEC dimensions are more tenuous. Despite partial overlap with personality, RIASEC dimensions are superior predictors of job choice. For example, although RIASEC dimensions rated at graduation from school were consistently predictive of employment in commensurate jobs in one study (e.g., realistic individuals tend to hold jobs higher in realism), other elements of the five-factor model explained almost no variance in job choices after RIASEC scores were taken into account.

Although the RIASEC model has investigated fit between job seekers and work characteristics, other research has investigated the fit between job seekers and organizational culture. Much of the research on organizational culture and fit has been assessed through the use of a forced-distribution preference inventory called the Organizational Culture Profile (OCP). Job seekers are asked to rank potential organizational attributes on a list from most preferred to least preferred, and then individuals familiar with the organization sort these same attributes from most descriptive of the organization’s culture to least descriptive of the organization’s culture. A match occurs when the job seeker’s desired culture is commensurate with the organization’s extant culture. Research across several studies has shown that even after statistically controlling for attractiveness of job attributes, a match between individual preferences and organizational culture predicts job choice intentions.

PUTTING IT ALL TOGETHER: DECISION PROCESS STUDIES

There are comparatively few studies that currently address the process by which individuals make job choice decisions, but the research that does exist provides some insights into the manner in which individuals evaluate evidence for each job. Consistent with the literature on persuasion and decision making, the emphasis here is on how individual job seekers come to believe that jobs have certain attributes and on how they evaluate the relevance of sources of information differently.

Research on decision-making processes under the rubric of image theory has suggested that it is not

cognitively efficient to consider all possible alternatives. Instead, decision makers are likely to engage in a multiple-stage evaluation of options. The first stage is a screening process, wherein decision makers quickly scan through the critical features of alternatives and eliminate those that fail to meet certain minimum standards. After screening out options, the second stage is selecting the most attractive options from those that remain. The selection process is much more deliberative and entails many of the elements of a more classic expectancy formulation. Another important component of image theory is that decision makers do not consider their options most of the time, but act out of habit by following cognitive scripts. This means that many individuals do not make routine choices about all available jobs, but consider jobs based on only their most familiar options.

One conclusion that can be reached is that individuals place a heavy weight on negative information in the recruiting process. In general, signs of trouble or difficulty regarding a potential job have a stronger impact on job-seeker attitudes toward an organization than does positive information about a job. The tendency for job seekers to prefer a job presented primarily in positive terms to a job presented in partially negative terms is a potential avenue for investigation of mood in job choice, although there is not a great deal of evidence on this proposition. The differential weighting of negative and positive job elements, and aversion to taking an option with negative characteristics, is consistent with prospect theory.

Another important component of the job choice process is the development of inferences regarding an organization's policies and practices from distal sources of information. It has been noted previously that many individuals draw inferences regarding an organization's policies and practices from discussions with family and friends. Without these interpersonal contacts, applicants try to draw inferences from their interactions with individuals they encounter during the recruiting and hiring process. Many of the key findings are consistent with the literature on persuasion. Applicants generally make more positive inferences about an organization when the messages are delivered by a sympathetic or attractive recruiter who provides a positive message in an informal tone. Other studies have shown that interviewers who make use of marketing and sales skills are more effective.

Decision process studies do suggest that recruiter characteristics influence inferences about the

organization, but almost all studies suggest that job attributes have a much stronger influence on the likelihood of job acceptance than do recruiting activities. Results typically show that recruitment activities are significantly related to reactions only at the initial interview stage. Job attributes, on the other hand, are significant predictors of reactions in all subsequent stages. These results suggest that the importance of the job choice is too great for employees to make decisions simply on the basis of the person conducting an interview unless the interviewer's characteristics are translated into a perception of the job's characteristics. This tendency to use a rational approach for important decisions when feasible is consistent with the literature on persuasion. However, it is also possible that the affective tone generated by organizational efforts influences job choices in ways that have not yet been investigated.

SUMMARY

Research on job choice provides a unique window on how individuals come to select a specific organization as their place of work. The key processes underlying job choice research include a search for job alternatives, evaluation of job attributes, and then a final selection process. Further knowledge of the process of job choice will be of use for individuals trying to select their ideal job as well as for organizations trying to design messages that will appeal to an appropriate audience of job seekers.

—John D. Kammeyer-Mueller

See also Career Development; Job Search; Realistic Job Preview; Recruitment

FURTHER READING

- Barber, A. E. (1998). *Recruiting employees: Individual and organizational perspectives*. Thousand Oaks, CA: Sage.
- Barrick, M. R., Mount, M. K., & Gupta, R. (2003). Meta-analysis of the relationship between the five-factor model of personality and Holland's occupational types. *Personnel Psychology, 56*, 45–74.
- Beach, L. R. (1990). *Image theory: Decision making in personal and organizational contexts*. New York: Wiley.
- Cable, D. M., & Turban, D. B. (2001). Establishing the dimensions, sources, and value of job seekers' employer knowledge during recruitment. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (Vol. 20, pp. 115–163). Greenwich, CT: JAI Press.

- Highhouse, S., & Hoffman, J. R. (2001). Organizational attraction and job choice. *International Review of Industrial and Organizational Psychology*, 16, 37–64.
- Kanfer, R., Wanberg, C. R., & Kantrowitz, T. M. (2001). Job search and employment: A personality-motivational analysis and meta-analytic review. *Journal of Applied Psychology*, 86, 837–855.
- Osborn, D. P. (1990). A reexamination of the organizational choice process. *Journal of Vocational Behavior*, 36, 45–60.
- Sauermann, H. (2005). Vocational choice: A decision making perspective. *Journal of Vocational Behavior*, 66, 273–303.
- Soelberg, P. O. (1967). Unprogrammed decision-making. *Industrial Management Review*, 8, 19–29.
- Stevens, C. K. (1998). Image theory and career-related decisions: Finding and selecting occupations and jobs. In L. R. Beach (Ed.), *Image theory: Theoretical and empirical foundations* (pp. 227–240). Mahwah, NJ: Lawrence Erlbaum.
- Tom, V. R. (1971). The role of personality and organizational images in the recruiting process. *Organizational Behavior and Human Performance*, 6, 573–592.
- Vroom, V. H. (1966). Organizational choice: A study of pre- and post-decision processes. *Organizational Behavior and Human Performance*, 1, 212–225.

JOB CONTROL

See EMPOWERMENT

JOB DESCRIPTION

A *job description* is a written summary of what is done on a job, how the work is accomplished, and why the work is performed. The purpose of a job description is to convey the essential features of a job to a person not familiar with the job in question. Job descriptions are the most common output of a job analysis and are used for a variety of purposes, including recruitment and selection, training and development, performance appraisal, compensation, and job design.

Distinctions have been made between a job description and a position description. A *position description* summarizes what one person in an organization does, whereas a job description summarizes a number of related positions. A position description is typically used when an individual performs a relatively unique

set of activities, and a job description is used when there is enough commonality across positions to justify treating multiple positions as a single job.

There is great variability in the structure and length of job descriptions. The job descriptions provided in the *Dictionary of Occupational Titles* (DOT) are each a single paragraph in length and primarily describe the key tasks performed in the job. Other job descriptions vary from one to three pages and contain considerably more information. There are three essential parts to a job description. First, there should be some information that uniquely identifies the job. At a minimum, this would include a job title but can also include identifying details such as the department, location of the job, job code, pay range, grade level, and reporting relationships. Second, there should be a job summary that conveys the essential features of the job and what a worker does. Included in the job summary would be the purpose of the job. Enough information should be provided in the job summary to enable it to be differentiated from other jobs.

Third, there should be a listing of essential duties or work activities of the job. This listing would cover the what, how, and why of the job. Describing what a worker does involves considering the physical and mental activities that are performed on the job. Physical activities include actions that involve observable physical effort. For example, workers might assemble, inspect, or remove parts in the manufacture of an automobile engine. Mental activities include actions that involve unobservable mental effort. For example, workers might judge, evaluate, plan, or compare the performance of a key supplier of raw materials to the organization. Describing how work is accomplished involves considering the methods or procedures used to perform key job duties. These can include tools, equipment, routines, checklists, or other work aids. Describing why a worker performs these specific activities reflects the overriding purpose or reasons the duties are performed. In other words, it is important to articulate the purpose of specific duties (given the overall purpose of the job) in the job description.

Finally, some job descriptions contain additional information depending on the particular application. This might include identification of key responsibilities (useful for job evaluation purposes), a listing of accountabilities (the major results for which the work is accountable), a description of the working conditions (e.g., temperature, noise), and the nature of social relationships at work. Last, some job descriptions

identify the major knowledge, skills, abilities, and other characteristics (KSAOs) needed to perform the major work activities. The summarization KSAOs needed in a job have been referred to as a *job specification* and are often viewed as distinct enough to be treated separately from the job description because they serve to identify what individual differences are needed to perform the major work activities of the job.

—Frederick P. Morgeson

See also Job Analysis; Job Analysis Methods

FURTHER READING

- Brannick, M. T., & Levine, E. L. (2002). *Job analysis: Methods, research, and applications for human resource management in the new millennium*. Thousand Oaks, CA: Sage.
- Gael, S. (1988). Job descriptions. In S. Gael (Ed.), *The job analysis handbook for business, industry, and government* (Vol. 1, pp. 71–89). New York: Wiley.
- McCormick, E. J. (1979). *Job analysis: Methods and applications*. New York: AMACOM.

JOB DESIGN

Job design has generated substantial theoretical and empirical interest in the past decades. The purpose of this entry is to describe and evaluate the most significant approaches to job design.

DESIGNING JOBS FOR INDIVIDUALS

Industrial Engineering

The first to undertake job design for individuals was Frederick W. Taylor, who developed the industrial engineering or *scientific management* approach in 1911. Taylor's approach dictated four specifications. First, work should be studied scientifically to identify the most efficient method for accomplishing tasks and allocating them among employees. Second, employee–job fit should be optimized, so that employees should be mentally and physically capable of performing their jobs but not be overqualified. Third, employee training should be based on the scientific analysis of the work and regularly monitored to ensure optimum performance. Finally, employees should be motivated with monetary bonuses.

Advocates of the industrial engineering approach suggested that it would produce several positive outcomes for organizations, including an increased pool of job applicants capable of performing highly specialized and simplified jobs and the centralization of resources. The wage-lowering effect of this large job applicant pool would in turn reduce training costs, and resource centrality would increase the overall efficiency and productivity within the organization. As a result, by the 1950s, most manufacturing jobs were designed according to the industrial engineering approach. Additional research, however, revealed that the approach led to a number of unintended negative consequences. These consequences included dissatisfaction with routine and standardized tasks, increased tardiness, reduced motivation and productivity, and sabotage of work equipment. Thus, the gains of the industrial engineering approach were often more than offset by its negative effects. The problems associated with the industrial engineering approach led to the development of alternative approaches to job design. These new approaches focused on designing work for high productivity without the psychological costs to the employee. We discuss several of these approaches below.

Motivator-Hygiene Theory

The motivator-hygiene theory (MHT), which was developed by Frederick Herzberg and his colleagues in the 1960s, represents a significant deviation from the industrial engineering approach. Central to the theory is the distinction between motivator and hygiene factors. *Motivator factors* are intrinsic to the work itself and include responsibility, achievement, recognition, and personal growth in competence. *Hygiene factors* are associated with the job context or work setting and include relationships with peers and subordinates, quality of supervision, base wage or salary, benefits, and job security. According to MHT, motivator factors increase workers' motivation and satisfaction on the job, and hygiene factors merely prevent job dissatisfaction. High employee motivation and performance can thus be achieved by enriching jobs so that they have high levels of motivator factors. A central component of job enrichment is *vertical loading*, which adds planning and evaluation duties to jobs to increase responsibility, complexity, and personal growth. Herzberg's theory has inspired a plethora of research and several successful change projects that support the contribution of motivator

factors to individual and organizational outcomes. His procedure for implementing job enrichment has also successfully guided many job redesign projects.

Nevertheless, MHT has several weaknesses. First, research has not always supported a clear distinction between motivator and hygiene factors. In particular, some job outcomes, such as pay raises, appear capable of serving as both hygiene and motivator factors. Second, the degree to which motivator factors are present in jobs is difficult to assess, given the lack of a suitable measurement technique or instrument for doing so. Finally, the theory fails to consider the impact of individual or cultural differences on motivator and hygiene factors.

Job Characteristics Model

The job characteristics model was developed by J. R. Hackman and G. R. Oldham in the 1980s as an attempt to overcome the shortcomings of MHT. Specifically, Hackman and Oldham proposed that five core job characteristics (skill variety, task identity, task significance, autonomy, and job feedback, each of which is defined below) affect three critical psychological states: experienced meaningfulness of work, experienced responsibility for work outcomes, and knowledge of work results. These three psychological states, in turn, positively contribute to personal and work outcomes, namely high intrinsic work motivation, job performance, job satisfaction, and reduced absenteeism and turnover. Finally, individual difference variables, including *growth need strength* (GNS; the desire for learning and personal accomplishment at work), knowledge and skills, and context satisfaction (satisfaction with supervisors, coworkers, income, and job security), moderate the relationships among job characteristics, psychological states, and personal/work outcomes.

The first of the five core job characteristics, *skill variety*, refers to the number of different skills needed to accomplish a job. *Task identity* focuses on whether the job requires completion of a whole, identifiable piece of work. *Task significance* refers to the job's impact on the lives of other people in the organization or on society at large. *Autonomy* refers to the employee's level of freedom, independence, and discretion in determining how and when to do his or her job. Finally, *job feedback* refers to the degree to which work activities provide the employee with direct and clear information about his or her job performance.

According to the model, employees will respond positively to job characteristics when they have high GNS, the requisite knowledge and skills, and high satisfaction with job context factors. To measure the model's variables and assess the model's validity, Hackman and Oldham developed the Job Diagnostic Survey (JDS). The results of more than 200 studies conducted on the model have generally supported the model's major premises. In particular, there is strong evidence for the expected relationships between job characteristics and employee affective reactions (job satisfaction, growth satisfaction, and internal motivation). There is also support for the associations between job characteristics and behavioral outcomes (performance and absenteeism), although the magnitude of these associations is weak. Last, research has generally supported the mediating role of the psychological states, although questions about the precise relationships between the job characteristics and the psychological states remain.

Future Prospects for the Job Characteristics Model

Increased globalization and the emergence of complex service- and knowledge-based sectors have led scholars and researchers to suggest modifications and extensions of the job characteristics model to improve its validity and usefulness. One shortcoming of the model is its focus on relatively few job characteristics. Other researchers have suggested an expanded model that includes (for example) a job dimension concerning opportunities for acquisition of new skills in an increasingly complex, diverse, changing, and uncertain work environment. The growing complexity of the work environment also suggests the need to include additional contingencies (moderators) in the model. Such contingencies can be classified into three levels: individual (e.g., interpersonal trust), group (e.g., norms), and organizational (e.g., interdependence, uncertainty). The physical environment may also serve as a contingency. Some studies have found that the effect of a job's design on individuals' responses is contingent on the spatial characteristics of the work unit, such as distance between workstations, number of workstation boundaries, density, and openness. Further research has also shown that chronic noise among industrial employees, even at a moderate level, tends to weaken or even reverse the effects of enriched (complex) jobs on affective (job

satisfaction), behavioral (absenteeism), and health-related (blood pressure) outcomes.

Two additional contingencies are time and culture. Like other motivation theories, the job characteristics model is largely nondynamic and fails to incorporate the construct of time into its premises. For example, jobs with low levels of job characteristics may still elicit high motivation and performance, if the jobholders view such jobs as temporary but necessary stepping-stones to future enriched jobs. Additionally, job characteristics and individual differences may not be independent of each other. For example, individuals with high GNS are more likely to attempt and succeed in further enriching their jobs. Thus, over time, jobs become better matched to the preferences of the jobholders.

Finally, globalization of the work environment necessitates the study and understanding of how different cultural backgrounds affect job characteristics. Thus we must take into account the importance of culture accommodation in job designs. For example, research has shown that empowerment (high autonomy) in India was associated with lower job satisfaction because of the lack of fit between the concept of empowerment and a culture that emphasizes hierarchy and status.

An Interdisciplinary Framework

A recent development in the job design area is the *interdisciplinary viewpoint*. This approach classifies previous job design approaches into four types—motivational, mechanistic, biological, and perceptual/motor—and argues that changes associated with each will result in different work outcomes. The motivational approach focuses on increasing the motivational aspects of jobs to enhance employees' motivation, satisfaction, and effectiveness. Next, the mechanistic approach focuses on human resource efficiency as the major component of efficient outcomes, such as improved staffing and low training costs. The third type, the biological approach, focuses on optimizing the physical environment to minimize employees' physical efforts, fatigue, aches, pains, and health complaints. Last, the physiological/motor approach aims to ensure that the job requirements or the physical characteristics of equipment in the workplace do not exceed people's cognitive capabilities, such as attention and concentration. In short, the approach

aims to reduce mental overload, fatigue, stress, and boredom, which in turn should reduce errors and accidents.

The interdisciplinary viewpoint considers both the benefits and costs of each job design approach. For example, the motivational approach focuses on higher job complexity, which increases employees' motivation and performance, but with the expense of increased staffing difficulty, higher training requirements and cost, higher error rates, and higher stress and mental overload. In contrast, the mechanistic approach focuses on reduced training time and lower likelihood of error, overload, and stress, but with the expense of lower job satisfaction and motivation. The biological approach focuses on reduced physical effort and fatigue, fewer health complaints, and higher job satisfaction, with the expense of higher financial costs associated with changes in equipment or the job environment. Finally, the perceptual/motor approach focuses on higher utilization levels and lower likelihood of errors, accidents, training time, and overload and stress, with the expense of lower job satisfaction and motivation.

According to this theoretical perspective, job design should optimize the cost/benefit tradeoffs of each design approach. The Multiple Job Design Questionnaire (MJDQ) was developed to assess employees' perceptions of the job elements related to each approach. Studies based on the MJDQ have provided some support for the interdisciplinary viewpoint, in that they confirm the predicted relationships between the approaches' job elements and the particular outcomes associated with those approaches. However, although the interdisciplinary viewpoint is both comprehensive and integrative, there is a need to better incorporate the four approaches into a theoretically coherent framework, as well as to take into account individual differences in reaction to the different design approaches.

DESIGNING JOBS FOR TEAMS

Quite often, the complexity of the work and the technology used require employees to work in teams. In principle, the job dimensions relevant to the design of individual jobs are also relevant to the design of team jobs. The interdependence among team members suggests that to understand the effect of job characteristics at the team level, it is necessary to

take into account a number of contingencies, such as level of cohesion, team composition, trust, group norms, task interdependence, and shared knowledge. For example, research has shown that self-managed teams with high levels of individual autonomy performed better when trust level was low rather than high, because the low trust led to increased monitoring within the team, which enhanced team performance. Others have found that the positive relation between team control over planning and work processes and team job motivation decreased as team interdependence increased. Future research should continue to systematically examine the contribution of job characteristics to teams' psychological and behavioral outcomes.

—Yitzhak Fried, Caterina Snyder Lachel,
Michael Hadani, and Ariel Levi

See also Job Characteristics Theory; Scientific Management

FURTHER READING

- Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology, 40*, 287–313.
- Fried, Y., Melamed, S., & Ben-David, H. A. (2002). The joint effects of noise, job complexity, and gender on employee sickness absence: An exploratory study across 21 organizations—the CORDIS study. *Journal of Occupational and Organizational Psychology, 75*, 131–144.
- Hackman, J. R. (Ed.). (1990). *Groups that work (and those that don't): Creating conditions for effective teamwork*. San Francisco: Jossey-Bass.
- Herzberg, F. (1966). *Work and the nature of man*. Cleveland, OH: World.
- Langfred, C. W. (2004). Too much of a good thing? Negative effects of high trust and individual autonomy in self-managed teams. *Academy of Management Journal, 47*, 385–393.
- Morgeson, F. P., & Campion, M. A. (2002). Minimizing tradeoffs when redesigning work: Evidence from a longitudinal quasi-experiment. *Personnel Psychology, 55*, 589–612.
- Oldham, G. R., Cummings, A., & Zhou, J. (1995). The spatial configuration of organizations: A review of the literature and some new research directions. In G. Ferris (Ed.), *Research in personnel and human resources management, 13*, 137. Greenwich, CT: JAI Press.
- Parker, S. K., Wall, T. D., & Cordery, J. L. (2001). Future work design research and practice: Towards an elaborated model of work design. *Journal of Occupational and Organizational Psychology, 74*, 413–441.
- Wageman, R. (1997). Critical success factors for creating superb self-managing teams. *Organizational Dynamics, 26*, 49–61.
- Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review, 26*, 170–201.

JOB EVALUATION

Job evaluation may be defined as a systematic, objective process of determining the worth of jobs to an organization. It is important to note that a job evaluation evaluates jobs (e.g., marketing manager, financial analyst) and not the people in those jobs (e.g., Mary Smith; David Johnson). Organizations use the results of this process to help determine the appropriate salaries or wages for different jobs. Job evaluation has also frequently been used to conduct comparable worth studies. Most medium and large organizations use some form of job evaluation in determining salaries and wages for their employees.

JOB EVALUATION METHODS

The numerous methods for conducting a job evaluation range from relatively simple approaches (e.g., ranking) to more sophisticated, complex approaches (e.g., point-factor). Job evaluation methods also differ in terms of whether they are standardized systems or whether they are custom-tailored to the specific organization. The Hay Guide Chart–Profile Method™ is a proprietary, standardized system that has been used by many different organizations as a job evaluation method. The Position Analysis Questionnaire (PAQ) is another standardized system that has been used for job evaluation purposes. It consists of approximately 200 items, referred to as *job elements*, that assess such aspects as how information is inputted in the job, mental processes used by the worker, relationships with others, and the job context (the physical and social environment). Research indicates that different job evaluation methods may produce different conclusions about the worth of jobs to the organization. Because the point-factor system is the most common method of job evaluation, most of what follows here is based on this approach.

DEVELOPING A POINT-FACTOR JOB EVALUATION SYSTEM

Briefly, organizations choosing to create a custom-tailored solution are likely to design a point-factor system using the following six steps. First, a committee is formed. Typically, this committee will include an expert in job evaluation, who may be an internal human resources manager or an external consultant, as well as other relevant parties (e.g., a union representative) and members who are familiar with the jobs to be evaluated. The next step is for the committee to determine what compensable factors will be used in the system. Simply stated, *compensable factors* are the underlying determinants as to why some jobs are paid more than others. Common compensable factors include mental demands, responsibility, education, and physical conditions. A clear, specific definition should also be provided for each compensable factor. The third step is to determine the relevant levels on each compensable factor. If education is a compensable factor, for example, the committee may determine that four levels are appropriate, such as high school diploma, 2-year college degree, 4-year college degree, and master's degree. There is nothing magical about the levels that are created. What is important is that the levels be appropriate for the jobs that will be evaluated.

In the fourth step, a total number of points is established for the system overall. Often, 1,000 points is used. The goal is to have a sufficient number of points to avoid a ceiling effect. The best way to understand the ceiling effect is to think of a scale to weigh people. If the scale does not go past 100 pounds, it will be impossible to accurately determine the weight of most adults.

Once the total number of points is determined, the committee must determine the number of these points to distribute to each factor. This step serves to *weight* the importance of each factor. Factors assigned more points will have a greater influence on the value of jobs than factors assigned fewer points. There are several different ways to determine the appropriate weights for each factor, including the rational approach and the statistical approach. In the *rational approach*, the committee would use logic, business strategy, or similar considerations in determining how much weight should be assigned to each factor. The *statistical approach* uses a quantitative formula to determine the relationship between the compensable factors and

what other, similar organizations are paying for key jobs. The statistical approach, then, attempts to link weights to external market pay. Research shows that the method of assigning weights may or may not affect the values that are ultimately assigned to the jobs.

Once the points are distributed to each factor, the next step is to assign points to each level on each factor. There are various ways to do this. One method is to assign the maximum points to the highest level on the factor (e.g., if master's degree was the highest level on education, and education was assigned 250 points, then master's degree would be granted 250 points). Next, a relatively small number of points (e.g., 30) might be granted to the lowest level on the factor (e.g., high school degree). A simple formula is usually devised to assign points to the levels in between the highest and lowest levels.

All that remains after creating the job evaluation system is to have subject matter experts (SMEs) review the appropriate job descriptions and related information about each position, and to determine the appropriate ratings on each compensable factor. Typically, several SMEs make independent ratings, after which their ratings can be compared. Where there are important differences in their ratings, discussion can ensue, until consensus is reached. For each job, ratings on each compensable factor are then added up and an overall rating is produced.

CRITICISMS OF JOB EVALUATION

In the last two decades, job evaluation in general and the point-factor system in particular have been criticized by some experts. One criticism is that the job evaluation process overemphasizes the importance of internal fairness (i.e., the notion that jobs should be paid fairly relative to each other) at the expense of external fairness (i.e., the notion that jobs should be paid fairly relative to what other organizations are paying for these jobs). A second criticism is that the complexity and opaque nature of job evaluation may create negative perceptions on the part of employees. Finally, some critics have argued that job evaluation reinforces a hierarchical, rigid organizational structure that lacks the necessary flexibility to rapidly adjust to environmental changes. These concerns have led some organizations to modify their job evaluation processes in a number of ways, including reducing the

number of compensable factors, changing the compensable factors, and tying the weights more closely to what other organizations are paying.

—Michael M. Harris

See also Comparable Worth; Job Analysis

FURTHER READING

- Collins, J. M., & Muchinsky, P. M. (1993). An assessment of the construct validity of three job evaluation methods: A field experiment. *Academy of Management Journal*, 36, 895–904.
- Heneman, R. L. (2003). Job and work evaluation: A literature review. *Public Personnel Management*, 32, 47–71.
- Milkovich, G., & Newman, G. (1998). *Compensation*. New York: McGraw-Hill.
- Richter, A. S. (1998, May/June). Compensation management and cultural change at IBM: Paying the people in black at big blue. *Compensation and Benefits Review*, 30, 51–59.

JOB INVOLVEMENT

Job involvement refers to a state of psychological identification with work—or the degree to which a job is central to a person's identity. From an organizational perspective, it has been regarded as the key to unlocking employee motivation and increasing productivity. From an individual perspective, job involvement constitutes a key to motivation, performance, personal growth, and satisfaction in the workplace. Job involvement contributes importantly to organizational effectiveness, productivity, and morale by engaging employees deeply in their work and making it a meaningful and fulfilling experience. People become involved in their jobs when they perceive in them the potential for satisfying salient psychological needs (e.g., for growth, achievement, meaning, recognition, and security).

Job involvement enhances individuals' work performance by motivating them to exert greater effort and use their creativity to solve problems and work intelligently. Job involvement and the benefits that flow from it result partly from personality and characteristics of the individual and partly from organizational context, job design, and supervisory behavior. Individuals who possess certain personality traits (e.g., internal locus of control, need for achievement,

work ethic endorsement) are likely to be predisposed to become job involved. On the other hand, situational factors such as job design, organizational and psychological climate, and management style all have important influences on employee job involvement. Job design factors appear to have a stronger influence on job involvement for individuals who have a stronger drive to satisfying higher-order psychological needs (i.e., higher-order need strength).

PROFILE OF THE JOB-INVOLVED INDIVIDUAL

Based on a systematic review of the voluminous research on job involvement, a profile of the personal characteristics of highly job-involved individuals emerges. In terms of personality traits, job-involved people tend to be high in both internal motivation and self-esteem and to subscribe to a work ethic consistent with the view that the experience of work has value as an end in itself. In terms of demographics, however, job involvement does not depend on age, gender, education, length of service to the organization, or salary.

Job-involved individuals find work meaningful and challenging, work at complex tasks employing a variety of skills, and see complete units of work through to their completion. They participate in the setting of performance standards and maintain positive relationships with supervisors who provide them with ample performance feedback. Beyond commitment to the immediate job, job-involved people are also strongly committed to work in general and career achievement and advancement.

People who are high in job involvement typically experience high job satisfaction, especially with the content of the work, which they find intrinsically satisfying. Their job satisfaction prevails even when their supervisor lacks consideration or is uncommunicative or autocratic. Job-involved individuals tend to have strong affective ties to the organization and, as a result, are less likely than others to consider leaving it.

In general, job involvement does not appear to entail systematic negative side effects, such as psychological, social, or physical maladies resulting from strong identification with one's job. Stress, anxiety, somatic health complaints, and work–family conflict do not appear to be systematically related to job involvement. On the other hand, job-involved individuals do not appear to be more satisfied with life in general than less job-involved individuals or

especially likely to be highly involved in other activities outside of work.

MEANS OF FOSTERING JOB INVOLVEMENT

As this profile of job-involved individuals suggests, promoting job involvement effectively can constitute a key to competitive advantage in the marketplace for organizations. Research suggests two closely related types of organizational factors that tend to promote job involvement and motivate effort toward achievement of organizational goals: psychological climate and human resource policies and practices.

Psychological Climate

Psychological climate refers to the manner in which organizational environments are perceived by their employees. More specifically, it refers to the way employees interpret features of the environment in relation to their own goals, values, and concerns for personal well-being. Two dimensions of psychological climate that have been strongly linked to job involvement are *psychological safety* and *meaningfulness*. Employees tend to perceive their work environment as conducive to the attainment of their needs and goals to the extent that they experience it as being psychologically safe and meaningful. Employee perceptions of the workplace as being psychologically safe and meaningful tend to be strongly and positively correlated, and both are strongly linked to job involvement and employee effort.

Psychological safety. Perceptions of the work environment as psychologically safe are rooted in three elements: supportive management, role clarity, and self-expression. A supportive management style allows employees to strive and possibly fail without fear of reprisals. It gives employees control over the methods they use to perform their work and allows them to bring their creativity to bear on work problems. Clear expectations and predictable, consistent work norms promote psychological safety and job involvement. And when employees feel free to express aspects of their individuality at work, they are likely to internalize the work role, personalize it, and treat it as a core aspect of the self-concept.

Meaningfulness. Employees perceive their work environment as psychologically meaningful when they

regard it as challenging, worthwhile, and rewarding. Individuals find their work particularly meaningful when they have a clear sense of the contribution it makes toward the attainment of organizational goals. Similarly, the perceived meaningfulness of work increases to the extent that employees perceive their work as challenging and conducive to learning and attainment of mastery. Also, receiving recognition and rewards commensurate with one's contributions tends to increase perceived meaningfulness of work.

Human Resource Policies and Practices

Human resource policies and practices are closely related to psychological climate and have important effects on job involvement, productivity, and organizational performance. Whereas psychological climate relates to individuals' perceptions of how the organizational environment affects their own goals, status, and well-being, human resource practices represent concrete policies and actions of the organization with respect to their employees. Research by Jeffrey Pfeffer and Mark Huselid indicates the following human resources practices as keys to high employee involvement motivation and performance:

Hiring selectively. Individuals differ in the values and attitudes they hold and express, as well as on a great variety of other characteristics. The companies that are most successful in promoting job involvement tend to attract rich pools of job applicants, from which they are able to select those who best reflect the goals and values of the organization. In essence, they endeavor to select the small proportion of applicants with the greatest predisposition to be highly job-involved, motivated, and productive.

Training. Firms that effectively promote job involvement tend to do an unusually thorough job of training employees. In these companies, training is ongoing and continuous and not limited to initial training and orientation to the organization.

Rewarding contingently and well. Companies that foster job involvement generally pay employees well and let them share in gains and profits made by the organization. This is true even of highly cost-conscious organizations that realize that employee productivity is a key driver of cost reduction. A contingent element of employee compensation contributes to employee

identification with the goals and fortunes of the organization.

Reducing status differences. A greater sense of teamwork and collective spirit in the organization results from minimizing status differences between executives and other employees. When executives forgo outsized compensation packages and conspicuous displays of status, employees lower in the hierarchy are able to identify more closely with them and, through them, with the organization.

Self-managed teams. Self-managed work teams incorporate and leverage an important motivational principle: that people identify closely with their peers and feel obligated to them by social norms and reciprocity. This means that some employees who might shirk in a hierarchical structure will not do so in the context of self-managed teams. Firms that foster high employee involvement often structure *all* work tasks as teamwork.

Sharing information. Employees are likely to identify to a greater extent with their work and organization when the organization freely shares information about its operations and performance. This information sharing highlights for employees their personal stake in the organization and gives them metrics by which they may steer their efforts in pursuit of organizational goals.

CONCLUSION

Job involvement—the extent to which individuals identify with their jobs and consider them central to their identities—constitutes a key to individual effort, motivation, performance, and satisfaction, as well as to organizational performance. Job involvement results from differences in individual predispositions and also from organizational characteristics, supervisory behavior, and job design characteristics. Thus, organizations can promote job involvement by selecting the right people, fostering a conducive psychological climate, and incorporating human practices and policies supportive of high employee job involvement. Such practices can hold the key to sustainable competitive advantage.

—Steven P. Brown

See also Job Design; Work–Life Balance

FURTHER READING

- Brown, S. P. (1996). A meta-analysis and review of organizational research on job involvement. *Psychological Bulletin, 120*, 235–255.
- Brown, S. P., & Leigh, T. W. (1996). A new look at psychological climate and its relationship to job involvement, effort, and performance. *Journal of Applied Psychology, 81*, 358–368.
- Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal, 38*, 645–672.
- Kanungo, R. N. (1982). Measurement of job and work involvement. *Journal of Applied Psychology, 67*, 341–349.
- Pfeffer, J. (1998). *The human equation*. Boston: Harvard Business School Press.
- Reeve, C. L., & Smith, C. S. (2001). Refining Lodahl and Kejner's Job Involvement Scale with a convergent evidence approach: Applying multiple methods to multiple samples. *Organizational Research Methods, 4*, 91–111.

JOB KNOWLEDGE TESTING

Job knowledge is critical to successful job performance. Job performance can be viewed as being determined by one's *declarative knowledge* (knowledge of facts, rules, and procedures—a job's requirements), *procedural knowledge and skill* (knowing how and being able to do what the job requires), and *motivation*. In the job performance literature, *job knowledge* is the declarative knowledge of interest.

Job analysis studies often use job knowledge as an important job descriptor. A typical job analysis will identify the tasks performed by job incumbents, as well as the knowledge, skills, and abilities required to successfully perform those tasks. In this context, *knowledge* can be defined as the degree to which one has mastered a body of material (facts and theory) directly involved in the performance of a job. Competency studies also typically yield some knowledge-based competencies.

HOW IS JOB KNOWLEDGE MEASURED?

Although job knowledge is sometimes assessed using ratings (e.g., made by interviewers or supervisors), it is typically measured more directly and objectively with multiple-choice tests. Such tests are developed to

be content valid (i.e., to cover knowledge areas proportionately to their importance to the job as determined through job analysis). Many strategies can help ensure the quality of such tests. For example, a test blueprint (based on a job analysis) is developed to specify test content. The blueprint reflects the appropriate weighting of knowledge areas. Item-writing guidelines improve the readability and clarity of test items and help prevent “test-wise” examinees from performing inappropriately well on the test. It is also good practice to develop test questions that go beyond simple recall and definitions, instead requiring some amount of analysis or reasoning to answer the question. Some test developers use Bloom’s taxonomy as a framework to accomplish this. Another strategy is to use visual aids (e.g., illustrations, photos, graphics) to make the questions look more job-relevant and to limit the degree to which test scores depend on reading ability. Job experts also should review items for accuracy and collect judgments about the relevance and importance of each item to help document the content validity of the test.

Developers are increasingly using item formats other than traditional multiple choice because they can be easily administered and scored by computer. Such formats include multiple-response (e.g., check all that apply), matching, drag-and-drop, and ranking. Some of these formats efficiently cover more content than do traditional item formats, and varying the formats can make the test more engaging for examinees. It is important, however, to consider how to combine scores from different types of items so that the resulting total test score appropriately weights them. For example, how do you combine the score on a five-part matching item (in which examinees may be given partial credit for getting some, but not all, parts right) with the scores from several multiple-choice items (scored one point each) so that the reliability and validity of the total score are maximized? The answer might vary depending on the primary testing goal (e.g., maximizing content validity or correlations with other measures).

A job knowledge test can be developed, scored, and evaluated using classical test theory (CTT) and item response theory (IRT) strategies. Of these, CTT strategies have the advantage of being particularly useful for providing diagnostic information about items (e.g., percentage of examinees selecting each response option and option–total score correlations) that can be used to improve them through rewriting. Because they provide a common underlying metric,

IRT strategies are particularly useful if the test uses several item formats or if multiple forms of the test are required, but they require larger sample sizes to yield reliable information. If sample sizes permit, it is good practice to use both types of analytic strategies.

USING JOB KNOWLEDGE TO PREDICT PERFORMANCE

When hiring or promoting from a pool of experienced or relevantly educated candidates, an employer should consider including job knowledge as a component of the selection process. This is done most often in the context of job interviews. There is precedent for using tests of job knowledge for selection testing, but it can be expensive to develop and maintain a test for this purpose. Employers often look for relevant certifications (offered through either industry- or association-based testing programs) as a way to help gauge if individuals have sufficient job knowledge prior to hiring or promotion. When job knowledge is used to predict performance, it is important to consider what knowledge is required at entry versus that which can be acquired on the job—a distinction that can be made during the job analysis.

Little published research addresses the validity of job knowledge measures used for employee selection. One would expect the predictive validity of a well-designed multiple-choice test to be relatively strong when there is a strong correspondence between test content and job requirements. As with cognitive ability tests, however, job knowledge tests tend to exhibit Black–White race performance differences. The race differences for job knowledge tests, however, tend to be on the order of a half standard deviation, in contrast to the full standard deviation difference often observed on cognitive ability tests.

USING JOB KNOWLEDGE TO MEASURE PERFORMANCE

There are several relevant applications of job knowledge testing to measure performance. The primary application is probably seen in the vast number of credentialing (certification and licensure) testing programs offered. Job knowledge tests are also used as job performance criterion measures in criterion-related validation research.

Job knowledge tests, however, do not tell the whole story about an examinee’s capacity to perform a job. *Performance tests* is a term used for higher fidelity

assessments that require examinees to perform parts of a job in a simulated environment. The managerial assessment center is one form of such testing (typically used for selection and development) that has been around for a long time. There is a current surge of interest in using computer-based tests to develop more realistic performance measures. For example, the architect licensure examination not only includes multiple-choice questions, but also requires candidates to draft designs on the computer. Software certification testing programs are another example, as they also increasingly use high-fidelity simulations of work activities. It is important to recognize, however, that such tests still leave the motivational aspects of performance unmeasured. Performing well on a knowledge or performance test may yield a big part of the answer, but it is not the same as measuring job performance.

—Deirdre J. Knapp

See also Job Performance Models

FURTHER READING

- Bloom, B. S., Englehart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain*. New York: David McKay.
- Campbell, J. P., McCloy, R. A., Oppler, S. H., & Sager, C. E. (1993). A theory of performance. In N. Schmitt, W. C. Borman, & associates (Eds.), *Personnel selection in organizations* (pp. 35–70). San Francisco: Jossey-Bass.
- Haladyna, T. M. (1997). *Writing test items to evaluate higher order thinking*. Boston: Allyn & Bacon.
- Roth, P. L., Huffcutt, A. I., & Bobko, P. (2003). Ethnic group differences in measures of job performance: A new meta-analysis. *Journal of Applied Psychology, 88*(4), 694–706.
- Sackett, P. R., Schmitt, N., Ellingson, J. E., & Kabin, M. B. (2001). High-stakes testing in employment, credentialing, and higher education: Prospects in a post-affirmative action world. *American Psychologist, 56*(4), 302–318.

JOB PERFORMANCE MODELS

Almost all efforts of managers and human resources consultants have the objective of improving individual employee job performance, either directly or indirectly.

Efforts such as personnel selection or training are aimed at improving performance directly, whereas interventions in other organizational processes (e.g., culture, climate, or team processes by reducing conflict, and increasing coordination across organizational members) attempt to improve performance indirectly. The popular press is full of anecdotes of top executives who have lost their jobs because of incompetence in performing them. Given this state of organizational research and practice, it is necessary to have a clear understanding of what job performance is and the issues involved in its measurement. Job performance models have been developed to specify the content domain of job performance as well as to clarify the relationships among individual differences variables such as personality and organizational characteristics including reward systems to job performance. In this summary, we first examine the content domain of job performance, then consider some relevant measurement issues.

SPECIFYING THE CONTENT DOMAIN OF JOB PERFORMANCE

What constitutes job performance? This simple question becomes complex when we consider the nuances associated with it. Is it just what the organization has hired an employee to do (that is legitimate)? If so, a careful job analysis should provide the contours of what should be included when job performance of an individual is assessed. These aspects of job performance may include performance on tasks, communication, leadership, and avoiding counterproductive behaviors. Different models of job performance make distinctions among different aspects of performance. For example, one of the popular models of job performance distinguishes between task performance and contextual performance. *Task performance* is defined as the proficiency with which job incumbents perform activities that are formally recognized as part of their jobs, activities that contribute to the technical core of the organization. *Contextual performance* constitutes the activities that an individual incumbent performs that support the social environment in which the technical core must function. This distinction between task and contextual performance has been further developed in other models of job performance. Some of the models divide contextual performance to further subdimensions.

The literature on the dimensions of job performance has suffered from ambiguous conceptualizations.

Organizational researchers have used virtually any individual differences variable that could contribute to the productivity, efficiency, or profitability of the unit or organization as a measure of job performance. Even when appropriate measures have been used to assess aspects of job performance, consistent agreement about dimensions of job performance has not been easy to achieve. To understand which measures cluster together to assess a dimension of job performance, organizational researchers have collected data on the individual measures, as well as correlated and factor-analyzed such data. Yet decades of research along these lines have not converged on any unique solution, partly because it is infeasible to collect data on all measures from the same sample of job incumbents.

Recent years have seen the use of meta-analytic methods to cumulate data across several individual studies. This enables organizational researchers to assess the covariation of several job performance measures even though not all measures may be obtained from the same sample of incumbents. A comprehensive study that included all measures used in published articles in the *Journal of Applied Psychology* between 1917 and 2004 (see Further Reading) found that all the different measures were positively correlated. These positive correlations suggest that there is a common factor underlying all the different measures of job performance and the different dimensions into which job performance is sliced by different researchers and practitioners. The positive correlations also imply that in general, employees who perform well in one dimension are also likely to perform well in other dimensions. Thus, organizational interventions aimed to improve one dimension are likely to have a larger impact than usually acknowledged on other dimensions.

The fact that there is a general factor of job performance that underlies the different measures of job performance does not preclude or diminish the importance of individual dimensions or facets of job performance. What it implies is that depending on context and needs of the researcher/organizations, the content domain of job performance can be sliced in different ways. For an organization in a service industry, it may be pertinent to make distinctions between customer friendliness and working well with coworkers, treating them as two separate dimensions. To assess employee job performance in an industrial manufacturing plant, it may very well make sense to combine the two dimensions as one overall dimension of

interpersonal competence. Different conceptualizations and dimensional views of job performance are relevant for different organizational interventions (e.g., selection versus training). This renders controversies of which set of job performance dimensions is correct moot.

Recognizing that the different sets of dimensions postulated are dependent on context and purpose of measurement, we can employ a two-dimensional grid to classify the different taxonomies of job performance dimensions postulated in the extant literature. The first dimension of this grid distinguishes whether the taxonomy under consideration is developed for a particular job/occupation or for being applicable across occupations. For example, one taxonomy of job performance dimensions focuses exclusively on retail industry entry-level workers and proposes the following nine dimensions of job performance: adherence to rules, industriousness, thoroughness, schedule flexibility, attendance, off-task behavior, unruliness, theft, and drug use. Although this set is appropriate for retail industry employees, schedule flexibility may not be a relevant dimension in another occupation. In contrast, another taxonomy of job performance, developed to be applicable across occupations, proposes the following eight dimensions into which the job performance content domain can be sliced: job-specific task proficiency, non-job-specific task proficiency, written and oral communication competence, demonstrating effort, maintaining personal discipline, facilitating team and peer performance, supervision, and administration. The taxonomies that are specific to occupations are richer in context-specific information yield, whereas the second type described have the advantage of generalizability. It should, however, be noted that regardless of whether the taxonomies are occupation specific or applicable across organizations, the dimensions are positively correlated, suggesting the presence of a common factor of job performance across all dimensions. In fact, the general common factor usually explains as much as 60% of the variance in each dimension.

In addition to classifying the taxonomies as either occupation-specific or not, we can also group the taxonomies as to whether they focus on specific aspects of performance or on the whole domain of job performance. For example, several taxonomies of counterproductive work behaviors have been proposed in recent years. The goal is not to define the entire content domain of job performance but to home in on specific aspects of performance. Overlaying this

classification of taxonomies with the previous classification (occupation-specific versus across occupations) results in a four-cell classification of taxonomies. This two-dimensional grid serves the useful purpose of summarizing the numerous taxonomies of job performance content postulated in the literature.

MEASUREMENT ISSUES IN JOB PERFORMANCE ASSESSMENT

Given the centrality of job performance assessment to several high-stakes decisions in organizations (selection of personnel, merit pay, legal defense of organizational policies, etc.), accurate measurement of job performance is critical. Measures of job performance can be objective, organizational records of units produced, errors made, absences, promotion rates, accidents, or turnover. Alternatively, measures of job performance can be subjective, judgmental evaluations that can be either rankings or ratings. The judgmental evaluations can be made by supervisors, peers, or subordinates, or even by the employees themselves. Sometimes, organizations obtain judgmental evaluations from customers. The purpose of the assessment (e.g., deciding merit pay raises) may render some evaluation sources (e.g., self-ratings) untenable. A voluminous literature on multisource feedback or 360-degree feedback addresses the relative merits of different evaluators and argues for an integration of the different perspectives for a comprehensive evaluation of an individual employee.

Given that specific dimensions of job performance can be evaluated by different sources (supervisors, peers, etc.), a natural question arises as to the equivalence of the different sources in evaluating a particular job performance dimension (e.g., leadership). That is, do supervisors and peers mean the same thing when evaluating an employee as demonstrating good leadership? One hypothesis is that the different sources emphasize different behaviors, observe different behaviors, and mean different behaviors when rating an employee's leadership. In this example, supervisors may rate employees' leadership based on how well they get the task done through subordinates, whereas peers may rate the employee's leadership based on how well the employee coordinates with other colleagues. If this hypothesis is correct, the correlation between leadership ratings provided by supervisors and leadership ratings provided by peers for a set of employees should correlate less than perfectly. Recent cumulative research suggests that although the observed

correlation is less than perfect, the magnitude of the relationship is affected by unreliable measurement and once corrections for unreliability are applied, the corrected correlation is much closer to 1.0 than previously believed. Thus, it appears that the different sources (peers, supervisors, etc.) rate the same dimension, albeit with emphasis on different observable behaviors. The fact that different sources of raters are rating the same dimension does not detract from the merit of multisource assessments. An analogy with test construction is useful here. A test of intelligence will have several items, and integrating responses across items we get a better (i.e., more comprehensive coverage of the content domain of intelligence) and more reliable assessment of intelligence. Similarly, multisource assessments ensure comprehensiveness in coverage of behaviors under consideration and enhance the reliability of the composite evaluation.

Another measurement issue in job performance assessment is definitional in nature. Some researchers have argued that job performance measures should include only behaviors and not outcomes of behaviors. Thus, the efforts made by an employee (e.g., number of contacts made with potential customers) should be evaluated, but the outcomes (e.g., number of units sold) should not be. The reasoning for this distinction relies on the control an individual employee has on behaviors versus outcomes. The argument is that an individual's performance should be evaluated based on what is under the control of the employee. However, this issue of control is relative. On one hand, one could argue that the number of papers written by a professor is part of job performance but the number of papers published is not (as this depends on several factors outside the control of the professor). On the other hand, even the number of papers written is not strictly under the control of the professor. Given this endless circle of arguments, it is preferable if job performance is defined as both evaluable behaviors and outcomes.

Other measurement issues are likely to come to the forefront of debate in the coming years. Almost all taxonomies of job performance dimensions do not take into account the temporal relationships across the dimensions. For example, interpersonal competence at time 1 can result in better productivity at time 2. Exploring the dynamic relationships among job performance dimensions is not the same as the issue of criterion dynamicity. *Criterion dynamicity* refers to the hypothesis that individuals will improve in the performance of a dimension over time. Cumulative

research shows that although there are mean changes in performance over time (i.e., people improve with experience), the relative rank ordering of individuals on performance on that dimension stays fairly constant over time.

We close this section on measurement issues with a note on the reliability of job performance assessments. *Reliability* is the consistency of measurement, and depending on the answer to the question “Consistency over what?” there are several types of reliabilities. When a job performance item is measured at two points in time (assuming no change in true performance levels), the correlation indexing the consistency across the two points in time is the test–retest (or rate–rerate) reliability. When a job performance dimension is assessed with several items, consistency across the items is captured by the alpha coefficient. When two raters rate the performance of a set of employees, the interrater reliability captures the consistency across raters. Cumulative research has shown that there is a large idiosyncratic component in each rater’s ratings. To the extent organizational researchers and practitioners are interested in the shared (across raters) component of job performance assessments, interrater reliabilities are the appropriate reliability coefficients to use.

CONCLUSIONS

Job performance is a central variable in organizational research and interventions. Several models of job performance have been developed to slice the content of job performance into different sets of dimensions. The different models can be placed into one of the four cells of a two-dimensional grid that takes into account (a) whether the model is occupation specific or applicable across occupations and (b) whether the entire domain of job performance or a specific section is targeted. Despite the different ways the job performance domain can be partitioned into dimensions, all dimensions are positively correlated, suggesting a common underlying factor across all job performance dimensions. The measurement of job performance raises several issues, such as the temporal relationships across dimensions and choosing the appropriate reliability coefficient. Given the large idiosyncratic component in individual rater ratings, interrater reliability coefficients should be assessed. Cumulative research also suggests (a) equivalence of different sources of ratings and (b) lack of criterion dynamicity. Job

performance assessments are critical in high-stakes decision making in organizations, and continued research is likely to improve existing job performance models.

—Chockalingam Viswesvaran and Deniz S. Ones

See also Criterion Theory; Performance Appraisal; Performance Appraisal, Objective Indexes; Performance Appraisal, Subjective Indexes; 360-Degree Feedback

FURTHER READING

- Austin, J. T., & Villanova, P. (1992). The criterion problem: 1917–1992. *Journal of Applied Psychology, 77*, 836–874.
- Borman, W., & Motowidlo, S. J. (1993). Expanding the criterion domain to include elements of contextual performance. In N. Schmitt & W. Borman (Eds.), *Personnel selection in organizations* (pp. 71–98). San Francisco: Jossey-Bass.
- Campbell, J. P., McCloy, R. A., Oppler, S. H., & Sager, C. E. (1993). A theory of performance. In N. Schmitt & W. Borman (Eds.), *Personnel selection in organizations* (pp. 35–70). San Francisco: Jossey-Bass.
- Gruys, M. L., & Sackett, P. R. (2003). Investigating the dimensionality of counterproductive work behavior. *International Journal of Selection and Assessment, 11*, 30–42.
- Hunt, S. T. (1996). Generic work behavior: An investigation into the dimensions of entry-level hourly job performance. *Personnel Psychology, 49*, 51–83.
- Viswesvaran, C., & Ones, D. S. (2000). Perspectives on models of job performance. *International Journal of Selection and Assessment, 8*, 216–227.
- Viswesvaran, C., & Ones, D. S. (2005). Job performance: Assessment issues in personnel selection. In A. Avers, N. Anderson, & O. Voskuijl (Eds.), *Handbook of personnel selection* (pp. 354–375). Malden, MA: Blackwell.
- Viswesvaran, C., Schmidt, F. L., & Ones, D. S. (2005). Is there a general factor in job performance ratings? A meta-analytic framework for disentangling substantive and error influences. *Journal of Applied Psychology, 90*, 108–131.

JOB ROTATION

The term *job rotation* is used to describe two different rotation processes. First, *job rotation* is used to describe the process of workers with high physical

demands or highly repetitive tasks alternating or rotating from these highly physically demanding tasks or from repetitive tasks to other tasks. The rotation may take place to expose the worker to less physical strain, or to enhance the motivating potential of the overall job. In addition, this type of job rotation is also meant to reduce boredom, fatigue, and related injuries. Second, *job rotation* is used to describe an employee's lateral movement within a company to a different job title or a different department, with the objective of enhancing the employee's professional development through exposure to a new set of knowledge, a different job, and a different department. Employees on different organizational levels can rotate jobs; however, job rotations are more common among professional employees and managers than among nonprofessional workers. Generally, job rotation does not include promotions or advancements, which are nonlateral movements that come with increased responsibilities and usually with differences in pay grade.

OBJECTIVES OF THE TWO TYPES OF JOB ROTATION

Task Rotation

Job rotation as task rotation bears similarities with job enrichment and other job redesign efforts, which are meant to enhance the motivating characteristics of work and reduce biological, psychological, and physiological strain on the employee. The reduction of work-related accidents and injuries related to fatigue and boredom is another objective frequently pursued by organizations implementing job rotation that encompasses employees switching tasks more than they used to. As job rotation is meant to enhance the perceived meaningfulness of work for employees, organizations also expect enhanced internal and external customer satisfaction from implementing job rotation practices that contain task rotation.

Position or Department Rotation

Job rotation as lateral rotation to a different job or department has the objective of advancing the breadth of exposure the employee has to different components of his or her organization. Employees engaged in job rotation are meant to accumulate experiences, business knowledge, and better organizational networks. In addition, job rotation is supposed to contribute

to enhanced employee motivation, reduce boredom and fatigue, and lower the likelihood of accidents in monotonous jobs. From an organizational perspective, it has been argued that job rotation can enhance the company's knowledge about the employee's potential, knowledge, abilities, and perspectives and can lead to intellectual capital accumulation.

INVOLVEMENT IN JOB ROTATION

Task Rotation

Job rotation that involves task rotation is, in most organizations, limited to manufacturing and low-level administrative positions. The complexity and training requirements for most higher level jobs, as well as the lower monotony, along with the absence of stressors related to physical and mental fatigue and boredom, have precluded most complex jobs (e.g., most professional jobs) from involvement in task rotation processes.

Position or Department Rotation

The number of companies in Western societies using job rotation to laterally move employees into different jobs or organizational divisions has increased in the past decades. Large companies are more likely to have elaborate job rotation programs involving about 50% of their employees, whereas job rotation is less prevalent at organizations with fewer than 50 employees. Individuals engaged in job rotation programs are more likely to be younger, have less tenure, and be more ambitious than employees who are not involved in job rotation. Research also demonstrates that high-performing employees are more likely to obtain placement in a job rotation program than are individuals not performing according to expectations.

OUTCOMES OF JOB ROTATION

Task Rotation

Although organizations expect more benefits than costs from job rotation programs that involve task rotation, research indicates that rotating individuals through several tasks is beneficial to their satisfaction only if the enlargement of the employee's job through job rotation contains knowledge enlargement rather than just task enlargement. *Knowledge enlargement* pertains to the addition of job elements that require

enhanced understanding of procedures, rules, and policies. *Task enlargement* is defined as the addition of other simple tasks that do not require deeper understanding of processes. Longitudinal studies found consequences of mere task enlargement to include lower satisfaction levels, lower chances of error detection, and decreased customer service. In contrast, knowledge enlargement was found to lead to higher satisfaction levels, reduced perceptions of mental underload, and increased likelihood of error detection. Overall, the consequences of job rotation from an employee perspective are more complex than researchers initially expected: Although some job rotation efforts were found to have positive consequences in terms of reducing muscle strain and physiological tension, not all job rotation led to positive outcomes in employee well-being, motivation, and health.

Position or Department Rotation

Overall, both organizations and employees benefit from job rotation that pertains to lateral moves of employees to different job titles or divisions, but both also incur some costs. From an employee perspective, long-term salary growth and promotion are among the desirable outcomes of job rotation. In addition, employees involved in job rotation gain increased knowledge and skills, with job rotation leading to higher skill improvement in the business domain than in areas such as technical or administrative skills. Nonrotating employees in organizations that have job rotation were less satisfied than rotating employees. Employees involved in job rotation had more positive job attitudes than those not engaged in job rotation—they were generally found to be more satisfied, committed, and involved than nonrotating employees at the same company. Costwise, job rotation was found to lead to increased workloads among rotating employees and to add a financial burden for the organization (e.g., necessity of moving employees to different locations).

—Christiane Spitzmüller and Kayo Sady

See also Career Development; Engineering Psychology; Job Characteristics Theory

FURTHER READING

Campion, M. A., Cheraskin, L., & Stevens, M. J. (1994). Career-related antecedents and outcomes of job rotation. *Academy of Management Journal*, 37(6), 1518–1542.

Edwards, J. R., Scully, J. A., & Brtek, M. D. (2000). The nature and outcomes of work: A replication and extension of interdisciplinary work-design research. *Journal of Applied Psychology*, 85(6), 860–868.

Frazer, M. B., Norman, R. W., Wells, R. P., & Neumann, W. P. (2003). The effects of job rotation on the risk of reporting low back pain. *Ergonomics*, 46(9), 904–919.

Kuijjer, P. P. F. M., de Vries, W. H. K., van der Beek, A. J., van Dieen, J. H., Visser, B., & Frings-Dresen, M. H. W. (2004). Effect of job rotation on work demands, workload, and recovery of refuse truck drivers and collectors. *Human Factors*, 46(3), 437–448.

Ortega, J. (2001). Job rotation as a learning mechanism. *Management Science*, 47(10), 1361–1370.

JOB SATISFACTION

Job satisfaction refers to the overall feelings one has and the evaluation one makes about one's job. People with high job satisfaction experience a pleasurable or positive emotional state when they think about their job or job experiences. In simple terms, they like their jobs. Since early studies in the 1930s, job satisfaction has become one of the most widely investigated concepts in the field of industrial/organizational psychology. It is a valuable outcome in its own right but also a driver of other important individual and organizational outcomes. The importance of this concept is reflected in its central role in numerous theories, such as those concerning job design, leadership, and employee withdrawal.

DEFINING AND MEASURING JOB SATISFACTION

Job satisfaction is traditionally defined as a pleasurable or positive emotional state that results from one's appraisal of one's job or job aspects. This definition includes both one's affective reactions to one's job (feelings) and one's cognitive evaluation of the job (thoughts). There is controversy about whether job satisfaction should be considered as the interplay of both one's thoughts and feelings, as implied in this definition, or whether the cognitive and affective aspects should be separated into distinct dimensions. Those advocating the latter approach cite studies showing that cognitively oriented measures of job satisfaction predict different behaviors to affect-based measures of job satisfaction.

Although the definition of job satisfaction is in some dispute, both sides agree on the need to align the measurement of job satisfaction with the definition. Defining job satisfaction as, say, an affective response but assessing it as an evaluation leads to confusion. A further issue to consider when measuring job satisfaction is its focus. One can assess how satisfied one is with one's job as a whole, or one's global feeling about the job. A typical question would be: "Overall, how much enjoyment do you find in your work?" An alternative to this global approach is to assess and sum up satisfaction with facets of the job, such as satisfaction with one's pay, one's colleagues, the nature of the work, and the supervision. Research shows that overall global satisfaction is something different from a combination of facet satisfactions. Moreover, satisfactions with different facets are often not highly related. For example, one can be very satisfied with colleagues but highly dissatisfied with promotion prospects. If one is trying to understand the overall effect of jobs, then global ratings are usually the best choice. However, a facet approach is more diagnostic if the assessor wants to know how to improve satisfaction in a particular situation.

CAUSES OF JOB SATISFACTION

There are three well-recognized general causes of job satisfaction: the situation, the person, and the interaction between the situation and the person.

Situational Causes

By far the greatest attention has been given to situational influences on job satisfaction. An early theory of situational influences was Frederick Herzberg's two-factor theory, which proposed that intrinsic job factors such as the work itself (*motivators*) caused satisfaction, whereas extrinsic "hygiene" factors external to the job (e.g., pay) caused dissatisfaction. Although appealing, this theory has not stood the test of time. In fact, both types of factors contribute to both job satisfaction and job dissatisfaction.

A more enduring theory that focuses on situational causes of job satisfaction is the job characteristics model (JCM). This model proposes that there are certain intrinsically motivating features of a job that lead to job satisfaction as well as other positive work outcomes. The theory focuses on five work characteristics:

- *Task identity*: degree to which one can see one's work from beginning to end
- *Task significance*: degree to which one's work is seen as important and significant
- *Skill variety*: extent to which job allows employees to do different tasks
- *Autonomy*: degree to which employees have control and discretion for how to conduct their job
- *Feedback*: degree to which the work itself provides feedback for how the employee is performing the job

According to the theory, and as subsequently demonstrated in both meta-analyses and rigorous longitudinal field studies, jobs that are enriched to provide these core characteristics are more satisfying and motivating than jobs that do not provide these characteristics.

A theory that has parallels with the JCM is the demand-control model of strain, which proposes that job demands and job control work together to affect job strains, including dissatisfaction. There is good evidence that people are more satisfied if they have jobs with high control and with moderate levels of demands. However, there is mixed support for the more specific "buffering" hypothesis that has often been articulated in accounts of this model, which holds that job control reduces the dissatisfying effects of high demands. This is a compelling proposition, because it implies one can increase job demands without detriment to employee well-being so long as employees also have high control.

Practically, the implication of both the JCM and the demand-control models is that one can improve job satisfaction by changing job characteristics, or job redesign. For example, job enlargement involves expanding the variety of tasks associated with a particular job; job enrichment involves increasing the level of autonomy in a job, such as by allowing individuals to make decisions previously made by supervisors; and introducing self-managing teams involves increasing autonomy for a team of individuals, such as by allowing the group to allocate tasks among themselves.

The JCM and the demand-control model both focus on the influence of core intrinsic job characteristics, and evidence generally shows that it is the nature of work itself that most affects job satisfaction. However, job satisfaction and dissatisfaction are also affected by other work experiences, such as exposure to sexual harassment and injustice, career development opportunities, constraints that inhibit performance (e.g., malfunctioning equipment), clarity about

roles, conflicting role expectations, difficulties arising from juggling work and family responsibilities, and the presence of supportive leadership. Interestingly, the amount an individual is paid has little influence on job satisfaction, although the perceived fairness of that level of pay can be very important. Group-level job characteristics (such as how much control the team has) and organizational-level characteristics (such as the overall culture) can also affect job satisfaction. At an even higher level of analysis, cultural factors also appear to affect job satisfaction, although we currently know relatively little about what causes differences in job satisfaction across countries.

PERSONAL CAUSES

Job satisfaction also depends on people's temperaments and personalities. For example, some individuals will be dissatisfied with their jobs no matter what the nature of their work. This idea was introduced in the 1930s when an early study suggested job dissatisfaction might be the product of nonadjustive emotional tendencies, but the idea then lay dormant until recently.

In the past few decades, two broad approaches to the investigation of dispositional sources of job satisfaction have emerged. The first, an indirect approach, shows that job satisfaction scores can be quite stable over long periods of time (e.g., 5 years), even when individuals change employers and occupations. The implication is that stable individual differences in personality cause the long-term consistency in job satisfaction. However, the problem with this approach is that other factors might cause this stability. For example, some people might consistently choose good jobs, and some people might always choose bad jobs, resulting in stable levels of job satisfaction over time.

A second and more direct approach is to relate dispositional variables to job satisfaction, thereby providing insight into what personality traits might be important. One such trait is *affective disposition*. Individuals high in *positive affectivity* (who are prone to describe themselves as cheerful, enthusiastic, confident, and active) tend to experience high job satisfaction, whereas those high in *negative affectivity* (who are prone to experience negative mood states such as anxiety, depression, and guilt) tend to report low job satisfaction. For example, one's positive or negative affectivity in teenage years can predict job satisfaction at 54 to 62 years of age. Individuals who are emotionally stable with high levels of general

self-confidence and feelings of positive self-worth (referred to as a *positive core self-evaluation*) also tend to experience higher job satisfaction than those who have a more negative core view of themselves.

Recent research has tackled the question of why these personality characteristics affect job satisfaction. For example, some evidence suggests that individuals who have a positive view of themselves tend to seek out and obtain more enriched and satisfying jobs. Individuals might also interpret job circumstances differently according to their disposition. For example, individuals high in negative affectivity might have a higher threshold for perceiving and responding to positive stimuli.

In addition to personality or disposition as causes of job satisfaction, researchers have sought to understand whether demographic variables have a role. Although the findings are inconclusive for gender and race, there is good evidence that general job satisfaction increases with age, with some studies suggesting a tail-off after about 45 years of age. This age effect might be because older workers have developed more realistic expectations about work, or because they have more skills than younger workers and therefore are able to obtain better jobs.

PERSON X SITUATION CAUSES

Several theories propose that job satisfaction derives from the interaction between the person and the situation. For example, the job characteristics model proposes that job enrichment is more strongly related to job satisfaction for individuals who prefer challenge and interest in their job. There is reasonable support for this proposition.

A further example of an interactive theory is the Cornell model, which proposes that job satisfaction is highest when individuals receive a high level of outputs from their job (e.g., pay, status, working conditions) relative to their inputs into the work role (e.g., time and effort). The model recognizes that the value an individual places on inputs and outputs can affect this equation. For example, if unemployment is high, and hence there is high competition for scarce jobs, individuals will see their inputs as less valuable. All else being equal, they are therefore likely to report greater job satisfaction. The value-percept theory is another interactive approach that has generally been supported. This theory proposes that individuals are likely to be satisfied if the things they find important

(their values) are fulfilled. In other words, discrepancies between what is desired and received are dissatisfying only if the job facet is important to the individual.

OUTCOMES OF JOB SATISFACTION

Job satisfaction is often seen as an important outcome in its own right. From a social and humanitarian perspective, there is obvious value in having a society in which people have positive views about their work and feel they are treated with dignity and respect. After all, individuals spend up to one third of their waking hours in the workplace. In addition, however, job satisfaction can affect important personal and organizational outcomes. Some of the most well-established ones are discussed next.

Life Satisfaction and Health

For a small number of individuals, job and life experiences are segmented and have little effect on each other. For an even smaller group, the compensation model applies, meaning that individuals seek to compensate for a dissatisfying job by looking for fulfillment outside of work. For most individuals (around 70%), however, job experiences spill over and affect their lives more broadly. This spillover model is supported by evidence that job satisfaction has a moderately strong positive correlation with one's overall life satisfaction. It seems that how one feels and/or thinks about one's job tends to affect how one feels and/or thinks more broadly. The reverse is also true: One's broader life satisfaction can affect job satisfaction.

In terms of health, there are clear links between job satisfaction and mental health, such as depression and burnout. *Burnout* is a distressed emotional state experienced on the job, such as feeling emotionally exhausted and feeling a reduced sense of personal accomplishment. Job dissatisfaction has also been associated with physical symptoms such as headaches, although the methodological limitations of most studies in this area (e.g., an overreliance on self-reported assessments of health) preclude any conclusion about causality at this stage.

Job Performance and Other Important Organizational Behaviors

It is intuitively appealing to believe that the happy worker is also a productive one. However, in the

mid-1980s, a very influential meta-analysis of the literature suggested a relatively low correlation (.17) between job satisfaction and performance. At this point, the effect of job satisfaction on performance appeared trivial.

More recent evidence challenges this conclusion. First, job satisfaction has been shown to be more strongly predictive of performance when organizational citizenship behaviors are included as part of performance. *Organizational citizenship behaviors* are voluntary acts to help coworkers and employers. It makes sense that individuals who are happy and satisfied at work are more likely to engage in such voluntary behaviors. Second, a more recent and rigorous meta-analysis of correlations between job satisfaction and individual performance showed a moderate-sized correlation between these variables (.30), which was even higher for complex jobs. It is likely that more complex jobs allow individuals more autonomy and latitude to act on their satisfaction. Third, studies conducted at the organizational level of analysis (which, for example, compare the average satisfaction of a company and its performance with the average satisfaction and performance of other companies) also suggest a positive and nontrivial relationship between job satisfaction and organizational performance indicators such as market share and profit.

In addition to job satisfaction promoting positive work behaviors, there is evidence that job dissatisfaction promotes negative behaviors within organizations. Thus, dissatisfied employees are more likely than satisfied employees to engage in counterproductive acts in organizations (e.g., theft, aggression, sabotage), particularly if they believe they have low control at work. Dissatisfied employees are also more likely to engage in withdrawal—that is, job avoidance behaviors such as quitting, coming in late, or being absent. It appears individuals will seek to escape a dissatisfying job and that if they can't escape permanently by leaving the job entirely, then they will escape temporarily by being late or being absent. The evidence is particularly strong that dissatisfied individuals are more likely to leave their job altogether, especially if there are alternatives (e.g., if unemployment is low, individuals are more likely to leave their job if they are dissatisfied than they are when unemployment is high).

The relationship between job satisfaction and absence is smaller and more inconsistent, despite the fact that job satisfaction features prominently in

theories of absence. In part, this weaker relationship reflects the fact that people are absent for many reasons (e.g., illness, sick children), and it also reflects methodological challenges (e.g., often there are a few employees with very high absence rates, which affects the statistical distribution of absence). Recent evidence shows that job satisfaction is most likely to predict withdrawal when the various behaviors are considered together as part of a pattern, rather than when focusing on any single indicator of withdrawal.

SUMMARY

How much we like our jobs—our job satisfaction—is a critical concept in the study of work. Job satisfaction is likely to result in a number of positive benefits, both for individuals (their well-being, mental health, and life satisfaction) and for organizations (better performance, more citizenship, less counterproductive behavior, and less withdrawal). Importantly, job satisfaction can be changed. Even though our job satisfaction is in part a product of who we are, regardless of our job or work situation, our job satisfaction is also significantly affected by the work situation. In many instances, the work environment can and should be changed, such as by reducing excess workload, increasing levels of job autonomy, or introducing practices to reduce home–work conflict. Such change initiatives are especially likely to be successful in raising job satisfaction if one takes into account individual values and personality in this process.

—Sharon K. Parker

See also Attitudes and Beliefs; Job Design; Job Performance Models; Withdrawal Behaviors, Absenteeism; Withdrawal Behaviors, Lateness; Withdrawal Behaviors, Turnover

FURTHER READING

- Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology, 40*, 287–322.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16*, 250–279.
- Herzberg, F. (1967). *Work and the nature of man*. Cleveland, OH: World Book.
- Hulin, C. L. (1991). Adaptation, persistence, and commitment in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational*

psychology (Vol. 2, pp. 445–505). Palo Alto, CA: Consulting Psychologists Press.

- Judge, T. A., Parker, S. K., Colbert, A., Heller, D., & Ilies, R. (2001). Job satisfaction: A cross-cultural review. In N. Anderson, D. S. Ones, H. K. Sinangil, & C. Viswesvaran (Eds.), *Handbook of industrial, work and organizational Psychology* (Vol. 2, pp. 25–51). London: Sage.
- Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychological Bulletin, 127*, 376–407.
- Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297–1343). Chicago: Rand McNally.
- Spector, P. E. (1997). *Job satisfaction*. Thousand Oaks, CA: Sage.
- Staw, B. M., & Cohen-Charash, Y. (2005). The dispositional approach to job satisfaction: More than a mirage, but not yet an oasis. *Journal of Organizational Behavior, 26*, 59–78.

JOB SATISFACTION MEASUREMENT

Job satisfaction may be measured for a variety of reasons. For example, a company may measure job satisfaction over time to assess trends in employee attitudes or reactions to a new policy or organizational intervention. Assessing job satisfaction might also serve a diagnostic purpose, identifying those aspects of the job with which employees are dissatisfied. As a last example, companies might measure job satisfaction to predict other important attitudes or behaviors (e.g., job turnover). In all instances, a useful measure is important.

WHAT MAKES A MEASURE OF JOB SATISFACTION USEFUL?

Is It a Good Measure?

Good measures are reliable (i.e., levels of job satisfaction that are in fact consistent over time demonstrate similar satisfaction scores), valid (i.e., the measure provides a pure measure of job satisfaction), discriminating (i.e., the measure of job satisfaction is equally sensitive to low and high reported levels), and comparable (i.e., the measure allows you to compare job satisfaction scores across groups). Developing a good measure requires significant expertise and

resources and should be undertaken by individuals with strong backgrounds in psychometrics and statistics. The unfortunately common strategy of writing a few items and assuming they provide a measure of job satisfaction is inappropriate. Without evidence of quality, homegrown measures may yield erroneous interpretations and conclusions.

Is the Measure Appropriate for Your Purposes?

Multiple good measures of job satisfaction are available, so the choice depends in part on purpose. For example, is the measure of job satisfaction easy to administer, score, and interpret? Does it support the types of interpretations needed (e.g., overall job satisfaction versus different areas or facets of job satisfaction)? Is the reading level appropriate? Is the measure available in different languages so that organizations can assess satisfaction in the first languages of employees throughout the world? Finally, how much does it cost? Answers to these questions will be very helpful in selecting the best possible measure of job satisfaction for the purpose at hand.

VARIATIONS IN MEASURES OF JOB SATISFACTION

Quantitative Versus Qualitative Measures

Quantitative measures of job satisfaction, based on numerical ratings assigned to closed-ended response items, are by far the most commonly used types of measures (and are preferred, given the characteristics of a good measure identified above). Structured interviews, content coding of open-ended response items, and other qualitative measures of job satisfaction offer an enriched interpretation of findings obtained from quantitative measures. They are not recommended in place of quantitative measures, because they do not lend themselves to drawing comparisons across groups of employees or organizations.

Overall Versus Facet

Given the different purposes for measuring job satisfaction, both overall and facet measures have been developed. *Overall* measures provide a global assessment of job satisfaction and may require the summation of several general items, the summation of items measuring a broad set of facet areas of satisfaction, or

both. *Facet* measures focus on the assessment of satisfaction with different aspects of the job, which typically include dimensions such as supervision, pay, coworkers, and the work itself. Unlike an overall rating, facet measures yield a diagnostic profile of satisfaction so that one may identify particular areas that might be high or low.

Single Versus Multiple Item Measures

It is appealing to think that a well-written single item will be a good measure of overall job satisfaction (e.g., "Overall, I am satisfied with my job") or different facets of job satisfaction (e.g., "My level of pay fails to meet my needs and expectations"). They would be short and easy to complete, score, and interpret. Unfortunately, they typically have low reliability and validity. Reviews of published measures of job satisfaction (see Further Reading) commonly include multiple items.

General Versus Occupation-Specific Measures

Most measures of job satisfaction are developed for use across occupations. These general measures are useful for most organizations. However, measures of satisfaction have been developed for specific employee populations (e.g., nurses, human service employees). Although such measures may be more sensitive to the particular issues of a profession or job grouping, they are not available for many occupations and prohibit cross-occupational comparisons.

LOCATING MEASURES OF JOB SATISFACTION

Mental Measurement Yearbook

The Mental Measurement Yearbook (MMY) is a serial publication available in most libraries and provides a somewhat comprehensive listing of a broad range of tests and measures. The MMY solicits external reviews by established researchers who critically evaluate new measures. However, with its broad range, it does not provide an all-inclusive listing of established measures of job satisfaction.

Compendia of Satisfaction Measures

There are compendia of job attitude measures, a number of which are included in the Further Reading

section at the end of this entry. Although some are dated and may not include recently developed measures of job satisfaction, compendia often provide summaries and recommendations that may help one choose among the many published measures.

Test Publishers

A large number of test publishers market measures of job satisfaction that were developed in-house by the publishers' professional staffs or that provide the marketing support for measures of job satisfaction developed by others. Unfortunately, there is no easy way to identify test publishers who specialize in measures of job satisfaction.

World Wide Web

Currently, Internet search engines can be used to locate Web pages that may provide information about measures of job satisfaction. Also, the electronic database PsycINFO includes more than 1,900 behavioral science journals. Unfortunately, current features of the search interface make it challenging to discriminate between articles about measures of job satisfaction and those that simply measure the construct.

Exemplar Measures of Job Satisfaction

Although a large number of measures of job satisfaction are available, and some may be more relevant given the specific purpose, a few measures are discussed here based on their excellent reputations as well-designed and useful.

Faces Scale

The Faces Scale, developed in the 1950s, measures overall satisfaction using a single, nonverbal item. Eleven faces appear along a continuum from a broad smile to a deep scowl, and respondents are asked to circle the face that best describes their overall job satisfaction. Despite the admonishments earlier in this discussion against using single-item measures, the Faces Scale has been shown to be a remarkably good measure of satisfaction with the job overall. It is simple to administer and score. It is unclear whether it is effective in cross-cultural situations. It can be

administered across a broad range of employees, although it may be less accepted by midlevel management or above. Overall, the Faces Scale is a quick and simple measure of overall job satisfaction.

Minnesota Satisfaction Questionnaire

The 20-item short form version of the Minnesota Satisfaction Questionnaire (MSQ) was developed in the 1960s to provide a comprehensive assessment of general job satisfaction. Each of the 20 items starts with a common *stem* ("On my present job, this is how I feel about:") and taps into some specific aspects of the job (e.g., "... Being able to keep busy all the time"; "... The working conditions"). Each item is scored on a five-point *very dissatisfied*–*very satisfied* scale and summed in an unweighted fashion for an overall measure of satisfaction. Item subsets can also be summed to provide scores on intrinsic and extrinsic satisfaction, but recent research questions the quality of these two submeasures. Decades of accumulated research suggest that the MSQ provides a good measure of overall satisfaction.

Job Diagnostic Survey

The Job Diagnostic Survey (JDS) measures job characteristics but also includes a five-item measure of overall job satisfaction. The items include positively worded statements (e.g., "Generally speaking, I am very satisfied with this job") as well as reverse-scored items (e.g., "I frequently think about quitting this job"). The items are scored on a seven-point *disagree strongly*–*agree strongly* scale and are summed in an unweighted fashion for an overall measure of satisfaction. The JDS job satisfaction scale is easy to administer and score and has been found to provide a good assessment of overall job satisfaction. However, two items focus on quitting, a related but different concept. Therefore, it may not be a pure measure of job satisfaction.

Facet-Specific Job Satisfaction

The Facet-Specific Job Satisfaction (F-SJS) measure includes 33 items to measure six distinct features of the job: comfort (e.g., "The hours are good"), challenge (e.g., "The work is interesting"), financial rewards (e.g., "The pay is good"), relations with coworkers (e.g., "The people I work with are friendly"),

resource adequacy (e.g., “My responsibilities are clearly defined”), and promotions (e.g., “Promotions are handled fairly”). Responses are scored using a four-point *very true–not at all true* scale, providing six distinct scale scores; the items can also be summed to provide an overall measure of job satisfaction.

Job Satisfaction Survey

Originally developed for use in human service organizations, the Job Satisfaction Survey (JSS) includes 36 items that are scored on a six-point *disagree strongly–agree strongly* scale. Scored items are summed in an unweighted fashion for an overall measure of satisfaction. There are also nine facet scores: pay (e.g., “I feel I am being paid a fair amount for the work I do”), promotion (e.g., “I am satisfied with my chances for promotion”), supervision (e.g., “My supervisor is unfair to me”), fringe benefits (e.g., “I am not satisfied with the benefits I receive”), contingent rewards (e.g., “When I do a good job, I receive the recognition for it that I should receive”), operating procedures (e.g., “I have too much paperwork”), coworkers (e.g., “I enjoy my coworkers”), nature of work (e.g., “I feel a sense of pride in doing my job”), and communication (e.g., “Communications seem good within this organization”). Score distributions from previously surveyed employees (primarily from public-sector and medical/ mental health organizations) are available online for comparison purposes.

Job Descriptive Index/Job in General

The Job Descriptive Index (JDI), first published in 1969 and revised in 1985 and 1992, is commonly cited as the most carefully developed and most frequently used measure of job satisfaction. It has been translated into a variety of languages, and national norms have been developed (and are regularly updated) to allow both within- and cross-organization comparisons. The JDI measures five facet areas of satisfaction that have been identified as important across many organizations: work itself, pay, opportunities for promotion, supervision, and the people with whom one works. The scale includes a total of 72 adjectives or short phrases, and respondents are asked to mark a “Y” (Yes, it describes my job), an “N” (No, it does not describe my job), or “?” (Cannot decide). The Job in General (JIG) measure was developed in 1989 to

provide a complementary measure of overall job satisfaction to the JDI. The JIG includes 18 items, using the same item design and response format as the JDI. The JDI and JIG can be completed by individuals with a third-grade or higher reading level and together take no more than 15 minutes to complete. More recently, abridged versions of the JDI and JIG have been developed in response to the desire for shorter measures that still include a broader range of scales and items. The Abridged Job Descriptive Index (AJDI) contains a total of 25 items; the Abridged Job in General (AJIG) measure contains 10 items. Efforts are under way to offer online administration, scoring, interpretation, and report writing that are completely automated, a service that may be particularly helpful for midsized organizations that lack the expertise to do their own survey work.

—William K. Balzer and Jennifer Z. Gillespie

See also Attitudes and Beliefs; Customer Satisfaction With Services; Job Satisfaction; Morale; Organizational Surveys

FURTHER READING

- Balzer, W. K., Kihm, J. A., Smith, P. C., Irwin, J. L., Bachiochi, P. D., Robie, C., et al. (1997). *Users' manual for the Job Descriptive Index (JDI; 1997 Revision) and the Job in General (JIG) scales*. Bowling Green, OH: Bowling Green State University.
- Feild, H. S., Childress, G. B., & Bedeian, A. G. (1996). Locating measures used in I/O psychology: A resource guide. *The Industrial-Organizational Psychologist, 34*, 103–107.
- Fields, D. L. (2002). *Taking the measure of work: A guide to validated scales for organizational research and diagnosis*. Thousand Oaks, CA: Sage.
- Kunin, T. (1955). The construction of a new type of measure (Faces Scale). *Personnel Psychology, 8*, 65–78.
- Russell, S. S., Spitzmuller, C., Lin, L. F., Stanton, J. M., Smith, P. C., & Ironson, G. H. (2004). Shorter can also be better: The abridged Job in General scale. *Educational and Psychological Measurement, 64*, 878–893.
- Spector, P. E. (1985). Measurement of human service staff satisfaction: Development of the Job Satisfaction Survey. *American Journal of Community Psychology, 13*, 693–712.
- Stanton, J. M., Sinar, E. F., Balzer, W. K., Julian, A. L., Thoresen, P., Aziz, S., et al. (2002). Development of a compact measure of job satisfaction: The abridged Job Descriptive Index. *Educational and Psychological Measurement, 62*, 173–191.

JOB SEARCH

Job search can be defined as the specific activities through which effort and time are expended to acquire information about labor market alternatives. Stated more simply, job search is the pursuit of employment. There are few well-developed models of job search. This scarcity results in part from the tendency for organizational scientists to focus on job seekers after job alternatives have been generated. Thus job search is generally viewed as part of a larger model encompassing the job evaluation and choice processes. Specifically, job alternatives generated through job search are evaluated to arrive at a job choice decision. Such decisions include choosing among job alternatives, remaining with the current employer, or withdrawing from the labor market.

MEASURING JOB SEARCH

Job alternatives generated through job search activity are a function of (a) the sources used and (b) the level of intensity in pursuing those sources. Accordingly, there are two typical approaches to measuring job search. The first approach is to examine the number of behaviors (e.g., prepare résumé, telephone a prospective employer, fill out a job application) an individual engages in over a period of time, where a higher number indicates greater search activity. An alternative approach is to assess the intensity or effort put into job search. For example, an individual is asked to rate his or her frequency in carrying out an array of job search behaviors over a specific period of time.

A trend in the job search literature is to consider the nature of job search behavior. A particularly useful and well-accepted approach is distinguishing between preparatory and active job search behaviors. *Preparatory search behavior* involves assessing whether desirable alternatives exist and would include such behaviors as talking to friends or relatives about possible employment leads or reading job postings in a newspaper, in a journal, through a professional association, or on the Internet. *Active search behavior* is the attempt to determine the actual availability of those alternatives to the individual and includes behaviors such as sending one's résumé to a prospective employer or contacting a search firm, employment agency, or state employment service. Research has generally found that preparatory and active search

are distinct dimensions with different antecedents and outcomes. For example, preparatory job search tends to precede active job search, and active search is a stronger and more proximal predictor of job choice decisions.

THE JOB SEARCH CONTEXT

People search for employment opportunities in a variety of contexts, including job market entry (or reentry) following a period of full-time education, unemployment because of job loss, or seeking alternative employment while currently employed. The job search determinants, processes, and outcomes are often quite different depending on the specific context of focus. That is, how a recent college graduate goes about searching for a job, what factors drive his or her search, and the relevant search outcomes are typically distinct from individuals who have been laid off from a job or from those seeking alternative employment opportunities while already holding a job. As an example, an important outcome for unemployed individuals (whether unemployed because of job loss or following full-time education) is simply becoming employed. Yet employed job seekers may not necessarily be searching to obtain a job, but may actually have other motives (e.g., to establish networks, to demonstrate marketability to current employer) driving their job search activity.

PREDICTORS OF JOB SEARCH

Although the relevant predictors of job search can vary across contexts and samples, job search predictors can be classified broadly as person attributes, situation attributes, and market attributes. *Person attributes* reflect relatively enduring characteristics about an individual. This would include personality traits (e.g., self-efficacy, Big Five personality factors) and biographical (e.g., gender, race) and human capital (e.g., ability, experience, education level) factors. Recent research suggests that individuals who are more extraverted, conscientious, and open to experience engage in more job search. Self-esteem and self-efficacy are also strong predictors of more job search. The strongest biographical/human capital antecedents are education level (positively related) and job tenure (negatively related).

Situational attributes change with particular employment and personal circumstances or may

reflect individual reactions to and perceptions about a particular situation. In regard to predicting job search activity, these would include motive-related antecedents such as financial need and commitment to employment, as well as social support variables. For employed individuals, characteristics of the current employment situation play a significant role in predicting search activity as well as other retention-related constructs (e.g., intent to quit, voluntary turnover). Examples include general work attitudes such as job satisfaction and organizational commitment; objective factors including pay and benefits, type of work, and working conditions; and perceptions of and reactions to these objective variables (e.g., perceived fairness of pay, feelings toward one's supervisor and/or the work environment, and person-organization fit).

Finally, market attributes affect the relative supply of and demand for labor and thus can influence job search. Relevant factors include alternative opportunities, cost-benefit decisions, and the industry or the type of job sought. Existing research on the effect of perceived alternatives on job search activity is somewhat equivocal and deserves further discussion. Specifically, it has been argued that those perceiving more alternatives should have greater confidence in their ability to find a new job and thus search more. Yet those with greater marketability may require less search either to locate suitable alternatives or to acquire needed information. As noted, empirical research findings are mixed, and the nature of the effect is likely to depend on the job search context of focus.

JOB SEARCH OUTCOMES

The general notion of job search success is often of interest as a dependent variable. For new job market entrants as well as unemployed individuals, simply whether one is employed (i.e., employment status) following job search is particularly relevant. Other criteria of job search success include number of interviews and/or number of offers following job search, with the assumption often being that more is better. That is, more interviews and/or more offers are generally seen as indicating job search success. Some research has questioned this perspective, recognizing, for example, that efficiency in the job search process may be more desirable. As an example, an individual who has 10 interviews leading to 2 job offers is not necessarily more successful than an individual who

interviews with one company and receives a job offer, particularly if the latter individual receives an offer from his or her employer of choice.

Another measure of job search success is the quality of the offer(s) received or job ultimately accepted. The challenge researchers face in assessing the quality of employment is that there are many job attributes that may reflect the quality of a job (e.g., pay, location, work culture, advancement opportunity). The assessment, as well as importance of the various attributes, is often in the eye of the beholder.

The duration of job search is another potentially relevant outcome variable. In this case, the focus is generally on time (e.g., weeks) from the onset of search (e.g., loss of job) to employment, with shorter duration indicating higher job search success. Duration of job search is particularly relevant for unemployed individuals, whether unemployed because of job loss or following full-time education. The longer it takes to find a job, the more likely an individual may be to drop out of the labor market, which has important societal and policy implications.

The basic finding in the job search literature is that job search intensity increases one's probability of and speed in finding employment, although not necessarily the quality of employment. In terms of different job search sources, research suggests that job seekers are more likely to use and find employment through informal sources (e.g., friends, acquaintances) than through more formal methods (e.g., employment agencies). Length of service in a job, another indicator of job search success, also tends to be higher when informal job search sources are used. More research attention on the use and consequences of various job search sources is certainly warranted, particularly with the growing reliance on the Internet for job search purposes.

In the context of employed individuals, job search is often seen as a precursor to voluntary turnover. Indeed, the traditional turnover model assumes that employee dissatisfaction leads to withdrawal cognitions, then a search for alternatives, followed by an evaluation of alternatives, and ultimately a decision to quit or stay. Thus, search is seen as instrumental in leaving an organization for alternative employment. Consistent with this model, job search activity is one of the strongest predictors of employee turnover, although job search tends to explain a modest 4% to 6% of the variance in turnover. Of course, not everyone who desires to leave and searches for an alternative

job can find available opportunities that are necessarily more attractive than the current employment situation, and some individuals quit without searching at all. Both of these factors provide explanations for the moderate (albeit significant) relationship between job search and employee turnover. Yet, as indicated previously, research has begun to recognize that individuals engage in job search for reasons other than to leave the current employment situation. Considering the motives behind an individual's job search, beyond the assumption that individuals search to leave the current employer for a new job, will help contribute to better understanding to the consequences of employed individuals' job search activity. Interestingly, there has been little research on how job search affects such things as subsequent work attitudes, social relations (with supervisors or coworkers), and work motivation and performance outcomes, particularly when an employee searches but does not end up leaving the current employer.

SUMMARY

At any given time, many people are searching for employment opportunities. The nature of their behavior and the context in which they search can be quite varied. Yet whether search is viewed as part of the job evaluation and choice process or within the framework of employee withdrawal and turnover, the objective of job search is typically to investigate and generate job alternatives. Whether an individual is successful in that respect, and the resultant outcomes, is a function of the person, the situation, and the larger labor market.

—Wendy R. Boswell

See also Big Five Taxonomy of Personality; Self-Efficacy

FURTHER READING

- Barber, A. E., Daly, C. L., Giannantonio, C. M., & Phillips, J. M. (1994). Job search activities: An examination of changes over time. *Personnel Psychology, 47*, 739–766.
- Blau, G. (1994). Testing a two-dimensional measure of job search behavior. *Organizational Behavior and Human Decision Processes, 59*, 288–312.
- Boswell, W. R., Boudreau, J. W., & Dunford, B. B. (2004). The outcomes and correlates of job search objectives: Searching to leave or searching for leverage? *Journal of Applied Psychology, 89*, 1083–1091.

- Bretz, R. D., Boudreau, J. W., & Judge, T. A. (1994). Job search behavior of employed managers. *Personnel Psychology, 47*, 275–301.
- Kanfer, R., Wanberg, C. R., & Kantrowitz, T. M. (2001). Job search and employment: A personality-motivational analysis and meta-analytic review. *Journal of Applied Psychology, 86*, 837–855.
- Schwab, D. P., Rynes, S. L., & Aldag, R. J. (1987). Theories and research on job search and choice. In K. M. Rowland & G. R. Ferris (Eds.), *Research in Personnel and Human Resources Management, 5*, 129–166. Greenwich, CT: JAI Press.

JOB SECURITY/INSECURITY

Job security and job insecurity can be viewed as opposite sides of the same coin. Simply defined, *job security* is assured continuity of one's job, and *job insecurity* is the uncertainty that one's job will continue. The term *job insecurity*, rather than *job security*, is more commonly used in the literature.

A more comprehensive definition of *job insecurity* is powerlessness to assure desired continuity of one's job or job components when either the job or its components is threatened. The term *job insecurity* can refer not only to the potential loss of the job itself, but also to the threatened loss of key components of the job, such as supervisory activities or pay. The fuller definition of *job insecurity* is derived from underlying themes of anticipation, risk, and powerlessness. Job insecurity is focused on anticipation of a possible future event, namely job loss. The future focus of job insecurity suggests that employees faced with job insecurity consider the consequences that job loss would bring, such as financial strain. Job insecurity also involves risk that job loss or loss of job components would result in a corresponding loss of something of value. The loss might be simply monetary, or it could be intangible, such as loss of status provided by the job. Job insecurity definitions also often incorporate the concept of powerlessness to reduce job insecurity.

TAXONOMY OF JOB INSECURITY

Job insecurity can be further classified as subjective or objective; cognitive or affective; and global or multifaceted.

Subjective or Objective

In research, job insecurity primarily has been conceptualized as subjective in nature. This implies that individual psychological interpretations of job insecurity vary and that these interpretations play a crucial role in individual responses to job insecurity. Objective job insecurity, alternatively, is the actual degree to which the future of one's job is uncertain. If individuals are unaware that their jobs are at risk or refuse to believe that their jobs are at risk, then they might not perceive job insecurity even if objective job insecurity exists. Indeed, the relatively weak relationship between objective and subjective job insecurity indicates that the existence of one is not a prerequisite for the existence of the other.

Cognitive or Affective

Belief that one's job will be lost is the cognitive aspect of job insecurity. In contrast, the feelings that one has about the possible job loss constitute the affective component of job insecurity. A distinction can be made between the perceived likelihood of job loss and a concern about job loss. Workers can believe that job loss is likely without feeling concerned. This lack of concern might hold true for those who are ready to leave the workforce, such as workers close to retirement age and those with other job offers. In contrast, workers can feel concerned about potential job loss even if they believe that their jobs are secure. Concern about job insecurity might outweigh belief that one's job is secure for individuals who have great financial responsibilities or those who feel that few job options are open to them.

Global or Multifaceted

Global job insecurity focuses on the potential loss of the job in its entirety. It is more commonly studied than a multifaceted approach to job insecurity, which encompasses potential loss of both components of the job as well as the entire job. There is some debate on whether loss of job components is as important as loss of the job itself. Loss of job components might not be as severe as loss of the job itself, because even when components are lost, the individual still retains organizational membership. The contrasting argument states that reactions to threatened loss of at least

certain job components are substantively similar to threatened loss of the job itself.

CONSEQUENCES OF JOB SECURITY/INSECURITY

Job insecurity has strong psychological implications and is considered one of the most stressful aspects of the work situation. The role that employment plays in our society turns the prospect of job loss into a threat. Job insecurity not only jeopardizes individual economic security; it can also threaten intangible social needs that are often met by work, such as a sense of status or identity.

Outcomes associated with job insecurity can be grouped by type and focus of reaction. Types of reactions include immediate and long-term consequences, and focus of reactions is either individual or organizational.

Job and Organizational Attitudes

Attitudinal reactions to changes in job security tend to manifest themselves quickly. Those consequences of job insecurity that are classified as job attitudes are both immediately felt and focused on the individual rather than the organization. Job satisfaction and job involvement are included in this group. As job insecurity increases, job satisfaction and job involvement decrease.

Like job attitudes, organizational attitudes are quickly affected by a change in job security. The focus, however, is on attitudes toward the organization as opposed to intrapersonal dynamics. Job insecurity has been correlated with decreased affective organizational commitment, increased continuance commitment, decreased trust in the organization, and decreased perceived organizational support.

Well-Being

Some outcomes of job insecurity, such as individual physical or psychological well-being, manifest themselves more slowly. Physical health issues related to job insecurity include somatic complaints such as fatigue and pain and heart-related problems such as elevated blood pressure and ischemic heart disease. Job insecurity is associated with general psychological distress as well as with decrements in specific

forms of psychological well-being, such as strain and burnout, depression, and anxiety.

Work-Related Behavior

Work-related behaviors can be classified as a long-term consequence of job insecurity, because the effects of job insecurity on work-related behaviors are not immediately apparent. Rather than having an internal focus, work-related behaviors are focused external to the individual, on the organization. Although some studies have found an inverse relationship between job insecurity and performance, others have not. This lack of relationship was supported by a recent meta-analysis. Closely related to performance, work effort has been found to have a curvilinear relationship with job insecurity, with work effort being highest at moderate levels of job insecurity. Two other work-related behaviors, intention to leave and job-seeking behavior, also are positively associated with increased job insecurity.

ANTECEDENTS AND MODERATORS

Like any predictor, job security/insecurity is not without its antecedents and moderators.

Antecedents of Job Security/Insecurity

Job security/insecurity is generally examined as a predictor. As a result, less attention has been given to antecedents of job insecurity. The relationship between gender and job insecurity suggests that men and women do not view job insecurity in the same way, and they react to job insecurity differently. Women appear to perceive greater job insecurity and to be more concerned about job insecurity than men. Personality also appears to play a role in determining job insecurity. Positive personality attributes lessen job insecurity, and negative attributes, such as neuroticism, increase perceptions of job insecurity.

Experience with organizational change in the form of downsizing or merger and acquisition relates to greater job insecurity. Regardless of whether the change is in the future, present, or past, job insecurity appears to be affected. Employees who anticipate a merger or acquisition, along with those in organizations currently downsizing, report greater job insecurity. Individuals who have personal experience with layoffs subsequently report lower job security.

Violations of psychological contract, such as a failure to meet expectations of career advancement, also are associated with increased job insecurity. These findings hold even though expectations of job security are no longer considered to be part of a relational psychological contract.

Moderators of Job Security/Insecurity

Based on the results of a recent meta-analysis of job insecurity, moderators play a substantive role in explaining the relationship between job insecurity and its outcomes. Social support has been found to moderate the relationship between job insecurity and job satisfaction and between job insecurity and noncompliant job behaviors. Social support also moderates the relationship between job insecurity and job-seeking behavior. As well as directly relating to job insecurity, job involvement acts as a moderator of the relationship between job insecurity and job satisfaction and the relationship of job insecurity with intention to leave. Occupational status moderates the role between job insecurity and two of its outcomes. Manual workers have a stronger relationship between job insecurity and performance and between job insecurity and intention to leave than do nonmanual workers. Additionally, the method used to measure job security/insecurity can affect its relationship with its outcomes. Single-item job insecurity measures are associated with weaker relationships between job insecurity and job satisfaction, trust, and performance.

MEASURING JOB SECURITY/INSECURITY

Assessing job security/insecurity via self-report tends to be the norm. Likewise, subjective job security/insecurity is more commonly assessed than is objective job insecurity.

Measuring Objective Job Insecurity

Regardless of the measurement method chosen, quantifying objective job insecurity can be difficult. On an individual basis, the terms of the employment contract can be examined for verbiage concerning contract length. Within the organization, managers can rate the security of a particular job. Industry-wide ratings of objective job insecurity can be made by determining the growth rate of an industry. The assumption is that jobs at organizations in a growth industry are secure, whereas those in a declining

industry are insecure. Alternatively, individuals can report whether certain events, such as downsizing, have occurred in their organizations. These self-report responses indicate the occurrence of the event rather than the incumbent's interpretation of said event.

Measuring Subjective Job Insecurity

No single measure is commonly considered the best measure of subjective job insecurity. Current measures vary from a single self-report global item to lengthy self-report multidimensional measures. The single item typically asks, "How secure (or insecure) is your job?" On the other end of the spectrum, a 52-item measure based on Leonard Greenhalgh and Zehava Rosenblatt's conceptualization of job insecurity involves determining the importance and likelihood of loss for both the job and key job components, along with assessing the perceived powerlessness to resist the threatened loss. Most measures fall in the middle in both length and complexity. Typical measures assess global subjective job insecurity in 3 to 5 items. Measures that also assess potential loss of job components tend to be two-dimensional, with one asking about security of the job itself and the second asking about security of key job components. A pair of newer measures also makes the distinction between cognitive and affective subjective job insecurity.

—Kelley J. Slack

See also Downsizing; Outsourcing; Quality of Work Life; Stress, Consequences

FURTHER READING

- Ashford, S. J., Lee, C., & Bobko, P. (1989). Content, causes, and consequences of job insecurity: A theory-based measure and substantive test. *Academy of Management Journal*, 32(4), 803–829.
- DeWitte, H. (1999). Job insecurity and psychological well-being: Review of the literature and exploration of some unresolved issues. *European Journal of Work and Organizational Psychology*, 8(2), 155–177.
- Greenhalgh, L., & Rosenblatt, Z. (1984). Job insecurity: Toward conceptual clarity. *Academy of Management Review*, 9(3), 438–448.
- Hellgren, J., Sverke, M., & Isaksson, K. (1999). A two-dimensional approach to job insecurity: Consequences for employee attitudes and well-being. *European Journal of Work and Organizational Psychology*, 8(2), 179–195.

Jacobson, D. (1991). Toward a theoretical distinction between the stress components of the job insecurity and job loss experiences. *Research in the Sociology of Organizations*, 9, 1–19.

Sverke, M., Hellgren, J., & Naeswall, K. (2002). No security: A meta-analysis and review of job insecurity and its consequences. *Journal of Occupational Health Psychology*, 7(3), 242–264.

JOB SHARING

Job sharing describes the sharing of one full-time job by two part-time employees, requiring interaction and collaboration between two part-time employees in completing work goals. Generally, pay and benefits are distributed equally between the part-time workers involved in job sharing. Objectives of job sharing include improved management of work and family responsibilities, better retention of highly qualified employees, leveraging the skills and experiences of two part-time instead of one full-time employee, and higher flexibility for the employees involved.

HISTORY AND PREVALENCE OF JOB SHARING

Job sharing was first developed in the 1960s to provide employees with more part-time employment opportunities. In contrast to traditional part-time employment, job sharing was designed to allow the sharing of professional jobs that entail higher levels of organizational responsibility than traditional part-time jobs. Initially, job sharing was limited to government jobs, but it spread to the private sector in the late 1970s and 1980s. Despite the advantages of job sharing, it is not as common as other part-time working arrangements—in the 1990s, between 22% and 47% of organizations reported offering job sharing to their employees as one part-time employment option. The prevalence of job sharing differs based on industry; job sharing is more common in the health care and government sectors than in other industries. Today, job sharing is accomplished using different scheduling techniques. Some jobs are shared so that each of the two employees covers a whole week and then has a week off. Other job shares involve the splitting of daily responsibilities. For example, one employee

may work during the morning and the other job sharer, in the afternoon. Daily rotations between the two employees are another form of job sharing; one employee may cover Mondays, Wednesdays, and part of Fridays, and the other may cover Tuesdays, Thursdays, and the other part of Fridays. Although both men and women are involved in job sharing, women with young children are overrepresented among job sharers.

RESEARCH FINDINGS ON COSTS AND BENEFITS OF JOB SHARING FOR EMPLOYERS AND EMPLOYEES

Employers

Organizations interested in implementing job sharing face various costs and benefits of program implementation. Several costs have been found to be consequences of the implementation of job-sharing programs: Job sharing has been identified to relate to increased training costs—in job-sharing situations, two employees, instead of one, have to be trained to fill a job. Usually, both employees receive benefits, which can lead to increased benefits costs if services such as health insurance have to be provided to more than one employee. Costs for personnel administration also rise if job sharing is in place. Again, this greater cost is caused by pay and benefits needing to be administered to two employees instead of one. Further costs can arise if the job-sharing employees communicate ineffectively. Miscommunication may lead to duplicated work or wasted time as employees try to establish what work has been finished. Conversely, employers can benefit substantially from having job-sharing programs: If two employees are trained to fill the same position, one can fill in if the other is absent. Thus, employee illness and vacation times are less disruptive if job-sharing programs are in place than if a single employee fills the same position. Further organizational benefits of job sharing include enhanced employee retention and enhanced productivity through potentially complementary employee strengths, abilities, and skills directed toward work objectives. From a recruitment perspective, job sharing can also lead to a competitive advantage for an organization—a position advertised as being available on a full-time or job-sharing basis exploits both full-time and part-time labor markets.

Employees

For employees, job sharing has been found to provide opportunities for successful management of work and personal responsibilities. Employees generally value the availability of job-sharing opportunities. Such opportunities help employees balance work and family responsibilities, raise children, obtain additional education in their free time, or develop additional professional interests during later stages of their career. Particularly those with young children value employers who provide part-time working arrangements such as job sharing. Studies conducted in the health care sector show job sharing to relate to higher satisfaction and physical health status than flextime and other part-time or full-time working arrangements. Also, longitudinal studies of job sharers demonstrate that although initially the well-being of those in job-sharing arrangements did not surpass that of other part-time employees, long-term effects were more positive. Job sharing is not without negative outcomes, however. Employees engaged in job-sharing arrangements can also incur costs: Research has found job sharers to be more likely to quit their jobs than full-time employees if their psychological contracts are violated. Although job-sharing employees experience more advancement opportunities than traditional part-time employees, they still have fewer opportunities than full-time employees. In many organizations, an individual's decision to take a job-sharing position is interpreted as low commitment to career and organization, leading to reduced opportunities for advancement and training. In addition, employees involved in job sharing experienced lower levels of sex discrimination than other part-time employees, but still higher levels of sex discrimination than full-time employees. Some job sharers have reported feeling they had to accomplish a full-time job on a part-time schedule, making job sharing a demanding experience. Other negative consequences of job sharing occur if the two employees sharing one full-time job communicate ineffectively, as previously mentioned, or define their respective roles insufficiently. Unions generally view job sharing favorably, because benefits and job security of job-sharing employees are usually better than those received by other part-time employees. Last, supervisors with no previous exposure to job sharing were found to react cautiously toward the prospect of having employees involved in

job sharing but evaluated job sharing more positively if they had previous exposure.

—Christiane Spitzmüller and Kathryn E. Keeton

See also Career Development; Flexible Work Schedules; Work–Life Balance

FURTHER READING

- Edwards, C. Y., & Robinson, O. (2001). “Better” part-time jobs? A study of part-time working in nursing and the police. *Employee Relations*, 23(5), 438–454.
- Frone, M. R., & Yardley, J. K. (1996). Workplace family-supportive programmes: Predictors of employed parents’ importance ratings. *Journal of Occupational and Organizational Psychology*, 69(4), 351–366.
- Olmsted, B. (1977). Job sharing—a new way to work. *Personnel Journal*, 56(2), 78–81.
- Olmsted, B., & Smith, S. (1983). *The job sharing handbook*. Berkeley, CA: Ten Speed Press.
- Olmsted, B., & Smith, S. (1994). *Creating a flexible workplace: How to select and manage alternative work options* (2nd ed.). New York: AMACOM.
- Rangecroft, A. (1983). Job sharing for educational psychologists. *AEP (Association of Educational Psychologists) Journal*, 6(2), 18–22.
- Stanworth, C. M. (1999). A best case scenario? Non-manual part-time work and job-sharing in UK local government in the 1990s. *Community, Work and Family*, 2(3), 295–310.
- Zedeck, S., & Mosier, K. L. (1990). Work in the family and employing organization. *American Psychologist*, 45(2), 240–251.

JOB TYPOLOGIES

A frequent need in organizations and organizational research is to classify individual positions or jobs into groups, with each group internally homogeneous in terms of a profile of relevant psychological characteristics (e.g., abilities) and situational characteristics (e.g., job requirements) and at the same time externally distinct from all other groups. A job typology is either an established framework—and several major ones will be reviewed here—or it is derived through analytic procedures applied to data at the individual and/or job level, but in either case job typologies contain groups of jobs that, to a greater or lesser extent, adhere to the aforementioned principle of internal

consistency and external distinctiveness. This classification process is similar in spirit to factor analysis, in the sense that it results in a small yet sensible number of groups to simplify and amplify relevant similarities and differences. Rather than serving as an end in itself, however, job classification is a tool that can assist in a whole host of personnel-related functions, such as appraising employee job performance, validating employee selection tests, evaluating jobs, planning career paths, and counseling individuals seeking vocational guidance. There are many practical benefits of grouping jobs effectively. For example, rather than having to develop distinct measures to assess employee performance for each individual job in an organization, job grouping can justify developing measures for a smaller set of job groups. Thus, grouping transforms a potentially cumbersome, costly, and time-consuming task into a more manageable, less expensive, and less time-consuming task that is, one hopes, just as useful. Of course, the practical benefit of reducing the total number of jobs to a manageable and appropriate number of job families depends on theoretical notions of generalizability, first that jobs can be aggregated into job families on characteristics that are relevant across jobs (versus those unique to jobs and job positions), and second that whatever unique information about jobs might be sacrificed through grouping jobs does not adversely affect the purposes to which the resulting job groups are put. Of course, unique job information can serve to supplement the organizing scheme provided by a job taxonomy.

OCCUPATIONAL INFORMATION NETWORK (O*NET) AND THE STANDARD OCCUPATIONAL CLASSIFICATION (SOC) SYSTEM

Established in 1998, the Occupational Information Network (O*NET) is the Department of Labor’s computerized replacement to the longstanding *Dictionary of Occupational Titles* (DOT). The O*NET is intended to be a comprehensive and flexible taxonomic system to categorize jobs in the United States along a multitude of dimensions for the purposes of work-related activities such as employment testing, training, compensation, recruitment, and vocational education and counseling. Rather than using the data–people–things framework the DOT relied on for classifying jobs, the O*NET database is organized

around a framework called the *content model*, which comprises six broad areas, the first three being worker-oriented and the last three being job-oriented:

- Worker requirements (e.g., basic skills, cross-functional skills, education)
- Worker characteristics (e.g., abilities, interests, work styles)
- Experience requirements (e.g., training, experience, licensing)
- Occupation requirements (e.g., work content, organizational context)
- Occupation-specific information (e.g., occupation-specific knowledge, skills, tasks, and tools and equipment)
- Occupation characteristics (e.g., labor market information, wages)

Ratings of the level and importance of worker and job characteristics from these six major areas are collected from workers and supervisors across jobs on a continual basis, with most data being collected on relevant cross-job characteristics, versus the task-specific and worker-specific emphases found in the DOT. Research investigating the reliability, interrater agreement, factor structure, and validity of the data is ongoing. The O*NET system uses the Standard Occupational Classification System (SOC), which is the standard toward which all U.S. government agencies are moving.

GUIDE FOR OCCUPATIONAL EXPLORATION

The *Guide for Occupational Exploration* (GOE), developed by the U.S. Employment Service in 1979, is an occupational typology that arises from a rational-empirical approach to measuring occupational interests, and it is still in use for career exploration and vocational counseling purposes. The interest framework contains 12 factors that can be grouped by pairs into the Holland RIASEC framework of interests (realistic, investigative, artistic, social, enterprising, and conventional interests). Jobs within this framework incorporate most if not all jobs within the O*NET; they subdivide into 66 groups when groups are further differentiated by educational, physical, task-based, and situational factors; and the groups fractionate further into 348 subgroups. For the purpose of career exploration, the 66-group level of categorization is the main emphasis in the GOE, where

both ability profiles (e.g., from the General Aptitude Test Battery, or GATB) and occupational interest profiles (e.g., from Holland RIASEC codes) can be assigned to jobs. This job taxonomy is perhaps more theoretically focused than the O*NET, although the O*NET contains a crosswalk of codes to structure its occupational data into the GOE framework. The Occupational Aptitude Patterns (OAP) Map complements the job groups of the GOE by arraying them into four major categories based on ability profile requirements (physical, bureaucratic, social and economic, and artistic) and into five levels of general cognitive ability requirements. Both abilities and vocational interests are found to fit within the OAP Map. Other taxonomies also apply theoretical interest and ability structures to occupational structures. The American College Testing (ACT) Program's World-of-Work Map (which makes use of the Holland RIASEC structure) and the Minnesota Occupational Classification System III (MOCS-III, which integrates interests, ability, and motivational characteristics in matching individuals and jobs) are two major exemplars for the purpose of matching individuals to jobs in vocational counseling.

OCCUPATIONAL OUTLOOK HANDBOOK

The *Occupational Outlook Handbook* (OOH), first published in 1948 by the U.S. Bureau of Labor Statistics (BLS), is updated yearly and contains a wide range of occupational information, with jobs classified by SOC codes (similar to O*NET) and SOC codes comprising approximately 270 occupations that are grouped into 10 broad clusters: management, professional and related occupations, service, sales, administrative support, farming and related occupations, construction, installation and related occupations, production, and transportation, with additional discussion about careers in the U.S. armed forces. Each occupation contains seven major sections describing it:

- Nature of the work (e.g., job duties; level of responsibility by industry and by job type)
- Working conditions (e.g., hours worked; physical environment; level of safety; amount of travel required)
- Employment, training, other qualifications, and advancement (e.g., type and length of training; required degree, license, or certification; continuing education needs)

- Job outlook (e.g., projected growth or decline; number of jobs; level of competition for jobs)
- Earnings (e.g., how workers tend to be compensated, whether by salary, commission, or bonuses and tips; how income varies by experience and geographic region; typical benefits)
- Related occupations
- Sources of additional information (e.g., referrals to other agencies or organizations, publications, and Web sites)

OCCUPATIONAL EMPLOYMENT STATISTICS

Occupational Employment Statistics (OES), also produced by the BLS, is a primary source for those seeking detailed information on earnings, as the OES collects data on employment and wages semiannually from 200,000 establishments, sampling across approximately 800 full-time and part-time occupations (excluding farm-related) that represent the U.S. workforce. Occupations are organized into 22 groups by SOC code. Wages and employment levels are provided at the national, state, and metropolitan area levels; they are provided by hourly wage and annual wage, as well. (Data are accessible for free at <http://www.bls.gov>.)

NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM

In addition to the OES and OOH, in 1997 the BLS created the North American Industry Classification System (NAICS), as the updated replacement of the Standard Industrial Classification (SIC) system. As the name implies, NAICS is the product of a joint cooperation between the United States, Canada, and Mexico (the trading countries of NAFTA, the North American Free Trade Agreement), and occupations are grouped by industry in a manner that reflects similarities in production processes or *how* things are produced, not in *what* is produced. Multiple U.S. government agencies collect and organize data on employment, wages, turnover, and occupational safety and health under the NAICS system; the system is separate from the SOC but shows clear and direct linkages. Linkages among several classification systems can be obtained online from the National Crosswalk Service Center.

CONCLUSION

Job taxonomies such as O*NET, the GOE, the OOH, and NAICS allow a number of important psychological and situational factors to influence the resulting job groups—both explicitly and implicitly. Researchers and practitioners in areas such as personnel selection and training, wage compensation, and vocational counseling may want to pay close attention to their choice of a job taxonomy—specifically the type and the narrowness or breadth of job groups—because the choice of taxonomy may have important effects on the decisions that result from them.

—Frederick L. Oswald and Patrick D. Converse

See also Occupational Information Network (O*NET)

FURTHER READING

- American College Testing (ACT) Program. (n.d.). *World-of-work map—Career clusters and career areas*. Retrieved March 8, 2006, from <http://www.act.org/www/overview.html>
- Bureau of Labor Statistics. (2004). *Standard Occupational Classification (SOC) user guide*. Retrieved March 8, 2006, from <http://www.bls.gov/soc/socguide.htm>
- Converse, P. D., & Oswald, F. L. (2004). The effects of data type on job classification and its purposes. *Psychology Science, 46*, 99–127.
- Farr, M., Ludden, L. L., & Shatkin, L. (2001). *Guide for occupational exploration* (3rd ed.). Indianapolis, IN: JIST Works.
- Gottfredson, G. D., & Holland, J. L. (1996). *Dictionary of Holland occupational codes* (3rd ed.). Odessa, FL: Psychological Assessment Resources.
- Hartman, E. A., Mumford, M. D., & Mueller, S. (1992). Validity of job classifications: An examination of alternative indicators. *Human Performance, 5*, 191–211.
- Harvey, R. J. (1986). Quantitative approaches to job classification: A review and critique. *Personnel Psychology, 39*, 267–289.
- Morgeson, F. P., & Campion, M. A. (1997). Social and cognitive sources of potential inaccuracy in job analysis. *Journal of Applied Psychology, 82*, 627–655.
- Oswald, F. L., & Ferstl, K. L. (1999). Linking a structure of vocational interests to Gottfredson's (1986) Occupational Aptitude Patterns Map. *Journal of Vocational Behavior, 54*, 214–231.
- Pollack, L. J., Simons, C., Romero, H., & Hausser, D. (2002). A common language for classifying and describing occupations: The development, structure, and application of the Standard Occupational Classification. *Human Resource Management, 47*, 297–307.

- Sanchez, J. I., Prager, I., Wilson, A., & Viswesvaran, C. (1998). Understanding within-job title variance in job-analytic ratings. *Journal of Business and Psychology, 12*, 407–419.
- U.S. Department of Labor. (1991). *The revised handbook for analyzing jobs*. Washington, DC: Government Printing Office.

JUDGMENT AND DECISION-MAKING PROCESS

Judgment and decision making (JDM) refers to an interdisciplinary area of research that seeks to determine how people make judgments and choices. The field considers perspectives from psychology, sociology, and economics; JDM researchers are found in psychology, management, economics, and marketing departments, as well as in schools of medicine, engineering, and public health. As this volume is concentrated on industrial/organizational psychology, we adopt a mostly descriptive (i.e., psychological) perspective in discussing this topic. Psychologists have been concerned mostly with how people actually make decisions, whereas researchers from other areas (e.g., economics) have been concerned mostly with the rules that people should follow when making choices.

EXPECTED UTILITY THEORIES

In general, decisions can be categorized depending on whether the outcomes of the available options are known for sure (decisions under certainty) or whether the outcomes are uncertain and occur with known or uncertain probabilities (decisions under uncertainty). Most research has focused on decisions under uncertainty, because such decisions are more common. Traditional theories of choice under uncertainty, such as subjective expected utility theory (SEUT), posit that choices are derived from only two parameters: (a) the subjective value, or utility, of an option's outcomes and (b) the estimated probability of the outcomes. By multiplying the utilities with the associated probabilities and summing over all consequences, an expected utility is calculated. The option with the highest expected utility is then chosen.

DECISION ANALYSIS

This rational model of decision making has been used as a guide to study actual decision behavior

and as a prescription to help individuals make better decisions. Multiattribute utility theory (MAUT) is a type of expected utility theory that has been especially influential in decision analysts' attempts to improve organizational and individual decision making. Using MAUT, decision makers carefully analyze each option for its important attributes. For example, a job could be characterized by attributes such as salary, chances for promotion, and location. Decision weights are assigned to attributes according to their importance to the decision maker. Then, each available option is assessed for its expected value on all attributes. The values are then multiplied by the decision weights and summed, and the option with the highest value is selected.

Decision analysts have also developed various decision aids to help individuals and organizations make better decisions. Many of these aids rely heavily on modern information and communication technology, such as management information systems, expert systems, and artificial intelligence. Because few empirical evaluations of the various decision aids have been undertaken, claims about their effectiveness are mostly based more on logical argument than on research and should be considered speculative.

PROSPECT THEORY

Theories of expected utility, such as SEUT, impress through their simplicity, generality, and rational appeal. However, they also place heavy demands on decision makers' knowledge and cognitive abilities and neglect important aspects of the decision process, such as the search and interpretation of information. Under the *heuristics and biases* approach, JDM researchers have explored various ways in which decision makers deviate from rationality. The most important result of this research program is prospect theory.

Prospect theory (PT) was developed as a descriptive theory of decision making. Prospect theory uses a multiplicative model similar to the one used by expected utility theories. However, instead of utilities and probabilities, PT proposes that decision makers use certain value functions and decision weight functions. The decision weight function differs from a probability function in that low probabilities are overweighted and high probabilities are underweighted. The value function also differs from a typical utility function. Specifically, PT assumes that values are defined relative to a reference point (or the status quo). Further, PT posits that the value function is

steeper in the domain of losses (below the reference point) than gains. Finally, the value function is concave above, and convex below, the reference point. This implies that decision makers are risk-averse in the gain domain but risk-seeking in the domain of losses.

Emotions and Motivation in Decision Making

A limitation of PT is the heavy emphasis on cognitive and psychophysical aspects of decision making. Common experience suggests that making choices can involve intense emotions. This is reflected in research on regret aversion. When making decisions, people often worry about the possibility of experiencing regret as a result of choosing an inferior option. Recent research suggests that such worries can even lead to better decision making by motivating people to engage in more vigilant information search and deliberation before making a choice. Other research suggests that positive affect can have beneficial effects on decision making—for example, by increasing creativity.

A related branch of decision-making research deals with flawed decision behavior when the optimal choice is readily apparent. In such situations, the decision maker is actually *motivated* to choose the option that is destructive in the long term. Decision-making researchers have identified this as an intrapersonal conflict, between what one wants to do and what one knows one should do. There are many nonwork examples of such decisions, such as when students elect to attend a party rather than study for an upcoming exam, or when cigarette smokers attempting to quit, despite their best intentions, accept a cigarette offered to them at a party. Such decisions are considered nonoptimal when, considered retrospectively, they lead to regret because they are inconsistent with decision makers' long-term goals. There are many explanations for why individuals give in to their "want selves," such as dispositional self-control and allowing themselves to reason through unwise promises (e.g., running up one's credit card today while promising to stop next month).

Another explanation for these effects is *time discounting*. For example, consider when an honest employee has decided to confront a needy coworker who has been stealing from the company to make ends meet and provide for his family. The employee knows that it is in the best interest of the organization in the long term to confront the employee and ask him to curtail his behavior. However, these plans are

destroyed when the dishonest but very likable coworker walks into the break room and the topic discussed is not the coworker's theft, but mundane, friendly topics such as work and the weather. In this case, the long-term goals of unit performance and management trust are devalued relative to the more immediate feelings of comfort and positive emotional reactions by the coworker. Over time, such decisions can have negative effects on individual and organizational performance.

INDIVIDUAL DIFFERENCES AND DECISION MAKING

As compared with industrial/organizational (I/O) psychology's long-standing interest in individual differences, the interests of JDM researchers so far have had less to do with individual differences in decision making and their relation to decision quality and outcomes. An exception to this is the *decision-making styles scales*, which were developed to measure the degree to which decision makers report intuitive, dependent, rational, avoidant, and impulsive decision making. One recent study adapted the rational and intuitive items to job search and found that self-reported rational and intuitive strategies were related to job satisfaction and satisfaction with the job search process. Given that decision making is an important dimension of most managerial jobs, understanding the relation between decision making styles and managerial performance could be an important addition to the employee selection literature. Organizations might consider adding measures of decision making styles to selection batteries or adding decision-making style training for managers.

FAIRNESS IN DECISION MAKING

Most decisions, especially in organizations, affect not only oneself, but others, as well. This raises questions of how decision outcomes should be distributed across parties. Research on *organizational justice* is concerned with the characteristics of decision processes and distributions of decision outcomes that lead to higher or lower levels of perceived fairness. Because there are entries in this volume that describe the research on organizational justice perceptions extensively, here we concentrate only on the tension between what is rational and what is perceived as fair. From the standpoint of economics, decisions that maximize utility or profit should be preferred by

decision makers. However, research shows that often individuals will sacrifice personal rewards to punish (a) someone who has acted unfairly toward them or (b) an individual who has wronged someone else when they have no relationship with either party. This speaks against pure self-interest and value maximization.

Consider a so-called *ultimatum game* in which someone is willing to split \$100 between two parties provided that they can agree on how to split the money. One person is to make a decision on how to distribute the money, whereas the other person only has to decide on whether to accept the decision, or no money is distributed. Assume one party decides to take \$98 of the money and give \$2 to the other party. A value-maximizing decision maker should accept this decision. However, the majority of people playing this game reject this unfair distribution. Although such ultimatum games clearly have workplace applications, virtually none of this research has made it out of the laboratory and into workplace settings. We believe that self-sacrificial decision making to punish perceived unfairness in the workplace is an area for potentially interesting future research.

APPLICATIONS TO JOB CHOICE AND EMPLOYEE SELECTION

Perhaps the areas in which JDM has contributed the most to I/O psychology are in job choice and employee selection. In the area of job choice, perhaps the largest area of cross-fertilization between JDM and I/O psychology is the application of the policy-capturing (PC) methodology to study job attribute preferences. Briefly, with the PC methodology, participants rate job-choice scenarios that differ on multiple job attributes. Participants provide some indication of organizational attractiveness on a Likert-type scale; then, using multiple regression, the researcher can determine for each individual the unique influence of each attribute on attractiveness ratings. Although the PC methodology also suffers from some limitations, it has allowed us to draw some conclusions about which job attributes are most important. These include opportunities for advancement, social status and prestige, responsibility, opportunities to use one's skills, challenging work, opportunities to be creative, and high salary.

In both employee selection and job choice contexts, some I/O researchers have sought to determine whether phenomena observed in other decision-making contexts (e.g., consumer purchases) are also

observed when the choice is among hypothetical job candidates or hypothetical job offers. Phenomena studied in selection contexts include order effects, attribute-range effects (i.e., the effects of high versus low variance on salary in job choice), attribute-salience effects (i.e., the effect of unique favorable attributes versus unique unfavorable attributes in options that are similar in overall attractiveness), and decoy effects (i.e., when the manipulation of the characteristics of an inferior option causes preference to shift between two superior options). In general, the published studies indicate that these effects are generalizable to job choice and employee selection contexts; however, when efforts have been made to make the decision context more similar to real-world decision making (e.g., when attributes are presented in text form or without numerical values), the effects tend to be weaker.

CONCLUSION

The fields of decision making and I/O psychology have much to offer to each other. However, I/O researchers have not to this point taken full advantage of JDM research. Many decision-making phenomena observed in the laboratory are potentially relevant to organizations but have not been studied in organizational contexts. Likewise, JDM researchers could learn from I/O psychology's sophistication in such areas as field methodology and test construction. More communication between JDM and I/O researchers in the future can benefit both fields.

—Jerel E. Slaughter and Jochen Reb

See also Judgment and Decision-Making Process: Advice Giving and Taking; Judgment and Decision-Making Process: Heuristics, Cognitive Biases, and Contextual Influences

FURTHER READING

- Bazerman, M. H. (2002). *Judgment in managerial decision making*. New York: Wiley.
- Bazerman, M. H., Tenbrunsel, A. E., & Wade-Benzoni, K. (1998). Negotiating with yourself and losing: Making decisions with competing internal preferences. *Academy of Management Review*, 23, 225–241.
- Breaugh, J. A. (1992). *Recruitment: Science and practice*. Boston: Kent.
- Connolly, T., & Zeelenberg, M. (2002). Regret in decision making. *Current Directions in Psychological Science*, 11, 212–220.

- Crossley, C. D., & Highhouse, S. (2005). Relation of job search and choice process with subsequent satisfaction. *Journal of Economic Psychology, 26*, 255–268.
- Damasio, A. R. (1994). *Descartes' error: Emotion, reason and the human brain*. New York: Grosset/Putnam.
- Highhouse, S., & Hoffman, J. R. (2001). Organizational attraction and job choice. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (Vol. 16, pp. 37–64). New York: Wiley.
- Scott, S. G., & Bruce, R. A. (1995). Decision-making style: The development and assessment of a new measure. *Educational and Psychological Measurement, 55*, 818–831.
- Turillo, C. J., Fogler, R., Lavelle, J. J., Umphress, E. E., & Gee, J. O. (2002). Is virtue its own reward? Self-sacrificial decisions for the sake of fairness. *Organizational Behavior and Human Decision Processes, 89*, 839–865.

JUDGMENT AND DECISION-MAKING PROCESS: ADVICE GIVING AND TAKING

When faced with work-related decisions, job seekers, employees, managers, and even the highest ranked corporate officers all have one thing in common: They are likely to ask other people for advice. For example, human resources managers might ask for their colleagues' opinions before hiring one of several job candidates. Thus, individuals seldom make work-related decisions without another person's advice.

A program of research launched by Janet A. Sniezek specifically studies the giving and taking of advice. This research is best known under the label of judge–advisor systems (JAS), although complementary research has also been conducted under the rubric of hierarchical decision-making teams. The central tenet of the JAS research is the recognition that, although decision makers are likely to be influenced by others during the decision-making process, the responsibility for making the final decision is solely the decision makers'. This principle is important because it sets the research on advice giving and taking apart from the more general research on group decision making. In the latter case, all group members are presumed to have the same status within the group, and they all share the same responsibility for the final decision. This is not the case in JAS research.

JUDGE–ADVISOR SYSTEM TERMINOLOGY

Judge–advisor system research has traditionally employed the term *judge* to refer to the decision maker—that is, the recipient of advice. The *advisor* is, as the term implies, the provider of advice. The JAS, then, refers to an entity composed of the judge and one or more advisors who engage in a decision-making task.

In JAS research, advice given to decision makers often takes the form of a recommendation for a specific course of action (e.g., “you should do X,” or “you should choose the first option”). However, there is growing evidence that advising interactions contain more than the provision of a specific recommendation. In fact, advice also includes behaviors such as recommending the decision maker *not* to choose one of the current alternatives, providing new information about one or more of the decision maker's current alternatives, or suggesting a new alternative that the decision maker had not initially thought about. In addition, advice can take the form of helping decision makers structure and organize the decision-making process. For example, advisors can suggest making a list of pros and cons for each potential alternative. Finally, advisors can provide socioemotional support, such as when they empathize with the decision maker.

Although the term *advice* refers to a collection of behaviors, most of the JAS research conducted to date involves the exchange of advice defined as a recommendation for a specific course of action. This research can be divided into two broad categories: advice taking and advice giving. Whereas the latter stream of research takes the perspective of the advisor, the former takes the perspective of the decision maker (or the judge).

ADVICE TAKING

One of the main questions asked by researchers interested in advice taking is what happens when decision makers receive another person's recommendation. A central finding of this research is that of egocentric advice discounting. Although advice generally helps decision-making accuracy, decision makers' postadvice opinion is influenced to a greater extent by their own opinions than by their advisors' recommendations. In other words, decision makers tend to disregard advisors' recommendations relative to their own preadvice opinions. Egocentric advice

discounting is a robust phenomenon. However, some conditions diminish decision makers' propensities to overweight their opinions relative to the advisor's recommendation (although some discounting typically still occurs).

First, advice is less likely to be egocentrically discounted, as well as less likely to be perceived as intrusive, when decision makers explicitly ask for advice as opposed to when advisors offer unsolicited advice. Egocentric advice discounting is also less likely to occur if advisors are more experienced than decision makers are, either in terms of task-related expertise (e.g., an expert advisor giving advice to a relatively novice decision maker) or in terms of personal characteristics that denote experience (e.g., older or more educated advisors). Relatedly, less experienced decision makers utilize advice to a greater extent than more experienced decision makers do, and decision makers utilize advice to a greater extent on complex than on simple tasks. Furthermore, decision makers are more likely to utilize advice when they and their advisors receive monetary rewards, especially when decision makers can distribute financial incentives prior to receiving their advisors' recommendations. This closely parallels situations in which decision makers purchase expert advice, such as when they pay consultants for their services. Research also indicates that decision makers are less likely to discount advice when they trust that their advisors are keeping the decision makers' best interests in mind. Finally, decision makers are less likely to discount advice expressed with great confidence than they are to discount advice expressed with less confidence. In fact, advisors can express confidence in their recommendations as a means to deliberately influence decision makers to utilize their advice.

Decision makers' own confidence in their decisions has also been researched. Research indicates that less confident decision makers typically request more advice than their more confident counterparts. Furthermore, decision makers are more confident in their postadvice decisions when their advisors all make similar recommendations. This agreement is especially important when decision makers use the same information to make a recommendation. Decision makers are also more confident in their postadvice decisions when they receive advice from a greater number of advisors, when decision makers know that their advisors had access to a greater amount of information on which to base their advice, and when

decision makers believe the recommendations to be accurate or otherwise of high quality.

Postadvice decision accuracy has also been investigated. A decision maker's accuracy improves when advisors have access to more information relevant to the decision, when advisors themselves provide the decision maker with more accurate recommendations, and when the decision maker knows how to accurately weight each advisor's recommendation. Decision makers can learn to make better use of advice if feedback about the decision making tasks is available. Specifically, decision makers are better at weighting advice when they receive feedback about their advisors' past accuracy rates as well as feedback about their own past success in accurately weighting advice. Finally, accuracy is highest when both decision makers and advisors possess high levels of conscientiousness and general mental ability.

ADVICE GIVING

The research on advice giving is far less developed than the research on advice taking. Researchers interested in advice giving have typically focused on determining whether advisors and people making decisions for themselves (i.e., personal decision makers) make similar or different decisions when faced with the same problem. Research shows that advisors and personal decision makers make different decisions. Whereas advisors recommend choices that would please *most* decision makers, personal decision makers' choices reflect their own idiosyncratic preferences. In addition, advisors exert more effort when making the decision, are more concerned about the accuracy of their recommendation, and avoid searching for information in a one-sided or otherwise biased manner.

ADVICE TAKING AND ADVICE GIVING IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY

Although advice is likely to be exchanged in virtually all work-related decisions, a number of topics studied by industrial/organizational psychologists stand out as being particularly linked to the JAS research.

Various types of interpersonal relationships at work involve the exchange of advice between parties. For example, mentors often serve as their protégés' advisors. In fact, the support mentors give their protégés, either in terms of psychological or career-related assistance,

can be classified as a form of advice. For example, mentors often instruct their protégés on how to accomplish work goals and give socioemotional support when appropriate. Similarly, when employees enter a new organization, they often go through a socialization phase during which they learn how to become an organizational member. Again, much of the interaction between organizational newcomers and their socialization agents can be construed as one or more types of advisory behaviors (e.g., recommendations on how best to perform one's job). Moreover, socialization often takes the form of unsolicited advice (e.g., when all employees go through the same formal socialization program) but can also often take the form of explicitly solicited advice (e.g., when employees proactively engage in socialization behavior).

Research on employment decisions, such as those occurring during the job search and job choice processes, as well as those occurring during the turnover process, are also related to the research on giving and taking of advice. For example, a new college graduate might ask friends, family, or a trusted academic counselor for a recommendation about how best to decide among a series of job offers. Similarly, older job seekers might ask younger friends for recommendations on how to find job openings in the current job market. Other important employment decisions that seldom occur without the input of others are the decision to retire from one's job or the decision to voluntarily leave one's current job to seek employment elsewhere. In both instances, it is unlikely that employees would not discuss their intentions with family members or coworkers. However, despite the likely prevalence of advice being exchanged in these situations, research on work-related decisions has yet to address what role advice may play in the decision-making process.

—*Silvia Bonaccio*

See also Group Decision-Making Quality and Performance; Judgment and Decision-Making Process; Judgment and Decision-Making Process: Heuristics, Cognitive Biases, and Contextual Influences

FURTHER READING

- Budescu, D. V., & Rantilla, A. K. (2000). Confidence in aggregation of expert opinions. *Acta Psychologica, 104*, 371–398.
- Harvey, N., & Fischer, I. (1997). Taking advice: Accepting help, improving judgment, and sharing responsibility.

Organizational Behavior and Human Decision Processes, 70, 117–133.

- Humphrey, S. E., Hollenbeck, J. R., Meyer, C. J., & Ilgen, D. R. (2002). Hierarchical team decision making. In G. R. Ferris and J. J. Martocchio (Eds.), *Research in personnel and human resources management* (Vol. 21, pp. 175–213). Greenwich, CT: JAI Press.
- Jonas, E., & Frey, D. (2003). Information search and presentation in advisor–client interactions. *Organizational Behavior and Human Decision Processes, 91*, 154–168.
- Sniezek, J. A., & Buckley, T. (1995). Cueing and cognitive conflict in judge–advisor decision making. *Organizational Behavior and Human Decision Processes, 62*, 159–174.
- Sniezek, J. A., Schrah, G. E., & Dalal, R. S. (2004). Improving judgment with prepaid expert advice. *Journal of Behavioral Decision Making, 17*, 173–190.
- Yaniv, I. (2004). Receiving other people's advice: Influence and benefit. *Organizational Behavior and Human Decision Processes, 93*, 1–13.

JUDGMENT AND DECISION-MAKING PROCESS: HEURISTICS, COGNITIVE BIASES, AND CONTEXTUAL INFLUENCES

How people choose jobs, how employers select and promote employees, how performance is evaluated and rewarded, and many other primary topics of industrial/organizational (I/O) psychology have human judgments and decisions at their core. The study of judgment and decision making is highly interdisciplinary and varied in its research approaches, but behavioral decision making, or the study of how people actually make decisions, has much to offer industrial and organizational psychology.

HEURISTICS AND BIASES

One behavioral decision paradigm that has received much attention from I/O psychologists is that of *heuristics and biases*, pioneered by the seminal work of cognitive psychologists Daniel Kahneman and Amos Tversky in the 1970s. This tradition proposes that observed decision behavior results from several cognitive heuristics, or rules of thumb, that generally produce reasonable and quick results but that can also lead to systematic patterns of error. Many heuristics

have been identified and used to explain judgments in a wide variety of decision contexts. The most well-known heuristics and biases are presented here, with examples of how they can lead to poor decision making in contexts relevant to I/O psychology.

Anchoring and Adjustment Heuristic

An initial estimate or value (anchor) can have an undue influence on final judgments or predictions, as adjustment is often insufficient. For example, the decision on what salary to offer a job candidate may be based on his or her current salary. An employer will use current salary as an anchor and then adjust the figure to make an offer, but if the candidate is presently underpaid, the offer will likely be well below her true value. Similarly, a high-status job title can lead to higher job evaluations because raters have an initial expectation about a job after reading its title and do not adequately adjust after being presented with detailed information about that specific job contradicting that belief. Especially troubling is the finding that decision makers are often not aware of, or actively deny, the extent to which provided anchors influence their judgments, even when they feel they have rejected those anchors as inappropriate or biased.

Availability Heuristic

The perceived likelihood or frequency of an event is based on how easily instances come to mind, through either recall or imagination. This is, of course, a generally reasonable heuristic; more common events should be cognitively more available. But the availability heuristic can lead to error when people selectively attend to especially vivid or recent events at the expense of considering more historical or statistical information. Managers often bias annual performance evaluations when they rely only on their memories, because events in the preceding three months, and particularly vivid events, will be given too much weight relative to performance in earlier months and more prosaic behavior.

Representativeness Heuristic

People also assess likelihood based on the degree to which a situation resembles, or is representative of, their stereotype of that event. Perceived similarity has a pervasive effect on how we perceive other people.

We expect people to resemble our prototype of the category of which they are members, and we judge their suitability for a role based on our prototype of that role. Thus the glass-ceiling effect can be partially explained by the fact that prototypes of executives may not include women and minorities. Although judgments based on representativeness are often accurate, this heuristic also causes people to neglect base rates (the prior probabilities of outcomes) and to be influenced by irrelevant attributes. For example, a number of studies have found that employers evaluate job applicants and employees more favorably when they perceive them as similar to themselves. These similarity judgments are often based on irrelevant factors such as demographics, interests, and general attitudes unrelated to job performance. Most employers view themselves as being exceptionally capable, and the representativeness heuristic causes them to expect people who are similar to them to be equally effective.

Confirmation Bias

People tend to seek out information that confirms their existing beliefs, hunches, or expectations and to exclude or discount contradictory evidence. This is unfortunate, because it is often the search for disconfirming evidence that will yield the most useful insights. For example, if a manager initially has a favorable impression of a job candidate, for whatever reason, he or she will tend to ask interview questions that are likely to support this impression and be much less likely to ask questions that could lead to discovering negative information.

Sunk Cost Fallacy

Our past decisions are likely to bias our present decisions. In other words, we frequently escalate our commitment to a previously chosen course of action, to an irrational level. This has been widely demonstrated in financial decision making, where people who have previously invested money in an option will be more likely to continue to do so even if rational analysis of the current situation would argue against it—in effect, they will “throw good money after bad.” This bias has also been demonstrated in performance appraisal. Supervisors who make the initial decision to hire or promote someone subsequently evaluate that employee more positively and treat him or her more

favorably than will evaluators who were not involved in the hiring decision. The selection of that employee represents a sunk cost (the other candidates foregone) and seems to lead supervisors to continue to see that person more positively (see also *confirmation bias*, discussed earlier), even when actual performance does not merit it.

CONTEXT EFFECTS

Classic economic theory assumes people have well-defined preferences and therefore make consistent choices. Behavioral decision researchers, however, have demonstrated that people's preferences for risk, their discounting of time, and their choices among options with multiple attributes all depend on the particular decision context. In other words, seemingly irrelevant factors that rationally should not affect preferences will in fact do so. As with heuristics and biases, we are typically unaware of the true impact of these contextual factors on our choices.

Kahneman and Tversky also developed the most prominent behavioral theory of decision making under risk: *prospect theory* posits that, in comparing decision options, the selection of a reference point is critical. One major finding of prospect theory is loss aversion; losses are more psychologically aversive than gains are enjoyable. Research on prospect theory, as well as other behavioral decision theories, has established that people's choices are context dependent. The following three types of context effects are of particular relevance to I/O psychology.

Framing

Framing effects result from semantic manipulations, such that the way in which a decision problem is worded influences judgments and choices, even when the underlying problem structure remains the same. Objectively identical options can be framed positively or negatively, depending on what reference point is used. In risky choice, *framing* refers to the well-documented finding that loss aversion leads people to be more likely to prefer a risky option when it is presented in terms of losses (e.g., a one-third chance that no one will lose a job and a two-thirds chance that everyone will lose their job) than when it is described in terms of gains (e.g., a one-third chance that all jobs will be saved and a two-thirds chance that no jobs will be saved).

Framing effects can also derive from the way that problem attributes or goals are presented. For example, layoff survivors evaluate a company more positively when they are given information that emphasizes the criteria used to retain, rather than dismiss, certain employees. Whether an employee is described as having an absence rate of 2% or an attendance rate of 98% can also determine how her performance is evaluated, and when multiple performance attributes for several employees are presented, how this information is framed can determine which employee is hired.

Decoy and Phantom Effects

Logically, the rank ordering of two options should not depend on what other options are considered. A *decoy effect* occurs when the presence of a clearly inferior option (a decoy) alters preferences among superior options. Consider a case in which job applicants are evaluated on two criteria: Applicant 1 receives a high score on criterion A and an average score on criterion B, whereas Applicant 2 is average on A and high on B. If a third applicant (the decoy) is also considered and is high on A but low on B, most evaluators will tend to select Applicant 1. This effect stems from the previously discussed tendency for loss aversion. From the reference point of the decoy, Applicant 1 represents no loss on A and a gain on B. Conversely, Applicant 2 would represent a loss on A, even if the gain on B would be larger. Because losses are especially aversive, the presence of the decoy makes Applicant 1 seem the better choice. If the decoy is low on A but high on B, however, Applicant 2 is more likely to be chosen. In other words, the majority of people will now choose Applicant 2 over Applicant 1 even though nothing about these two applicants has changed. Considering an option that is clearly superior can also influence how inferior options are ranked. A *phantom effect* is an option that becomes unavailable; in a selection context, this could be a job candidate who "got away" by accepting an offer from another firm.

Related recent research using the context of job choice has also demonstrated that the presence of an inferior alternative increases the value associated with the attributes of a dominant alternative. More broadly, increasing evidence suggests that people are influenced more by the set of alternatives being considered and less by the actual overall quality of the options.

People are better at assessing relative value than fundamental value.

Selection Versus Rejection

Many decision tasks in I/O psychology involve preferences among people, such as picking the best candidates to hire or promote, or which employees to retain or let go during a layoff. Determining the best alternative(s) from a larger set can be viewed either as (a) selecting some options, implicitly eliminating the others, or (b) as rejecting some options, implicitly retaining the rest. These two types of decisions seem logically equivalent, but researchers have identified several systematic, substantial differences in how people respond based on whether they are told to reject people or to select them. In particular, attributes compatible with a decision strategy (i.e., positive features when selecting and negative feature when rejecting) are given greater weight.

IMPLICATIONS FOR IMPROVING ORGANIZATIONAL DECISION MAKING

The fact that judgmental biases and context effects can often lead to suboptimal decisions about job candidates, employee performance, compensation, and other important organizational decisions is well established. Note that for many types of decision problems, employers and employees are unlikely to naturally acquire the kind of feedback that would help them improve their decision making. For example, managers who make hiring decisions are unlikely to ever find out anything indicative of how rejected applicants would have fared. To date, however, there has been limited research in how to best mitigate or correct for these potential decision pitfalls, particularly in organizational settings.

A number of books on behavioral decision making for a popular audience are now available, and many business and psychology courses now incorporate some discussion of behavioral decision biases. But there is little evidence that brief exposure leads to any lasting change in how people make decisions. It may seem reasonable to assume that if people simply have substantial incentives to make good decisions, and expend more effort on them, they will be less likely to fall prey to irrationality, but this is not necessarily true. In particular, there has been a great deal of research effort directed toward understanding how

accountability, an important incentive in many organizational decisions, influences judgments. The effects of accountability on decisions are complex, but it has been shown to actually exacerbate some biases. Understanding judgmental biases and contextual influences is, however, the first step toward designing training programs and structuring decision procedures to make poor decisions less likely.

—Kristine M. Kuhn

See also Employee Selection; Group Decision-Making Quality and Performance; Judgment and Decision-Making Process; Rating Errors and Perceptual Biases

FURTHER READING

- Bazerman, M. (2001). *Judgment in managerial decision making* (5th ed.). New York: Wiley.
- Gilovich, T., Griffin, D., & Kahneman, A. (2002). *Heuristics and biases: The psychology of intuitive judgment*. Cambridge, UK: Cambridge University Press.
- Highhouse, S. (1997). Understanding and improving job-finalist choice: The relevance of behavioral decision research. *Human Resource Management Review*, 7, 449–470.
- Lerner, J. S., & Tetlock, P. E. (2003). Bridging individual, interpersonal, and institutional approaches to judgment and decision making: The impact of accountability on cognitive bias. In S. L. Schneider & J. Shanteau (Eds.), *Emerging perspectives on judgment and decision research* (pp. 431–457). Cambridge, UK: Cambridge University Press.
- Morgeson, F. P., & Campion, M. A. (1997). Social and cognitive sources of potential inaccuracy in job analysis. *Journal of Applied Psychology*, 82, 627–655.
- Tenbrunsel, A. E., & Diekmann, K. A. (2002). Job-decision inconsistencies involving social comparison information: The role of dominating alternatives. *Journal of Applied Psychology*, 87, 1149–1158.
- Wong, K. F. E., & Kwong, J. Y. Y. (2005). Between-individual comparisons in performance evaluation: A perspective from prospect theory. *Journal of Applied Psychology*, 90, 284–294.

JUSTICE IN TEAMS

Justice in teams represents a specific content area within the organizational justice literature that focuses on how fairness operates in collective contexts. The

majority of the studies in the organizational justice literature examine how individuals form and react to fairness perceptions. For example, studies explore how individuals judge the fairness of decision outcomes, decision-making procedures, interpersonal treatment, and authority communication and how those judgments influence key attitudes and behaviors. Studies in the area of justice in teams acknowledge that those phenomena occur in collective contexts—that what happens to one employee may depend on (and influence) what happens to others.

The justice in teams literature acknowledges an important trend within organizations: the increased use of team-based structures. Recent estimates suggest that between 50% and 90% of individuals work in *teams*, defined as a collection of individuals who work together to complete some task, who share responsibility for collective goals or rewards, and who see themselves as a meaningful social entity. Research on justice in teams tends to focus on three types of research questions: (a) Do the results of individual-focused justice studies generalize to team members? (b) Does the justice experienced by one's teammates have direct or interactive effects on one's own reactions? and (c) Does the justice experienced by the team as a whole influence collective reactions at the team level of analysis?

GENERALIZING RESULTS TO TEAM MEMBERS

The first stream of research that was conducted in the justice in teams literature explored whether the results of studies in individual settings generalize to team members. Studies in individual settings have linked fair treatment by organizational authorities to beneficial attitudes (e.g., trust in one's leader, commitment to the organization, satisfaction with one's job) and beneficial behaviors (task and citizenship behaviors in support of the organization's goals). Those same results have been demonstrated in studies on justice in teams. Some of those studies have taken place in the laboratory, with undergraduates placed into small teams (of three or four members) working on some task or simulation and reporting to an ad hoc leader. Other studies have taken place in the field with larger teams whose members work together for extended periods of time.

Those laboratory and field studies have also examined a subtly different question: Do members react to treatment by organizational authorities by altering

attitudes and behaviors targeted to their teammates? On the one hand, those teammates are not responsible for any unfair treatment the member might have experienced. On the other hand, it may be difficult for members to avoid transferring negative emotions or feelings to teammate-directed reactions. In fact, research tends to show that such transference does occur, with members reacting to unfair treatment by becoming less attached to the team and engaging in less frequent helping of team members. This finding highlights the importance of justice in teams, as unfair treatment can hinder both authority and member-directed attitudes and behaviors.

EFFECTS OF TEAMMATES' TREATMENT ON ONE'S OWN REACTIONS

In addition to providing multiple targets for justice reactions, team settings provide multiple referents for judging fairness. In other words, team members can ask, "Was that decision event fair to me?" and "Was that decision event fair to my teammates?" The second stream of research described in this entry has explored whether teammates' treatment has direct or interactive effects on a member's own reactions. Direct effects of teammates' treatment would suggest that vicarious justice can alter one's own attitudes and behaviors, with members penalizing an authority for treating a teammate unfairly. Interactive effects of teammates' treatment would suggest a sort of social comparison process, as members compare their own outcomes, procedural experiences, or interpersonal treatment with their teammates' experiences when reacting to authorities or decision events.

As with the studies reviewed earlier in this discussion, the stream of research on the effects of teammates' treatment has occurred in both the laboratory and the field. Laboratory studies have manipulated the treatment of an individual participant while also manipulating the treatment of one or more other participants. For example, a participant may be given input into laboratory decision-making procedures but have teammates who are not given that input (or vice versa). Sometimes these studies have included true teammates who are physically present alongside the participant, and sometimes the teammates are merely unseen, fictional others. In contrast, field studies have measured individuals' own fairness perceptions while also gathering data on teamwide fairness levels. For example, an employee may be asked to rate the

amount of input he or she has in decision making procedures while also rating the input given to the team as a whole. Regardless of these differences in method, both laboratory and field research have gathered data on two kinds of variables: own treatment and teammates' treatment.

The studies in this stream of research have sometimes yielded significant incremental effects for teammates' treatment, over and above own treatment, on a variety of attitudes and behaviors (e.g., leader evaluations, commitment, citizenship, performance). However, the effects of teammates' treatment seem to be smaller than the effects of one's own treatment and are more likely to be statistically significant in field research or in laboratory research that creates actual teams. In addition, studies have yielded significant interaction effects that suggest that members consider their teammates' treatment when reacting to their own fairness experiences. In general, the pattern of this interaction is such that consistent treatment within the team is reacted to more favorably. For example, if a member is given input into a key decision, he or she will react more favorably when other members are given the same opportunity. This finding further highlights the importance of justice in teams, as fair treatment must be uniform within the team for members to react in the most favorable manner possible.

JUSTICE AT THE TEAM LEVEL OF ANALYSIS

Given that team members do consider the treatment received by teammates, it seems likely that justice experiences will become one of the more commonly discussed topics in a team setting. Moreover, as team members compare notes about their justice experiences, it follows that a shared consensus may emerge regarding how the team, as a whole, is treated. It is this shared consensus—termed *justice climate*—that is the subject of the third stream of research reviewed in this entry. The emergence of a justice climate can be explained by understanding the nature of a team's social network. The more interdependent a team's work, the stronger the ties that bind members together in their social network. Those strong ties facilitate the mutual exchange of information and interpretation needed to arrive at a shared consensus.

Research on justice climate has occurred exclusively in the field, given that a shared consensus is unlikely to develop in a short-term laboratory environment. Justice climate studies have occurred in a

number of types of teams, ranging from automotive parts manufacturing teams to teams in bank branches to top management teams in international joint ventures. The emergence of a shared consensus regarding fair treatment is demonstrated statistically by showing high within-group agreement on survey measures of fairness. For example, each member may be asked how much input in decision making the team as a whole is given, with responses to that survey question compared across team members. Once a shared consensus has been verified, justice climate has been used to predict the attitudes and behaviors of the team as a whole. For example, fair justice climates have been associated with better team performance, less team absenteeism, increased team citizenship behaviors, and higher levels of team commitment.

Other studies on justice climate have occurred in units that are too large to technically be termed *teams*. For example, studies have examined justice climate within public service plants, hotel properties, and departments in a grocery store chain. Despite the large size and relatively low interdependence of these units, survey measures of fair treatment have still yielded relatively high within-group agreement. Moreover, justice climate has predicted organization-level measures of commitment, citizenship, turnover, and customer service behaviors. The research on justice climate again highlights the importance of justice in teams, as fair treatment can create a shared consensus regarding fairness levels that can influence the attitudes and behaviors of whole units, not just individual members.

SUMMARY

Studies in the area of justice in teams have made a number of contributions to the larger literature on organizational justice. The studies have shown that the treatment experienced by an individual team member has implications for how that member reacts to his or her teammates. The studies have also shown that members take into account the fairness received by teammates when forming attitudinal and behavioral reactions. Finally, the studies have shown that a shared consensus can emerge regarding fairness levels that can affect the attitudes and behaviors of the team as a whole. These studies therefore reaffirm the importance of treating team members in a fair manner.

—Jason A. Colquitt

See also Groups; Organizational Climate; Organizational Justice

FURTHER READING

- Colquitt, J. A. (2004). Does the justice of the one interact with the justice of the many? Reactions to procedural justice in teams. *Journal of Applied Psychology, 89*, 633–646.
- Colquitt, J. A., Noe, R. A., & Jackson, C. L. (2002). Justice in teams: Antecedents and consequences of procedural justice climate. *Personnel Psychology, 55*, 83–109.
- Colquitt, J. A., Zapata-Phelan, C. P., & Roberson, Q. M. (2005). Justice in teams: A review of fairness effects in collective contexts. In J. J. Martocchio (Ed.), *Research in personnel and human resources management* (Vol. 24, pp. 53–94). Oxford, UK: Elsevier.
- Lind, E. A., Kray, L., & Thompson, L. (1998). The social construction of injustice: Fairness judgments in response to own and others' unfair treatment by authorities. *Organizational Behavior and Human Decision Processes, 75*, 1–22.
- Naumann, S. E., & Bennett, N. (2000). A case for procedural justice climate: Development and test of a multi-level model. *Academy of Management Journal, 43*, 861–889.
- Roberson, Q., & Colquitt, J. A. (in press). Shared and configural justice: A social network model of justice in teams. *Academy of Management Review*.

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LABOR LAW

Labor or union law refers to the body of laws, regulations, and case law that governs unionization and collective bargaining in the workplace. It is distinguished from employment law, which deals with employment contracts, workplace discrimination, and other private legal issues. Most industrialized countries have enacted labor laws, but those laws may vary across countries or even within a country. Labor relations may be governed by both national and regional labor laws—in Canada, for example, there are provincial labor laws. This essay focuses on U.S. federal labor law governing labor relations in the private sector.

The National Labor Relations Act (NLRA) is the basic federal law that governs unionization and collective bargaining in the United States. Originally enacted in 1935, at which time it was also called the Wagner Act, the NLRA has undergone several significant amendments, most recently in 1974. The NLRA regulates labor relations in almost all private-sector businesses that participate in interstate commerce. The NLRA does not cover public employees (who are covered by state labor relations laws), agricultural employees, or employees of railroads and airlines. Labor relations in the latter industries are governed by the Railway Labor Act.

BASIC PRINCIPLES OF THE NLRA

The collective bargaining system established by the NLRA has five basic principles: (a) employee

choice, (b) majority rule, (c) exclusive representation, (d) appropriate bargaining unit, and (e) labor and management determination of terms and conditions of employment. The principle of *employee choice* means that employees in an appropriate bargaining unit choose whether they wish to have a union represent them for collective bargaining purposes and, if so, which union. The principle of *majority rule* means that the employees' choice of representation is made by a majority of the employees in the bargaining unit. If a majority of the employees in the bargaining unit do not select representation, the employees in that unit cannot be represented by a union.

If a majority of the employees in the bargaining unit choose union representation, the principle of *exclusive representation* comes into play. Under this principle, the union selected by the majority of the employees in the bargaining unit represents all the employees in the unit, regardless of whether the employees support unionization. The employer, in turn, has a legal obligation to bargain with the union in good faith regarding the terms and conditions of employment for the represented employees.

The fourth principle is the *appropriate bargaining unit*. The selection process for unionization takes place among the employees in an appropriate bargaining unit. An appropriate bargaining unit is a grouping of employees who work for a single employer and have common employment interests. They may be employees who work in a company facility, an occupational group, a department, or a craft. Employees who have a community of interest have similar supervision, pay structures, tasks, hours of work responsibilities, and work location.

The fifth principle is *union and management determination of terms and conditions of employment*. The employer has an obligation to bargain in good faith with the union representing its employees, and the union has an obligation to bargain in good faith with the employer. Neither party has an obligation to agree, however. The terms and conditions of employment are determined by the parties' negotiations, which are influenced by the bargaining power of the parties, manifested in their use of economic weapons such as a strike, lockout, or employer replacement of strikers. The purpose of these economic weapons is to move the parties toward agreement, even if one party concedes. The law does require that the parties reduce an agreement to writing. An agreement in writing is generally enforced through a grievance procedure that ends in binding arbitration.

BASIC RIGHTS UNDER THE NLRA

The NLRA gives employees the right to bargain collectively; to form, join, and assist unions (called *labor organizations*); and to engage in concerted activity for other mutual aid or protection. Thus, the NLRA is not limited to employees' attempts to unionize; it also protects the rights of employees to refrain from any activities related to collective bargaining or unionization.

Only those who are considered employees for the purposes of the act may exercise their rights under the NLRA. Supervisors, managerial employees, independent contractors, persons whose jobs are related to an employer's labor relations function, and persons who are employed in industries that are not covered by the NLRA are not considered employees for the purposes of the NLRA.

ADMINISTRATION OF THE NLRA

The NLRA is administered by the National Labor Relations Board (NLRB), an administrative agency of the federal government. The NLRB consists of five members who serve staggered five-year terms. The NLRB members are nominated by the president and must be confirmed by the U.S. Senate. By the third year of a president's term, he or she will have appointed a majority of the board members. (There is a custom, however, that no more than three board members may be affiliated with one political party.) With its limited terms and appointment and confirmation

process, the NLRB is designed to be an agency that changes in its composition—and to some extent, its views on labor relations—with the changing political climate of the country.

The NLRB has two main functions: determining representation and preventing unfair labor practices. In its representation function, the board determines whether a unit of non-union employees wishes to be represented by a union. Upon a showing of substantial interest—generally demonstrated by at least 30% of the employees in a bargaining unit signing union authorization cards designating the union as their collective bargaining representative and presenting the cards to an NLRB regional office—the board will initiate its representation procedures. After resolving any disputes regarding the bargaining unit, representation is typically determined through a representation election. For example, from October 1, 2002, through September 30, 2003, the NLRB conducted 2,797 representation elections. Employees chose representation in 1,458 of those elections (52.1%) and did not choose representation in 1,339 elections (47.9%).

The board's second major function is to prevent unfair labor practices. An employer commits an unfair labor practice under the NLRA when it discriminates, interferes with, or coerces employees who attempt to exercise their rights under the NLRA or when it refuses to bargain with a union that represents its employees. Examples of unfair employer labor practices include the following:

- Discriminating in hiring, promotion, or discharge in order to discourage membership in any labor organization
- Retaliating against an employee for filing charges or testifying under the act
- Interfering with union affairs by sending a management representative to spy on worker organizing meetings
- Attempting to control a union by helping a certain candidate (favorable to management) win election to a union office
- Refusing to bargain in good faith by changing the terms or conditions of employment without employee input during the term of the collective bargaining agreement

A union commits an unfair labor practice when it refuses to bargain in good faith with management, discriminates against an employee who wishes to exercise his or her right to refrain from union activity,

or commits any one of several other types of offenses. Examples of unfair union labor practices include the following:

- Refusing to process a grievance because an employee has criticized union officers
- Threatening employees that they will lose their jobs unless they support the union's activities
- Fining employees who have validly resigned from the union for engaging in protected activity following their resignation
- Refusing referral or giving preference in a hiring hall on the basis of race or union activities

IMPLICATIONS FOR INDIVIDUALS AND ORGANIZATIONS

The NLRA and U.S. labor laws provide an extensive formal structure that ensures employees' right to engage in collective or concerted activity for the purpose of improving their conditions in the workplace. The NLRA also protects individual employees from being unduly coerced into engaging in concerted activity. Though the NLRA clearly outlines employees' individual and collective legal rights in the workplace, its impact on employees' actual workplace experiences is less clear. For example, although the NLRA formally provides workers a greater collective voice in workplace affairs, research shows that union workers report having less actual influence in their workplace than non-union workers.

The NLRA has important implications for the employment practices of both unionized and non-unionized employers in the private sector. Among unionized employers, collective bargaining agreements between an employer and a union commonly include a wide range of clauses that affect the employer's human resource practices, such as wages, benefits, hours of work, job security, discipline, arbitration, the permissible pool of employees eligible for promotion and transfer, training, and criteria for evaluating performance. The terms of collective bargaining agreements are subject to negotiation, but once they are agreed to, collective bargaining agreements create binding obligations that, if unilaterally disregarded by the employer, may result in an arbitration decision that is enforceable in court.

The NLRA's implications for employment practices in non-union workplaces, though less extensive, are still significant. For example, a non-union employer's workplace policy may violate the NLRA on its

face or if it is applied discriminatorily against employees exercising their NLRA rights. As a result, when drafting workplace policies, instituting workplace practices, or deciding whether to discipline employees, non-union employers need to consider whether the policy, practice, or disciplinary action relates to a group activity of nonsupervisory employees concerning the terms and conditions of employment. If so, the employee activity may be considered a protected concerted activity. The NLRA has also been interpreted as constraining the use of employee involvement teams in non-union (and union) workplaces. Specifically, in designing and supporting employee involvement teams, employers must be careful to avoid the NLRA's prohibition against employer domination of, interference with, or assistance to labor organizations—that is, employee groups that deal with management regarding the terms and conditions of employment. For example, it would be legal for an employer to create teams to discuss productivity, but it would be illegal for such teams to discuss compensation linked to productivity because compensation is a term or condition of employment.

—Richard N. Block and Mark V. Roehling

See also Union Commitment; Unions

FURTHER READING

- Block, R. N. (2003). Competitiveness and employment protection and creation: An overview of collective bargaining in the United States. In R. N. Block (Ed.), *Bargaining for competitiveness: Law, research, and case studies* (pp. 13–44). Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- Block, R. N., Beck, J., & Kruger, D. (1996). *Labor law, industrial relations, and employee choice: The state of the workplace in the 1990s*. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- Gould, W. B. (2000). *Labored relations: Law, politics, and the NLRB—A memoir*. Cambridge: MIT Press.
- Greenhouse, S. (2005, January 2). Labor board's detractors see a bias against workers. *New York Times*, p.12.
- Hardin, P., & Higgins, J. E., Jr. (Eds.). (2001). *The developing labor law: The board, the courts, and the National Labor Relations Act* (4th ed.). Washington, DC: Bureau of National Affairs.
- King, N. J. (2003). Labor law for managers of non-union employees in traditional and cyber workplaces. *American Business Law Journal*, 40, 827–883.
- National Labor Relations Board. (2004). *68th Annual report*. Washington, DC: Government Printing Office.

LABOR UNIONS

See UNIONS

LATENT TRAIT THEORY

See ITEM RESPONSE THEORY

LAYOFFS

See DOWNSIZING

LEADER–MEMBER EXCHANGE THEORY

During the early 1970s, the generally accepted practice for studying leadership was to use an average leadership style—that is, asking subordinates to report on their manager’s leadership style and then averaging their responses across the work unit. Leader–member exchange (LMX) theory, which originated as the vertical dyad linkage (VDL) model, offered a contrast to this approach by presenting a dyadic model of leadership. The VDL model demonstrated that it is not appropriate to assess a common managerial leadership style because managers have a different type of relationship with each of their subordinates.

From its origins in the VDL model, LMX theory evolved into a study of leadership relationships in the workplace. Its central assumption—that higher-quality LMX relationships are positively related to work outcomes—is supported by a substantial body of evidence. This theory addresses questions such as, what types of relationships do managers have with their subordinates? Do these different relationships have different effects on work outcomes? Why do these different types of relationships develop? How can we generate more effective leadership relationships in the workplace? Although LMX theory has opened the door to relational leadership approaches, empirical evidence of how leadership relationships develop and how LMX relationships fit within the larger networks of exchange is still lacking.

VERTICAL DYAD LINKAGE MODEL

The VDL model was developed from a longitudinal investigation of socialization processes among managers and subordinates. Researchers found that managers engage in different kinds of exchanges with their subordinates. These exchanges can be characterized based on the amount of negotiating latitude that managers grant to subordinates in determining their roles (i.e., role making). With a select group of subordinates, designated the *in-group*, supervisors develop leadership exchanges that involve greater negotiating latitude. These individuals communicate more frequently and are more closely involved with the supervisor. For the remainder of the subordinates, designated the *out-group*, interactions are formal and contractual and based on the job description—they are more like hired hands. These differences, researchers explain, are the result of the manager’s need to have trusted assistants to help in the functioning of the work unit but limited resources to develop these assistants. In particular, because the in-group relationships require more time and social resources from the manager and because these resources are limited, the manager can maintain only a small number of in-group relationships.

LEADER–MEMBER EXCHANGE MODEL

As research in this area progressed throughout the 1980s, the model became known as *leader–member exchange*, and the focus shifted from work unit differentiation to the characteristics of dyadic leader–member relationships and their association with antecedents and work outcomes.

The Nature of LMX Relationships

A key focus of LMX research is describing the nature of the differentiated relationships. For example, LMX research describes relationships as being on a continuum from low- to medium- to high-quality leader–member exchange. Low-quality LMX relationships are typically based more on management than leadership (i.e., a stranger relationship). Moderate-quality relationships experience increased social exchange and sharing of information and resources compared with low-quality relationships (i.e., an acquaintance relationship). High-quality LMX is described as a mature partnership in which dyad members count on one another for loyalty and support. As

one moves from low to high relationship quality, the nature of the relationship progresses from contractual-based exchanges, limited trust, lack of mutual understanding, and more formal communications at the low end to partnership exchanges, a high level of trust, shared respect and high understanding, and strong commitment and loyalty to one another at the high end.

Leader–member exchange theory also describes the underlying dimensions of these exchanges. Some researchers have identified the key dimensions, or currencies of exchange, as trust, respect, and obligation, whereas other researchers have identified them as affect, contribution, loyalty, and professional respect. The quality of LMX is assessed using one of two measures: a one-dimensional measure, the LMX-7, and a multidimensional measure, the LMX-MDM, which assesses the dimensions of affect, contribution, loyalty, and professional respect.

Antecedents and Consequences

The focus on LMX relationships is important because of the positive association between LMX and work outcomes. The quality of LMX has been positively associated with performance, job satisfaction, organizational citizenship behavior, organizational commitment, and perceived organizational support. Research has also examined the relationship between LMX and decision influence and found that high-LMX subordinates are allowed more latitude and more involvement with the supervisor in decision making. High-quality LMX is associated with less turnover and fewer retaliatory behaviors on the part of subordinates. Lower-quality relationships, on the other hand, may cause loss of motivation, less effective communication, and reduced training and development opportunities for subordinates.

One of the more important consequences of LMX is that when relationship building is successful in forming high-quality LMX, leadership is generated in the form of incremental influence that individuals have with one another. This incremental influence motivates individuals to go above and beyond—to do more than they have to do (i.e., extrarole behavior). Hence, LMX can help unleash more capability in the workplace by generating more positive work attitudes combined with more willingness to contribute to workplace functioning.

Research on antecedents of LMX relationships address the question, what factors contribute to

higher- or lower-quality relationship development? Empirical work has examined the relationship of LMX to characteristics of the member (e.g., personality, influence tactics, competence), characteristics of the leader (e.g., ability), relational characteristics (e.g., leader–member similarity), and the work environment (e.g., physical distance, time pressures). Research has also demonstrated that the effort put into relationship development is related to LMX, but only the other person's effort—that is, individuals who reported higher LMX also reported that the other dyad member contributed effort into relationship development.

LMX Relationship Development

At the heart of LMX theory is how high-quality LMX relationships develop. Relationships that are higher in quality are said to result from *role making*. Managers and subordinates engage in role making when they actively negotiate how their roles in the relationship and organization will be defined. Lower-quality relationships result from *role taking*. Role taking involves no negotiation but rather the acceptance of formally defined roles as the basis of the relationship.

Role making is a process of reciprocity and social exchange. The core of role making is testing, which determines how relationships progress through the different stages of development. In the early stages, when individuals are assessing and evaluating one another to determine the type of relationship that will develop, the testing processes may be considered *developmental testing*. In developmental testing, parties evaluate each other and each person keeps track of what he or she has done for the other and how it was reciprocated (i.e., scorekeeping). Once a relationship is established, testing changes from scorekeeping to *maintenance evaluation*. In this situation, testing is a boundary assessment in which individuals revert to active testing only when a boundary of the relationship is violated.

The concepts of LMX relationship building were formalized in the *leadership-making model*, which describes the reciprocity and social exchange foundations of LMX theory. Support for leadership-making predictions about reciprocity is offered by empirical work showing that lower-quality LMX relationships have higher immediacy of returns, higher equivalence of exchange, and more self-interest, whereas higher-quality relationships have lower immediacy of returns, lower equivalence of exchange, and mutual interest.

With the introduction of the leadership-making model, LMX theory abandoned its differentiation roots, suggesting that leadership comes from high-quality relationships and that in order to have more leadership, more high-quality relationships are needed. The leadership-making model moved the theory from a descriptive model (of work unit differentiation) to a more prescriptive model (of leadership making). This movement away from differentiation, in-groups, and out-groups allowed the theory to become a broader relational leadership theory grounded in social exchange rather than a supervisory leadership model. The theory now also considers other types of relationships that could generate leadership, including coworker exchange, team member exchange, and member-member exchange.

THE FUTURE OF LMX THEORY

Leader-member exchange theory continues to generate a significant body of research across many disciplines and fields of study. It has been shown to be a powerful construct in assessing dyadic interpersonal and relational aspects of the work environment; higher LMX is a strong predictor of positive attitudes and feelings about the workplace. Although LMX theory is rich in its description of relationship development, however, a critical area that requires empirical investigation is how effective work relationships are generated and how these relationships operate within the larger contexts and networks of exchange in organizations. Moreover, though early research on LMX used a variety of strong methodological approaches (field experiments, qualitative data, and longitudinal designs), more recent research has relied heavily on cross-sectional survey data. Researchers must continue to push the theorizing and strong methodologies that characterized LMX in its early development into relational leadership to achieve the full promise of LMX theory.

—Mary Uhl-Bien

See also Leadership and Supervision; Leadership Development

FURTHER READING

Dansereau, F., Graen, G. B., & Haga, W. (1975). A vertical dyad linkage approach to leadership in formal organizations. *Organizational Behavior and Human Performance*, 13, 46–78.

Graen, G. B., Novak, M., & Sommerkamp, P. (1982). The effects of leader-member exchange and job design on productivity and satisfaction: Testing a dual attachment model. *Organizational Behavior and Human Performance*, 30, 109–131.

Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *Leadership Quarterly*, 6(2), 219–247.

Liden, R. C., & Maslyn, J. M. (1998). Multidimensionality of leader-member exchange: An empirical assessment through scale development. *Journal of Management*, 24(1), 43–72.

Liden, R. C., Sparrowe, R. T., & Wayne, S. J. (1997). Leader-member exchange theory: The past and potential for the future. In G. R. Ferris & K. M. Rowland (Eds.), *Research in personnel and human resources management* (Vol. 15, pp. 47–119). Greenwich, CT: JAI Press.

Uhl-Bien, M., Graen, G. B., & Scandura, T. (2000). Implications of leader-member exchange (LMX) for strategic human resource management systems: Relationships as social capital for competitive advantage. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (Vol. 18, pp. 137–185). Greenwich, CT: JAI Press.

LEADERSHIP AND SUPERVISION

Leadership is the process by which a leader influences another person or group and focuses the followers' behavior on a goal or outcome. Persuading a subordinate to clean up his or her work area could be seen as a form of leadership, as could convincing hundreds of people to volunteer for disaster relief work. Influencing people and focusing that influence toward a tangible outcome are fundamental components of the leadership process. Leadership can occur in a variety of settings, either formal or informal. In formal settings, such as business organizations, individuals may receive a formal job assignment in which they are expected to lead other organizational members. This formalized leadership role is often called *supervision*. Although leadership and supervision are similar, there are some significant differences between the two concepts.

LEADERSHIP VERSUS SUPERVISION

Leadership is an informal process that involves many people. In the process, one person attempts to

influence the others and to produce a change in the behavior of his or her followers. Leadership occurs any time one person influences another, and it can occur with or without a formal organization. If an individual is repeatedly successful at influencing others, that individual may eventually be perceived as a leader. Individuals who lead in one situation may not lead in another because tasks vary, as well as the individuals present in a specific group setting.

Supervision, on the other hand, involves a more formal relationship: One person is formally designated to supervise others, and that action is sanctioned by a formal organization. Supervision tends to have an administrative and rational focus, with the smooth and efficient operation of the formal organization as its defining feature. A supervisory role, once established, tends to perpetuate itself and is modified only by formal action. The leader of a group may change quickly, whereas a supervisor has a formally designated role that is fairly permanent. Part of what supervisors attempt to do is to lead people. So in actuality, leadership is a psychological process that can occur in the formalized role of supervision as well as in less formal settings. Thus, supervision occurs when someone who is formally designated and sanctioned by an organization attempts to influence (lead) others toward organizationally sanctioned goals.

EARLY LEADERSHIP RESEARCH

Although the concept of leadership has been around since people first began to organize themselves, the formal study of leadership is relatively new. Early attempts to investigate leadership focused on great leaders and their common characteristics. Though systematically identifying common characteristics was a good idea, the list of common leadership characteristics or traits quickly became too long to be of any practical value. Leaders were identified as more extraverted, social, talkative, original, intelligent, dominant, athletic, and healthy than the people they led, but those were only a few of the pertinent traits. As the list of traits became longer, the prospect of finding individuals with all or even most of the traits seemed remote. And for every trait that was identified, there were notable exceptions. For example, although Abraham Lincoln and George Washington, like many leaders, were taller than their followers, Napoleon and Joan of Arc were admittedly influential leaders who did not tower over others. The search for the key

characteristics of leadership was not particularly fruitful, and ultimately, research on leadership turned to different concerns.

LEADER POWER

Instead of focusing on the individual characteristics of leaders, some researchers turned their attention to the way that power helps people lead. The logic behind this approach is that leadership involves a process of influence, and power is the potential to influence. Thus, if we can understand the power that a leader uses, we can better understand how leaders influence and lead.

The types of power that leaders use can vary considerably. For example, leaders may influence their followers by offering rewards (*reward power*) or by threatening punishment (*coercive power*); these methods may be effective if the leader can control the followers' environment. In organizations in which leaders are anointed with formal authority, *legitimate power* can also be very influential. Military organizations, in which the legitimate power structure is made obvious by the rank system and its associated obligations, are the best examples. Two other kinds of power that are commonly identified are *referent power* and *expert power*. Referent power allows a leader to influence others because the followers identify strongly with or admire the leader, as in the case of a charismatic leader or a famous person. Finally, the expertise that an individual possesses in a particular field can influence people to follow him or her. This expert power tends to be situation specific, but it is valued highly when the expertise is pertinent. Reward, coercive, and legitimate power are typically associated with the roles that people have in formal organizations, whereas referent and expert power are clearly associated with the perceived strengths of particular individuals.

To lead, one must exercise an appropriate level of power and use different types of power to influence followers. For example, commercial airline pilots have great influence over their passengers because of their expert ability to fly the airplane and the legitimate authority that government agencies give pilots as aircraft commanders. Pilots have considerable power over passengers until both the pilot and the passengers leave the airplane, at which point they are all simply people trying to leave the airport. In this situation, the pilot no longer has power because both the pilot and

the passengers are citizens with no legitimate power over each other, and the pilot's expertise is no longer relevant. Understanding leadership from a power perspective is helpful, but many have found this approach wanting because power does not explain all of the complexities of leadership.

LEADER BEHAVIOR

Although leader power provides some insight into the leadership process, a different research approach developed as researchers began to systematically study how leaders behave. Instead of focusing on traits or the use of power, the behavior of leaders has become the focus of much scientific research on leadership. By systematically studying how leaders behave in a wide variety of situations, this approach has identified two primary leader behaviors that seem to have great influence on followers. These behaviors appear to be relatively independent of one another and relate to important outcomes such as group productivity and satisfaction. *Initiating structure*, or a focus on the task, and *consideration*, or a focus on relationships, have been identified as contributing most to effective leadership.

Initiating structure focuses on the leader's ability to provide structure to his or her subordinates so that tasks can be accomplished. A highly structuring leader makes assignments, sets goals, divides the labor, and clarifies the tasks to be done. The focus on task accomplishment is a fundamental concern for many groups. The second important behavior, consideration, includes being concerned for the welfare of followers, asking for followers' opinions, and encouraging two-way communication. This behavior focuses on the leader's ability to build relationships with followers.

Leaders who are highly focused on task accomplishment generally have more productive groups than leaders with lower task-related behavior. Leaders who focus on relationships and the people in the group generally have more satisfied followers than leaders who tend not to demonstrate relationship-oriented behavior. Although the empirical evidence does not always completely support the concept, leaders are encouraged to exhibit high levels of both task- and relationship-oriented behaviors.

SITUATIONAL LEADERSHIP THEORIES

Although the notion that ideal leaders should exhibit high levels of both task- and relationship-oriented

behavior has been embraced by many, empirical research is only mildly supportive of this simple solution. Exceptions to the general rule are noteworthy: Sometimes groups do not need additional focus on the task, and in some instances, followers may be highly satisfied even when the leader pays little attention to relationships. Though having both a relationship and task orientation is probably a good general approach to leadership, differences in the situations in which leaders operate must also be considered. *Situational leadership theories* suggest that the type of leadership needed depends on situational variables such as the task, the followers, and existing relationships within the group.

For example, a group of well-educated and highly dedicated scientists would likely have markedly different leadership needs than a group of inexperienced and newly hired employees. The scientists likely understand their immediate task, monitor their own performance well, derive significant satisfaction from their work, and have very little need for supervision or leadership. Such a group could operate for a long period of time with little outside influence. In fact, in this situation, any attempt to lead could be viewed as micromanagement of a group that can function on its own. On the other hand, newly hired employees are likely working in unfamiliar territory; they need guidance on what they should be doing, have limited interest in the task at hand, and see little immediate connection between their present activities and long-term success, and they may derive little satisfaction directly from their work. In this case, the leader needs to provide structure for the task; he or she may also be a source of satisfaction by providing encouragement and by fostering positive relationships.

Based on these two situations, it seems obvious that effective leadership behavior varies across situations. Depending on the maturity level of the group and the task that is to be performed, different leader behaviors are likely to be effective. With a mature group of highly trained people who are intrinsically motivated, a low level of both task and relationship leadership is probably appropriate. Leaders who stay out of the way are likely to be seen as effective in this situation. For groups that lack clarity about what they are to do and are not intrinsically motivated by the immediate task, guidance, structure, support, and possibly a firm hand from a leader are likely to be effective. One group needs both significant task guidance and strong relationship support from the leader, whereas the other group needs very little in the way of

leadership. Thus, the effectiveness of leader behavior is dependent on the situation, and both the leader and situational variables must be considered.

IN-GROUP LEADERSHIP

Although it is tempting to look at leadership as a group-level phenomenon and assume that all people in a particular group have exactly the same relationship with their leader, this belief is probably an oversimplification. Leaders do, in fact, have a different relationship with each of their followers, and some followers are closer to and rewarded more frequently by their leader. These so-called insiders are privy to all that a close relationship brings—extra attention from the leader, tangible and intangible rewards, mentoring, and task assistance. Those who are not insiders may receive acceptable leadership but miss out on the extra benefits that a close relationship offers. Currently, considerable research focuses on the differences in the interactions between leaders and their individual followers.

TRANSACTIONAL LEADERSHIP

Current thinking about leadership in day-to-day interactions, or what is often called *transactional leadership*, holds that different leader behaviors will be effective depending on the situation. Generally, task-oriented leader behavior is needed and helpful when followers have need for additional information, guidance, and structure. Likewise, the extent to which the leader needs to develop and support relationships within the group depends on the existing cohesion of the group, the intrinsic motivation associated with the task, and general feelings of mutual support. The most effective leader behavior depends on what her or his group needs. Thus, an effective transactional leader needs to diagnose how much structure and how much leader support are needed and then deliver the desirable amount of each behavior. It must also be acknowledged that insiders may have qualitatively different relationships with their leader than those who are outsiders.

TRANSFORMATIONAL LEADERSHIP

A leader may be adept at providing appropriate support so that followers can respond to normal challenges, but many leaders also inspire and motivate followers to do more than meet immediate challenges.

The ability to energize or inspire people to pursue new goals and to focus on changing and improving the status quo is captured in the notion of *transformational leadership*. Transformational leaders clearly communicate their vision and inspire followers to create new ideas and make a real difference in their work. Transformational leaders move organizations and people to new levels of performance. Emerging research suggests that transformational leaders may have charismatic as well as other qualities.

SUMMARY

Leadership can dramatically affect the functioning and effectiveness of any organization. Current thinking on transactional leadership suggests that effective leaders adjust their task and relationship behavior to meet follower and situational needs. Effective transactional leaders help organizations run efficiently, but transformational leaders can also motivate people to attain higher levels of creativity and performance.

—David Clark Gilmore

See also Leadership Development

FURTHER READING

- Bass, B. M. (1990). *Bass and Stogdill's handbook of leadership: Theory, research, and managerial applications*. New York: Free Press.
- Bass, B. M. (1997). Does the transactional-transformational leadership paradigm transcend organizational boundaries? *American Psychologist*, 52, 130–139.
- Hughes, R. L., Ginnett, R. C., & Curphy, G. J. (2002). *Leadership: Enhancing the lessons of experience*. New York: McGraw-Hill.
- Yukl, G. (1998). *Leadership in organizations*. Upper Saddle River, NJ: Prentice Hall.

LEADERSHIP DEVELOPMENT

Leadership development refers to an individual's preparation for advancement to a level of major responsibility within an organization (chief executive officer, chief operating officer, vice president, managing director) and to the continuous learning of those who already occupy these positions. Preparation may begin early in a person's career through participation in education or training programs (e.g., a several-day

or weeklong program delivered at an organization's training center, a university, or a company that specializes in leadership development programs) and initial job experiences (positions and developmental job assignments). Top managers may identify lower-level managers who they believe have potential for advancement and place them in fast-track programs in which they are promoted rapidly as they move through a series of line and staff positions in different functions. Organizations may send high-potential managers to development programs that communicate the values and competencies the organization desires in its leaders and give participants a chance to experiment with new behaviors in training simulations or actual group projects. Overall, leadership development is an ongoing process that takes place throughout a manager's career regardless of the number of organizations he or she works for or the organizational level attained.

ORGANIZATIONAL PERSPECTIVE

Organizations need to create a pipeline of high-potential managers who are ready for advancement to higher-level positions in different functions. Although some executive positions may be filled from the outside, bringing new ideas and strategies, organizations also want leaders who have a history with the organization and understand its culture and operations. Moreover, advancement opportunities help to retain talented managers. Succession planning, a process that is closely related to leadership development, entails reviewing leadership talent, creating development plans for outstanding managers, anticipating vacancies, and sometimes deliberately creating positions as developmental experiences and promotional opportunities.

The nature of leadership development depends on the type of leader the organization desires. Organizations need to communicate the values that leaders are expected to promulgate (e.g., honesty, integrity, open communication, concern for employees' welfare and career development) and the competencies (skills and knowledge) that leaders need to be effective (e.g., ability to formulate and communicate a clear and compelling vision and strategy). These values and competencies are integrated into the design of leadership development programs as well as the criteria for executive selection and performance evaluation.

Organizations differ in their philosophies of leadership development. Some organizations believe that

managers should be given every opportunity to prepare for future opportunities and advancement. Other organizations believe that leadership talent is fixed early in one's career, and therefore, young, talented managers need to be identified and given experiences that will help them understand the business. Some organizations believe that leaders need training and development for future career growth, whereas other organizations believe that leaders need to concentrate on improving their current performance, not preparing for an uncertain future. Some organizations develop generalists by moving managers from one function to another and between line and staff positions as they advance, assuming that talented managers can learn the technical aspects of any job and that leaders need broad exposure to all aspects of a business. Other organizations develop specialists by promoting effective managers to higher-level positions within functional areas. Some organizations want transformational leaders who will create innovations and new strategic directions, whereas other organizations want transactional leaders who will concentrate on operational efficiency and effectiveness. Many organizations use a combination of these approaches—for example, providing promotional opportunities within highly specialized fields while also offering career paths that develop generalists.

An organization's development philosophy needs to match the needs of the organization. For example, fast-growing companies in highly competitive environments with rapidly advancing technology are likely to need—and so will develop—innovative, flexible, visionary leaders. Companies that are in stable environments are likely to need and develop leaders who focus on continuous, incremental improvements in operations and financial performance. An organization's development philosophy is likely to have a lasting effect on its leaders. People who leave an organization in mid- or late career to lead another company are likely to bring that philosophy of development to the new firm. The effectiveness of that philosophy will depend on the needs of the new organization.

In some organizations, continuous learning is the hallmark of the organization's culture. Leaders at all levels regularly provide feedback and discuss performance-improvement opportunities (including corporate resources for learning) with subordinate managers. Managers are encouraged to be continuous learners—people who seek feedback, establish development plans for themselves, and carry out these

plans. From the organization's standpoint, this gives the company a competitive advantage in hiring and retaining talented leaders. From the leader's standpoint, this provides an opportunity to enrich one's life and expand one's career opportunities.

INDIVIDUAL PERSPECTIVE

Leaders need to take responsibility for their own development by taking advantage of resources provided by the employer. A generation ago, large corporations maintained parent-like control over the development of their future leaders, and the people who received the most attention and support—that is, those on the fast track who could do no wrong—were the ones who needed it the least. Given the frequency of corporate downsizings, mergers, and shifts in strategy, no job or career path is secure. In addition, managers in small firms cannot realistically expect the organization to provide substantial resources for development or rapid promotional opportunities. As a consequence, leaders, as well as those who aspire to be leaders, need to understand their own strengths and weaknesses, ask for feedback about their performance and potential, set development goals for themselves (ideally in consultation with higher-level managers), and seek out development activities.

Some leaders are more adept at taking responsibility for ongoing development than others. Continuous learners have a thirst for knowledge and skill development and a desire to use their newly acquired knowledge and skills. They learn for the sake of mastery, not merely for its instrumental value in attaining a promotion or salary increase. They experiment with new behaviors and look for unfamiliar job assignments that will expand their background. They welcome change, and they are not only mindful of the competencies they need to be successful today but also recognize that job requirements change and higher-level positions require different competencies. They observe leaders in positions to which they aspire and find situations that allow them to model these behaviors. People who do this well are likely to be identified as having leadership potential.

METHODS

Often, leadership development comprises a combination of approaches. Examples of developmental techniques include the following:

- Challenging jobs in a variety of functional areas. Developmental assignments can also be created without moving managers into new jobs. For example, a manager might be asked to handle negotiations with a customer, present a proposal to top management, launch a new program or product, supervise cost cutting, join a community board, or resolve a conflict among warring employees.
- Ongoing feedback discussions with one's supervisor, subordinates, or peers.
- Multisource or 360-degree feedback (performance ratings made by colleagues who have different perspectives); this is best used as a source of information for development, not to make decisions about people. A recent review of 24 longitudinal studies found that the impact of multisource feedback is, on average, positive but small. Improvement appears to be greatest among managers who initially overrate themselves, set goals for improvement, talk to others about their feedback, and participate in training or other development activities and those with high self-efficacy, low organizational cynicism, and a learning orientation.
- Executive coaching, whereby a consultant is hired to work with the leader, discuss feedback results, set developmental goals, and provide advice on handling difficult situations. Relatively few studies have considered the impact of executive coaching; preliminary evidence indicates that the effects appear to be positive (although, in some instances, small).
- Mentoring in which higher-level managers (not necessarily an immediate supervisor) provide guidance and pave the way for advancement. A recent meta-analysis (i.e., a statistical synthesis of studies) found that career mentoring generally enhances a variety of outcomes, such as job satisfaction, career satisfaction, expectations for advancement, compensation, and promotion.
- Role models from whom leaders learn informally by observing their behavior.
- Simulations of business games and experiential exercises that demonstrate emergent leadership, teamwork, and communication skills and provide participants with a chance to test their skills and try new behaviors.
- Assessment centers that combine a variety of simulations during which managers are observed and their competencies evaluated; these may be used to make decisions about people, such as who should be in a fast-track development program, or as a source of feedback for development and a developmental experience itself.
- Off-site leadership development programs, including university-based executive education, or other

off-site programs. Trends in executive education include a growing focus on customized programs, increased use of action learning, making participants responsible for action plans back at the workplace, support group and coaching help, and reliance on distance or Web-based learning.

- Short courses focused on specific topics, such as strategic planning, decision making, team leadership, conflict resolution, business ethics, or crisis management.
- Organizational programs that identify managers with leadership potential and send them to company-specific training that focuses on competencies desired by the organization (e.g., becoming a transformational leader who creates and communicates new vision and strategies); often, these programs give participants a chance to work in teams on real organizational problems (a technique called *workout* pioneered by General Electric).

ASSESSMENT OF LEADERSHIP DEVELOPMENT PROGRAMS

Leadership development programs should be evaluated to determine whether they are accomplishing what was intended. They address such questions as, are managers in a training program applying what they learned on the job, and is it having an impact on the performance of the managers' department? Does the organization have managers who are ready for promotion to higher-level positions? Is it better (faster, less expensive, of greater long-term value) to fill a leadership position from outside the organization or to promote from within and maintain a development program for aspiring leaders?

Assessment methods require deliberate planning and should be incorporated into the design of leadership development programs. This requires identifying the expected impact of the development program on the individual manager, the work group, and the department or organization. It is also important to determine the period of time over which the impact is expected to occur. It is usually important to examine the impact from multiple perspectives and for different stakeholders (e.g., participants, direct reports, peers, senior leaders). For example, immediately after the program, participants might be surveyed to determine how they intend to apply their learning and new competencies. Several months later, participants might be surveyed about whether they receive support when they attempt to apply their new competencies. Other stakeholders could then be asked to complete a

360-degree behavior-change survey about the participants. Several months later, stakeholders might be interviewed to determine what changes have occurred in the participants' work groups, and organizational data (e.g., customer satisfaction, climate surveys) could be examined to determine whether the organization has benefited. It is desirable to gather before-and-after indexes of performance. Control groups may be useful for comparing people who participated in a program with those who did not. Tracking systems can be used to determine whether managers who performed best in the development program have been promoted one or more years later. Assessment adds cost and takes time, but it is the only way to improve development programs and determine whether investments in leadership development are paying off. Two meta-analyses separated by 18 years (reviewing 70 and 83 studies, respectively) concluded that management and leadership development programs are, on average, effective across different content areas, training methods, and criteria. That is, practitioners can attain meaningful improvements in both knowledge and skills if sufficient up-front analysis is conducted to ensure that the right development programs are offered to the right leaders.

—James W. Smither and Manuel London

See also Assessment Center; Executive Selection; Performance Appraisal; Succession Planning

FURTHER READING

- Allen, T. D., Eby, L. T., Poteet, M. L., Lentz, E., & Lima, L. (2004). Career benefits associated with mentoring for protégés: A meta-analysis. *Journal of Applied Psychology, 89*, 127–136.
- Collins, D. B., & Holton, E. F. (2004). The effectiveness of managerial leadership development programs: A meta-analysis of studies from 1982 to 2001. *Human Resource Development Quarterly, 15*, 217–248.
- London, M., & Maurer, T. J. (2004). Leadership development: A diagnostic model for continuous learning in dynamic organizations. In J. Antonakis, A. T. Cianciolo, & R. J. Sternberg (Eds.), *The nature of leadership* (pp. 222–246). Thousand Oaks, CA: Sage.
- London, M., & Smither, J. W. (1999a). Career-related continuous learning: Defining the construct and mapping the process. *Research in Personnel and Human Resources Management, 17*, 81–121.
- London, M., & Smither, J. W. (1999b). Empowered self-development and continuous learning. *Human Resource Management Journal, 38*, 3–16.

- Martineau, J., & Hannum, K. (2004). *Evaluating the impact of leadership development: A professional guide*. Greensboro, NC: Center for Creative Leadership.
- McCaughey, C. D., & Van Velsor, E. (2003). *The Center for Creative Leadership handbook of leadership development*. San Francisco: Jossey-Bass.
- Smither, J. W., London, M., & Reilly, R. R. (2005). Does performance improve following multisource feedback? A theoretical model, meta-analysis, and review of empirical findings. *Personnel Psychology*, 58, 33–66.

LEARNING ORGANIZATIONS

Simply put, a learning organization is one that is skilled at learning. However, since the concept rose to prominence during the 1990s, the precise nature of the learning and the characteristics of a learning organization have been the source of much debate. Many models have emerged, each describing different combinations of features that typify a learning organization and each assuming that these features lead to improved performance. The models vary in terms of their emphasis on who is learning (e.g., management as opposed to nonmanagement employees, individuals or groups as opposed to the organization as a whole); what is being learned (e.g., knowledge of competitors, new technologies, new job skills); how learning is taking place (e.g., activities for creating, sharing, storing, or applying new knowledge); and which factors influence learning (e.g., organizational structure, processes, culture, leadership).

Integrating the literature produces a more comprehensive definition: A learning organization is expert at generating, acquiring, transferring, and storing knowledge within and between individual, group, and organizational levels and applying new knowledge to change behavior. This concept has had enduring popularity among management communities. An overview of its key features will be provided, as well as a discussion of its criticisms—chiefly, its lack of theoretical coherence and generalizable empirical validation.

COMMON FEATURES OF LEARNING ORGANIZATION MODELS

A review of the literature indicates that many models share a number of features that are proposed to characterize a learning organization:

- **Continual individual development**—To utilize the full potential of individuals, the organization encourages all employees to regularly learn through a wide variety of methods, from traditional training courses to experiential work-based activities. Rewards and incentives, as well as resources, are provided to stimulate the development of employees and create a positive learning climate.
- **Teamwork**—Teams are seen as a fundamental learning unit, based on the belief that the whole is greater than the sum of the parts. Within the shared context of the team, individuals interact with each other to integrate information from different angles into a new collective perspective. This can be aided by team development activities.
- **Empowerment of leadership**—As opposed to traditional command-and-control modes, the role of management is seen as one of encouragement, facilitation, and direction of learning processes. Through empowerment and participative decision making, frontline employees are much more active in deciding how and what work is done.
- **Systematic approaches to knowledge processing**—Learning organizations are analytical and scientific in the way they deal with information and make decisions. For example, Chris Argyris proposes that managers should not only engage in single-loop learning (developing knowledge that helps to meet objectives) but also periodically engage in double-loop (questioning the setting of objectives) and deuterio learning (questioning the organization's fundamental role). Peter Senge advocates the development of systems thinking, whereby management becomes aware of the long-term causes and effects of its decision making. Alternatively, Ikujiro Nonaka describes how important tacit knowledge contained within employees can be turned into explicit, articulated forms to be shared, interpreted, and internalized by the rest of the company. Periodic dialogue and reflections on experience should also be incorporated.
- **Flexible structures**—Rigid, bureaucratic organizational structures are thought to inhibit the flow of learning; therefore, flatter, less hierarchical forms with cross-functional links and decentralized decision making are considered preferable.
- **Awareness of the internal and external environment**—Constant monitoring of internal processes and outcomes is undertaken through activities such as employee opinion surveys and functional performance reviews. Furthermore, the organization needs to understand major external players such as customers, suppliers, and competitors. Initiatives such as conducting customer focus groups, undertaking

benchmarking visits, and forming alliances with partner organizations can help in this respect.

- **Effective internal knowledge-sharing mechanisms**—Knowledge flows easily throughout different parts of the organization so that best use can be made of it when needed. This can be enabled by having efficient and comprehensive communication networks, personnel rotation, and boundary-spanning roles. In addition to ensuring horizontal flows of knowledge across different sections of the organization, effective vertical sharing of information between management and employees is also necessary.
- **Strategic alignment**—To make the best use of learning for organizational value, learning organizations should ensure that strategies are both internally and externally aligned. External alignment refers to the fit between the overall strategy and current or anticipated market conditions, whereas internal alignment means that functional strategies (e.g., human resource management, marketing, production) are integrated and synergistically combine to help the organization achieve its overarching goals.
- **Change orientation**—A key feature of the learning organization is its willingness and ability to put knowledge into practice by modifying its strategy, policies, structure, and functional environment.
- **Shared vision**—To provide a sense of purpose and direct the multilevel learning efforts for optimal organizational benefit, a shared vision needs to be built among all members. The role of top management, therefore, is to create a genuine strategic and inspirational vision that will motivate all employees toward a common set of goals.

ISSUES

A learning organization is thought to be expert at generating, acquiring, transferring, storing, and applying knowledge at all levels. Much has been written about this concept, and it is worth contrasting it with the long-standing organizational learning domain from which it emerged. The field of organizational learning studies the processes by which organizations learn and tends to be academically driven, multidisciplinary, analytical, rigorous in methodology, and descriptive (portraying how things are). In contrast, the learning organization field is concerned with the form the organization should take. It is driven by practitioners, based on informal research methods, idealistic, action oriented, and prescriptive (portraying how things should be).

Although its concepts are useful, the learning organization field has been criticized for its lack of

conceptual and theoretical coherence, difficulty of applicability, and relative paucity of generalizable empirical research. However, a growing body of research is now systematically developing measures to test the robustness of these models in terms of their construct reliability, validity, and link to organizational performance.

—Kamal S. Birdi

See also Group Development; High-Performance Organization Model; Organizational Change; Strategic Planning; Training

FURTHER READING

- Bapuji, H., & Crossan, M. (2004). From questions to answers: Reviewing organizational learning research. *Management Learning, 35*, 397–417.
- Dierkes, M., Berthoin-Antal, A., Child, C., & Nonaka, I. (Eds.). (2001). *Handbook of organizational learning and knowledge*. Oxford, UK: Oxford University Press.
- Friedman, V. J., Lipshitz, R., & Popper, M. (2005). The mystification of organizational learning. *Journal of Management Inquiry, 14*, 19–30.
- Örtenblad, A. (2004). The learning organization: Towards an integrated model. *The Learning Organization, 11*, 129–144.
- Senge, P. (1990). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday.

LEAST PREFERRED COWORKER THEORY

The least preferred coworker (LPC) theory, developed by Fred E. Fiedler, has been at the center of controversy almost since its inception. Called the *contingency theory* or the *contingency model* of leadership by Fiedler and his associates, the debate over its scientific validity and practical usefulness has sometimes been quite spirited. However, the rate of published theoretical and empirical research on LPC theory has slowed to a trickle as the field has shifted its focus to theories of transformational and charismatic leadership and as Fiedler and his colleagues have turned to work on cognitive resource theory, a derivative of LPC theory.

The LPC theory refers to the central variable of the model, a measure of the esteem in which the leader

be relatively stable and difficult to change over the short run. Because the performance of the leader's work group is dictated by the match between the leader's LPC score and the degree of control that the situation affords the leader, leadership effectiveness is most easily enhanced by changing the situation rather than by trying to alter the leader's style.

This idea, called *leader match*, suggests that in order to improve a leader's effectiveness (measured by his or her group's performance), leaders should be relocated to situations that better match their LPC scores, or leaders' current situations should be modified to better match their LPC scores ("good" matches occur when low-LPC leaders are situated in octants 1, 2, 3, or 8 and when high-LPC leaders are situated in octants 4, 5, 6, and 7). Fiedler and Chemers offer suggestions about how changes in situational favorability may be effected in real organizations; readers who are interested in implementing the LPC model's approach are encouraged to read their work in detail. Arguments against using the leader match approach, presented by Schriesheim and Hosking (1978), should be considered as well.

—Chester A. Schriesheim and Linda L. Neider

See also Leader–Member Exchange Theory; Leadership and Supervision; Transformational and Transactional Leadership

FURTHER READING

- Ayman, R. (2002). Contingency model of leadership effectiveness: Challenges and achievements. In L. L. Neider & C. A. Schriesheim (Eds.), *Research in management: Vol. 2. Leadership* (pp. 197–228). Greenwich, CT: Information Age.
- Fiedler, F. E. (1977). A response to Schriesheim and Kerr's premature obituary of the contingency model. In J. G. Hunt & L. L. Larson (Eds.), *Leadership: The cutting edge* (pp. 45–51). Carbondale: Southern Illinois University Press.
- Fiedler, F. E. (1978). The contingency model and the dynamics of the leadership process. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 11, pp. 59–96). New York: Academic Press.
- Fiedler, F. E. (1995). Cognitive resources and leadership performance. *Applied Psychology*, *44*, 5–28.
- Fiedler, F. E., & Chemers, M. M. (1974). *Leadership and effective management*. Glenview, IL: Scott, Foresman.
- Fiedler, F. E., & Chemers, M. M. (1984). *Improving leadership effectiveness: The leader match concept*. New York: Wiley.
- Fiedler, F. E., & Garcia, J. E. (1987). *New approaches to effective leadership: Cognitive resources and organizational performance*. New York: Wiley.
- Peters, L. H., Hartke, D. D., & Pohlmann, J. F. (1985). Fiedler's contingency theory of leadership: An application of the meta-analysis procedures of Schmitt and Hunter. *Psychological Bulletin*, *97*, 274–285.
- Schriesheim, C. A., & Hosking, D. (1978). Review essay of Fiedler, F. E., Chemers, M. M., & Mahar, L. Improving leadership effectiveness: The leader match concept. *Administrative Science Quarterly*, *23*, 496–505.
- Schriesheim, C. A., Tepper, B. J., & Tetraault, L. A. (1994). Least preferred co-worker score, situational control, and leadership effectiveness: A meta-analysis of contingency model performance predictions. *Journal of Applied Psychology*, *79*, 561–573.
- Strube, M. J., & Garcia, J. E. (1981). A meta-analytical investigation of Fiedler's contingency model of leadership effectiveness. *Psychological Bulletin*, *90*, 307–321.

LENS MODEL

The lens model originated in Egon Brunswik's concept of probabilistic functionalism, which is primarily a theory of perception. Brunswik was convinced that the methods of psychological research during the first half of the 20th century were wrongheaded, especially with regard to the "rule of one variable," which many held was the only way to do psychological science. He believed that an essential characteristic of behavior is vicarious functioning—that is, the achievement of organismic goals, either perceptual or instrumental, through a variety of means. The rule of one variable prevents the organism from exercising this fundamental characteristic, thus precluding valid knowledge of behavior.

The introduction of orthogonal, multivariate research designs such as ANOVA (analysis of variance) did not alleviate the problem. Brunswik argued that in order for a scientist to generalize to some population of situations, those situations must be sampled as carefully as people are sampled and must be similar to the situations for which the generalization is intended. Situations in the world are not orthogonally designed. Hence, ANOVA designs, Brunswik argued, are laboratory artifacts that do not permit generalizing beyond the laboratory. His solution was representative design, a solution embodied in the *lens model*.

PERCEPTION

The lens model was originally conceived as a perceptual analogy in which the distal stimulus is perceived by a person in terms of multiple cues that are imperfectly correlated with each other, each providing overlapping (i.e., correlated) information about the stimulus to be perceived. The distal stimulus is portrayed as having rays emanating from it that represent the cues. The lens collects the information and refocuses it so that the perceptual system probabilistically “achieves” the correct percept.

JUDGMENT

Kenneth Hammond brought Brunswik into mainstream psychology by applying his ideas to judgment. In a judgment context, the lens model is best described in terms of an approach called *judgment analysis*, which requires a substantial number of multi-attribute situations about which a person makes judgments. The purpose of judgment analysis is to understand the relationships between (a) the environment and the attributes, commonly called *cues*; (b) a person’s cognitive system and the cues; and (c) the environment and judgment systems.

THE LENS MODEL

Consider a highly idealized example. Imagine a company that is interested in the validity of the hiring decisions of its personnel department. Fortuitously for the industrial/organizational (I/O) psychologist, for legal reasons, the last 100 applicants have all been hired irrespective of the personnel director’s ratings, which were based on five factors, duly recorded. Hence, the judgment data are available for analysis. The company has a criterion for success, and the five factors are conceptualized as cues to both judgment and success. Regression analysis can be used to assess the contribution of the cues to successful prediction and the relationship of the cues to success on the job. The lens model, depicted in Figure 1, provides a rich tool for understanding.

The personnel manager’s hiring judgments in the 100 cases are denoted by Y_s , and each case is represented by varying values on the seven cues (X_i). The criterion for each case is denoted by Y_e . The judgments and criterion values are assumed to be continuous, but in practice they can include binary or categorical cues as well. The 100 predictions of the linear regression models of the criterion and judge are denoted by Y'_e and Y'_s , respectively.

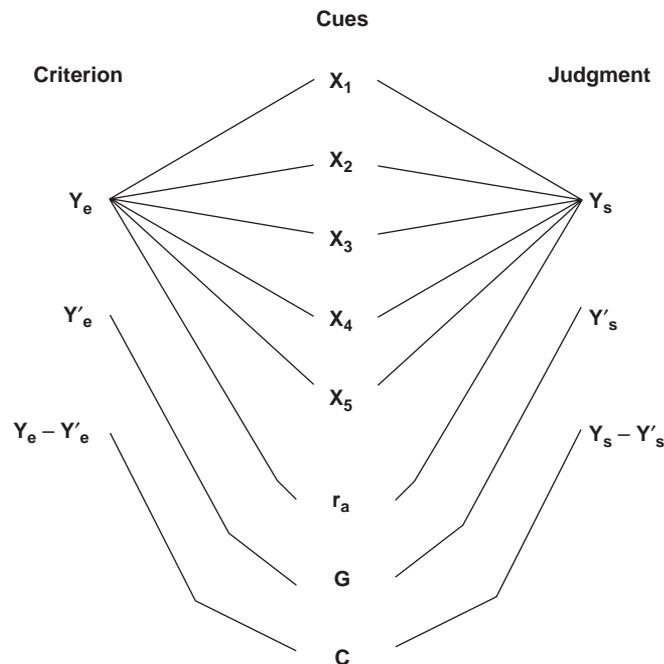


Figure 1 The Lens Model

SOURCE: Adapted from Cooksey (1996).

MODELING THE ENVIRONMENT AND THE JUDGE

The two sides of the lens are described in the same conceptual terms, instantiated by multiple regression. Policy capturing is performed on the data of the personnel director, or in lens model parlance, the *judge*. The multiple correlation, R_s , reflects the degree to which the person's judgments are predictable, assuming a linear, additive model. Ideally (barring the ever-present unreliability of judgment), it should be 1.0 unless the judge is validly using nonlinearities of function form, nonadditivities in the integration rule, or valid cues that are not in the equation (such as knowing that an otherwise poor applicant is the CEO's son). The variable R_e is determined by how well the cues predict the environment and how well the model has been specified. The cue-utilization coefficients (r_{is}) and ecological validities (r_{ie}) are zero-order correlations reflecting the importance of the cues to the judge and to success on the job, respectively.

RELATIONSHIP BETWEEN THE JUDGE AND THE ENVIRONMENT

The bottom line is whether the personnel manager can make valid predictions of job success. What I/O psychologists know as validity is called, in the jargon of the lens model, *achievement*, and it is reflected in the statistic r_a , the correlation between the 100 judgments and 100 criterion values. The degree to which r_{ie} and r_{is} are similar determines G , the zero-order correlation between the predicted values of the two linear models, which can be interpreted as the validity of the person's knowledge of the linear additive components of the environment. The C index, the zero-order correlation between the residuals from the two models, reflects the extent to which the unmodeled aspects of the person's knowledge matches unmodeled aspects of the environmental side of the lens.

Achievement is influenced by all of the foregoing variables. It is represented by the truly elegant formulation known as the *lens model equation*, or LME:

$$r_a = R_e R_s G + C [(1 - R_e^2) (1 - R_s^2)]^{1/2}.$$

With respect to the example, the LME says that the personnel director's ability to predict success on the

job is completely determined by how well that success can be predicted from the available data (R_e), how consistently he or she uses the available data (R_s), and how well he or she understands what actually predicts success (G and C).

When it is applied to appropriate problems, lens model analysis provides remarkable insight (which may be limited by modeling assumptions) into the interrelations between the person and the environment. The foregoing model has been framed in terms of an individual's judgments, turning the usual sampling asymmetry on its head—we have one subject and many situations! If we wished to generalize across subjects, then we would sample subjects as well as situations, perform idiographic statistical analyses on each subject, then nomothetically aggregate the idiographic indexes.

Applications to industrial and organizational psychology abound. Whenever tasks call for one or more people to make judgments and criterion data are available, the lens model and LME are useful tools for discovery. Such tasks include performance assessment, employment interviewing, investment decisions, evaluation of discrimination charges, or assessment of the desirability of employment contracts. In other applications, the two sides of the lens may be two different people, and the LME could be used to explore similarities, differences, and conflicts. The LME indexes can also be used in cognitive feedback studies, wherein criterion weights can be fed back to subjects, who can then use the information to modify their judgment weights.

—Michael E. Doherty

See also Policy Capturing

FURTHER READING

- Balzer, W. K., Doherty, M. E., & O'Connor, R. O. (1989). The effects of cognitive feedback on performance. *Psychological Bulletin*, *106*, 410–433.
- Cooksey, R. W. (1996). *Judgment analysis: Theory, methods, and applications*. San Diego: Academic Press.
- Goldstein, W. M. (2004). Social judgment theory: Applying and extending Brunswik's probabilistic functionalism. In D. K. Koehler & N. Harvey (Eds.), *Blackwell handbook of judgment and decision making* (pp. 37–61). Malden, MA: Blackwell.
- Hammond, K. R., & Stewart, T. R. (2001). *The essential Brunswik: Beginnings, explications, applications*. Oxford, UK: Oxford University Press.

Maniscalco, C., Doherty, M. E., & Ullman, D. G. (1980). Assessing discrimination: An application of social judgment technology. *Journal of Applied Psychology*, *65*, 284–288.

LETTERS OF RECOMMENDATION

In psychology, there is a common belief that the best predictor of future performance is past performance. References and letters of recommendation are methods of predicting future performance by looking at past performance. More than 80% of organizations in the United States check references, and almost all colleges and universities ask for letters of recommendation when admitting students or hiring faculty.

DEFINITIONS

Reference check: The process of confirming the accuracy of information provided by an applicant.

Reference: The expression of an opinion, either orally or through a written checklist, regarding an applicant's ability, previous performance, work habits, character, or potential for future success. The content and format of the reference are determined by the person or organization asking for the reference.

Letter of recommendation: A letter expressing an opinion regarding an applicant's ability, previous performance, work habits, character, or potential for future success. The content and format of the letter of recommendation are determined by the letter writer.

REASONS FOR USING REFERENCES, REFERENCE CHECKS, AND RECOMMENDATION LETTERS

Confirming Details on a Résumé

It is not uncommon for applicants to engage in résumé fraud—that is, lying on their résumé about what experience or education they actually have. Employers find that about 25% of résumés contain false or misleading information. Thus, one reason to check references or ask for letters of recommendation is simply to confirm the truthfulness of the information provided by the applicant.

Predicting Future Performance

Organizations can use references and letters of recommendation to predict future performance. However, references and letters of recommendation are generally not good predictors of future employee success, as the average validity for references is only .18. Using structured approaches to creating references and scoring letters of recommendation may increase their validity. References from people who know the applicant well are better predictors of future performance than references from people who are not well acquainted with the applicant.

PROBLEMS WITH REFERENCES AND LETTERS OF RECOMMENDATION

Leniency

One reason that references and letters of recommendation are not good predictors of performance is that few references are negative. In fact, studies indicate that only 4% to 7% of references are average or negative. This leniency is not surprising, considering that most applicants select people who will be their reference providers.

Reference providers may also be lenient because they fear they will be the target of a defamation suit if they say negative things. A person providing references can be charged with defamation of character (slander if the reference was oral, libel if it was written) if the content of the reference is both untrue and made with malicious intent. This fear keeps many organizations from providing references at all. Those who do provide references often ask former employees to sign waivers giving their employer the right to provide information and future employers the right to ask for information.

Reliability

A second reason that letters and references are not good predictors of future performance is that two people providing references or writing letters for the same person seldom agree with one another. A meta-analysis of five studies found that the average reliability for references is only .22. In fact, research indicates there is more agreement between recommendations written by the same person for two different applicants than between two people writing recommendations for

the same person. Thus, letters of recommendation may say more about the person writing the letter than about the person for whom it is being written.

SEX AND RACE DIFFERENCES

References and letters of recommendation appear to be one of the few employee selection methods in which there are minimal sex and race differences. Though there is not a lot of research on the topic, existing studies indicate that men and women write similar types of letters and provide similar references. Furthermore, male and female applicants, as well as minority and nonminority applicants, are described similarly in recommendation letters. Thus, references and recommendation letters are not likely to result in high levels of adverse impact.

EVALUATING LETTERS OF RECOMMENDATION

Letters of recommendation usually contain some combination of the following components:

- An opening paragraph that describes the relationship between the letter writer and the applicant
- Descriptions and evaluations of the applicant's traits, skills, and character
- Descriptions of the applicant's work, academic, or research responsibilities
- Statements that provide an overall evaluation of the applicant. Generally, there are three types of statements. The first indicates the overall quality of the worker or student (e.g., "She is the best employee I ever had"). The second indicates the strength of the recommendation (e.g., strongly recommend, recommend with reservations). The third is a prediction of the future (e.g., "She will be an outstanding employee for you").
- A closing paragraph telling the reader to contact the writer if he or she has any questions

Research indicates that when people read these components, they evaluate letters more positively when the letters contain specific examples and the letters are not too short in length.

ETHICAL ISSUES

Because providing references and letters of recommendation is a subjective process, the following ethical advice should be considered:

- Explicitly state your relationship with the person you are recommending.
- Be honest in providing details and making recommendations.
- Be honest with the applicant about the degree to which the reference will be positive.
- Avoid conflicts of interest when asked to provide a recommendation for two or more people applying for the same position.
- Include only job-related information.

LEGAL ISSUES

Although letters of recommendation do not appear to have high levels of adverse impact, some legal issues must be considered. Employers may be charged with *negligent hiring* if an employee has a criminal or violent past, the employer did not check references, and the employee commits a crime or other tort during working hours. Reference providers can be charged with *defamation* if they make negative statements that are not true and provided with malicious intent. Employers that do not provide information about a former employee's violent or illegal behavior may be charged by the new employer with *negligent reference* if the employee commits a crime or other tort while employed at the new job.

—Michael G. Aamodt

See also Employment Interview; Prescreening Assessment Methods for Personnel Selection

FURTHER READING

- Bliss, W. G. (2001). *Legal, effective references*. Alexandria, VA: Society for Human Resource Management.
- Colarelli, S. M., Hechanova-Alampay, R., & Canali, K. G. (2002). Letters of recommendation: An evolutionary psychological perspective. *Human Relations, 5*(3), 315–344.
- Harshman, E., & Chachere, D. R. (2000). Employee references: Between the legal devil and the ethical deep blue sea. *Journal of Business Ethics, 23*, 29–39.
- McCarthy, J. M., & Goffin, R. D. (2001). Improving the validity of letters of recommendation: An investigation of three standardized reference forms. *Military Psychology, 13*(4), 199–222.
- Taylor, P. J., Pajo, K., Cheung, G. W., & Stringfield, P. (2004). Dimensionality and validity of a structured telephone reference check procedure. *Personnel Psychology, 57*, 745–773.

LIFE-CYCLE MODEL OF LEADERSHIP

The situational leadership (SL) theory, developed by Paul Hersey and Ken Blanchard, is one of the most widely known frameworks for explaining managerial effectiveness. Although the framework is particularly popular among practicing managers and professional trainers, it has not enjoyed comparable attention from the academic community of industrial/organizational researchers. Nonetheless, the theory is recognized among researchers for its intuitive appeal, though it is not considered a clearly valid or robust framework for the prescription of leader behavior.

Since its earliest origins, when it was known as the life-cycle theory of leadership, SL theory has undergone a variety of changes. Some of these changes have been relatively cosmetic—for example, relabeling follower *maturity* as *developmental level* and then *readiness*, relabeling *willingness* as *commitment*, relabeling *ability* as *competence*, relabeling leader *task behavior* as *directive behavior*, relabeling leader *relationship behavior* as *supportive behavior*, relabeling the *prescriptive curve* as the *performance curve* and then the *leadership style curve*, and finally, relabeling *telling-selling-participating-delegating* as *directing-coaching-supporting-delegating*. Other changes—reflected in the most recent version of the model, termed *situational leadership II*—such as suggesting that low employee development or maturity involves differing dynamics, are arguably problematic and even suggest that increased maturity may result in decreased motivation. Despite these changes, the core concepts of SL remain largely intact, even if they have not been adequately validated.

Situational leadership theory continues to tie in with other contemporary views of what makes for effective supervision. For example, three contemporary workplace perspectives are completely in accord with SL's essential principles: (1) Self-directed work teams (a popular performance-enhancement technique) advocates that supervision should be minimal when employees are sufficiently capable of being self-directed; (2) employee competence and dedication or professionalism can be viewed as potent substitutes for leadership; and (3) leaders need to be both socially intelligent and flexible in their behavior.

In relation to other perspectives on leadership, SL theory is often viewed as one of several situational models that arose during the 1960s and 1970s. As part

of a trend toward incorporating situational elements into explanations of leader effectiveness, the theory's appeal was driven by dissatisfaction with earlier paradigmatic approaches that emphasized leader traits and leader behaviors to the exclusion of situational attributes. This theory also builds on earlier behavioral (or stylistic) approaches in that it includes a prevalent perspective wherein leadership is conceptualized along two independent dimensions: leader consideration and leader initiation of structure. The theory is novel, however, in its attempt to specify which combination of leader behaviors along these two dimensions is optimal in light of follower maturity. Within this theory, follower maturity is most often defined as a combination of the ability to perform a task and the willingness (or commitment and motivation) to accomplish a task.

The key principle underlying SL theory's most essential social dynamic is that as follower maturity increases, optimal leader behavior should involve less structuring and less consideration. Although the decline in the need for structuring is straightforward, the relationship to leader supportiveness is less so. Specifically, followers who are comparatively low on maturity should benefit from high structuring combined with low consideration. As the follower gains maturity, the need for leader structuring declines, but the need for supervisory supportiveness actually increases. At the highest levels of follower maturity, the need for both leader structuring and social supportiveness declines further, such that at the highest levels of follower maturity, leader structuring and consideration are irrelevant to follower performance. This transitioning of prescribed leader style can be summarized as moving from telling to selling to participating and, ultimately, to delegating (along a prescriptive curve).

The theory's intuitive appeal lies in its simplicity, as well as the self-evident correctness that is attendant to human (especially child) development. Consider that one would not attempt to handle a class of first graders in the same fashion as one would attempt to handle eighth graders, high school students, or college students. Clearly, one would be engaging in more telling at the lowest level of maturity and, ideally, far more delegating at the college (especially the graduate) level. The model is also appealing to military leadership training because raw recruits undergo a transformation as they gain ability and commitment. Because we all vary our own behaviors based on

circumstances and expect to be treated differentially based on self-perceived efficacy, the model's proposed dynamic is inherently enticing. The model is broadly attractive because it focuses on managerial dynamics rather than true leadership, which can be vested in any group member and typically refers to some form of incremental influence beyond one's nominal position or headship. Hence, the model offers practical guidance to people who find themselves in positions of responsibility (who may have little interest in the subtleties of a variety of alternative models of leadership that are long on evidence of aggregate correlational associations but short on specific advice as to how to relate to individual employees).

An empirical demonstration of the validity of the model's core tenet (the value of leader adaptability) is desirable. However, a variety of obstacles have impeded progress in studying the model in a rigorous fashion. First, the model is embedded in a training package that includes (along with training videos, worksheets, puzzles, games, and practice activities) a preferred instrument for assessing leader style. Although theoretical ties to the Ohio State University measures of consideration and initiating structure are evident, the instruments that are recommended for assessing a leader's personal style may not possess comparable psychometric merit. Additionally, the definition and measurement of employee maturity, a key construct, requires further development.

Despite these problems, empirical studies of SL theory have been attempted, yielding a mixed pattern of results. One study of 303 teachers in 14 high schools found support for the model's predictions for low-maturity subordinates (i.e., followers who were low in competence and commitment performed better with supervisors who were high on structuring but low on consideration) and for moderate-maturity subordinates (i.e., moderate structuring combined with higher considerateness was optimal). However, no support was found for high-maturity subordinates. In a replication of this study with a sample of nurses, similar directional (but nonsignificant) support was found for the earlier findings. In a further replication and extension of this line of research, 332 university employees and 32 supervisors were studied. The authors tested the suggestion that the model may be valid from an across-jobs perspective (in which norms govern how subordinates expect to be treated by a supervisor based on their competency and commitment) rather than a within-jobs perspective. Yet the results continue to suggest that the original model has limited descriptive

utility. However, further analyses have indicated that supervisory monitoring and consideration interact with job level such that monitoring has a positive impact for lower-level employees, whereas considerateness has a more positive impact for higher-level employees. This suggests that the model's most central and intuitively appealing aspect may be correct, whereas specific predictions based on follower maturity may be incorrect. In a related study of 1,137 employees across three organizations, it was found that employees with higher levels of education and greater levels of job tenure express less preference for supervisory structuring. This suggests that an understanding of employee expectations of supervisor behavior may be valuable in optimizing the level and nature of supervisory involvement with subordinates.

Beyond the aforementioned problem of deciding how best to operationalize key constructs, tests of the model have been limited because of the relatively low frequency of "matches" (relative to "mismatches"), wherein the ideal circumstances or combinations specified by the model are obtained. Furthermore, studies of the developmental dynamic proposed by the model (wherein followers gain or even regress in ability and willingness) are virtually nonexistent. Despite these problems, a sufficient number of SL-related studies have been conducted (many of them doctoral dissertations that rely on leader self-assessments) that a meta-analysis was recently conducted. Based on 35 studies, the results were judged to be generally supportive of the relationship between leader adaptability and effectiveness, with an overall corrected effect size of .31 and an estimated 95% confidence interval of the true correlation of .19 to .41. Hence, the authors concluded that the ability to appropriately adapt one's leadership style to the developmental level of a follower is related to overall leader effectiveness. Judged in their totality, the results of this meta-analysis, as well as other more rigorous studies, suggest that SL theory continues to be a promising approach to understanding leadership.

—Robert P. Vecchio

See also Leadership and Supervision; Situational Approach to Leadership

FURTHER READING

Blanchard, K. H., Zigarmi, D., & Nelson, R. B. (1993). Situational leadership after 23 years: A retrospective. *Journal of Leadership Studies, 1*, 22–36.

- Fernandez, C. F., & Vecchio, R. P. (1997). Situational leadership theory revisited: A test of an across-jobs perspective. *Leadership Quarterly*, 8, 67–84.
- Hersey, P., & Blanchard, K. (1969). Life-cycle theory of leadership. *Training and Development Journal*, 23, 26–34.
- Hersey, P., Blanchard, K., & Johnson, D. E. (2001). *Management of organizational behavior: Leading human resources* (8th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Norris, W. R., & Vecchio, R. P. (1992). Situational leadership theory: A replication. *Group and Organization Management*, 17, 331–342.
- Shilobod, T. L., McMullen, L. J., & Raymark, P. H. (2004, April 1–4). *Situational leadership theory: A meta-analysis of the adaptability hypothesis*. Paper presented at the 19th Annual Conference of the Society for Industrial and Organizational Psychology, Chicago.
- Vecchio, R. P., & Boatwright, K. J. (2002). Preferences for idealized styles of supervision. *Leadership Quarterly*, 13, 327–342.

LINKAGE RESEARCH AND ANALYSES

Linkage research identifies the relationship between employee perceptions of the work environment and objective measures of business performance (e.g., productivity) and other relevant organizational outcomes (e.g., customer satisfaction). Workplace perceptions are typically gathered through employee surveys, and measures of business performance are selected on the basis of what outcomes are relevant to the firm's strategy. Linkage research serves two purposes. First, it provides organizational leaders with a compelling demonstration of the validity of employee perceptions and the effects of employee opinions on business success. Second, it helps organizations to identify specifically what they should do to improve.

RELATIONSHIP BETWEEN EMPLOYEE OPINIONS AND BUSINESS PERFORMANCE

The history of job satisfaction research has been largely disappointing in its consideration of the seemingly logical belief that happy workers are more productive. Simply put, evidence of the relationship between employee satisfaction and individual productivity was found to be lacking as early as the 1950s and in many reviews of the relationship since then. This surprising lack of relationship can be attributed to several factors, including employees' lack of

discretion in deciding how to perform their jobs and the lack of reliability in individual performance measures. In contrast, linkage analyses are conducted at the level of the relevant organizational work unit. The organizational measures of performance selected may be more reliable and less prone to rating biases than individual ratings of job performance. Organizational measures also reflect the benefit of the aggregate discretionary individual behaviors that affect unit and organizational functioning and may not be captured in traditional individual performance measures.

Cumulative evidence across many linkage studies suggests a compelling picture. Workplace perceptions have been shown to predict financial measures of success (sales, profits), customer satisfaction, turnover rates, safety, and other relevant business outcomes. The findings are robust, although the range of business outcomes represented in the published studies is somewhat limited and comprises mostly customer-focused outcomes. This is partly attributable to the fact that customer-focused industries tend to be organized around common business practices, and business units tend to be easily identifiable and significant in number. Therefore, linkage research has been largely limited to organizations with multiple homogeneous business units (such as bank branches, hotels, and car dealerships).

WHICH EMPLOYEE OPINIONS MATTER?

The fundamental challenge in designing employee surveys is choosing the right questions to ask. There are practical limits to the length of employee surveys, and the number of possible topics to be represented is large. Consequently, employee surveys capture how employees perceive the work environment with varying degrees of specificity. In some surveys, questions focus on very specific organizational practices, such as the availability of specific resources such as computers or management support. In other cases, the questions are broad indicators of satisfaction, such as direct ratings of satisfaction with supervision or the degree of autonomy.

Despite these broad differences in specificity, the relationship between survey data and business performance indicators is robust. Questions about employees' general satisfaction as well as more specific questions about organizational climate are consistently related to organizational outcome measures (at the unit level of analysis). That said, it is

considered best practice by many to ask questions that lead to a more direct and actionable interpretation. For example, knowing that 25% of the employees in a job class have received training in a specific operational procedure is more actionable than knowing that 25% of them are satisfied with the overall level of training they have received. Thus, linkage research provides insights into which opinions determine organizational success, but the practical interpretation depends greatly on the specificity of the employee survey questions asked.

Beyond specificity, the breadth of survey content restricts the domain of possible linkage relationships. Few organizational surveys are truly comprehensive; the breadth of questions is restricted by practical considerations and specific interests. Thus, the conclusions that can be drawn are limited to the areas of inquiry represented in the survey itself.

ASSUMPTIONS OF LINKAGE RESEARCH

The value of linkage research is predicated on the reasonableness of certain key assumptions. The first assumption is the availability of measures of business performance that have a common interpretation across organizational units. Consider, for example, that fatality measures have a very different interpretation across different hospital settings. More difficult to assess is the degree to which the specific business measure is influenced by other, more powerful determinants. For example, the variance of sales performance of similar retail stores may be attributable to local influences (e.g., neighborhood socioeconomics), which, in turn, may be correlated with workplace characteristics (e.g., the availability of a qualified labor pool). Thus, other sources of variance may mask the relationship between workplace perceptions and otherwise reasonable measures of organizational success.

The second important assumption centers on the reasonableness of drawing cause-and-effect conclusions from cross-sectional data. For example, a correlation between employee satisfaction and business performance can be attributed to a common underlying causal mechanism. (That is, the two are correlated because they are caused by a third, unspecified variable.) In addition, the direction of causality may be different than expected. For example, job satisfaction may be the result of business performance. (People who work for more successful companies may be more satisfied because business success engenders opportunities that

are not otherwise possible.) In fact, some evidence suggests that the relationship is complex and that causal influences run in both directions. To a certain extent, rival hypotheses to the cause-and-effect relationship can be eliminated when studies are conducted in the field over time, but even then, the results can be difficult to interpret and require strong inferences.

A third and more complex assumption regards the meaning of variance of perceptions within organizational units. In part, this is a question about the appropriateness of aggregating individual perceptions to create work unit averages. That is, the interpretation given to the average of employee responses is not necessarily the same as the interpretation given to individual respondent answers. For example, measures of organizational climate are often interpreted as indicators of shared perceptions. In order to work at the unit level of analysis, reasonable agreement within the work units must exist. Otherwise, aggregating the data across individuals serves little purpose because the unit average carries no useful interpretation. (To follow the same example, if there is no consensus among employees in the work unit, there is no climate because there is no basis for shared perceptions.) The degree of consensus within the work unit has diagnostic relevance as well. Specifically, research by Benjamin Schneider and his colleagues demonstrates that both the unit average and the dispersion of perceptions within the unit are independently related to important business outcomes.

The need to demonstrate within-unit agreement does not mean that everyone must see things in an identical manner. Rather, it means there is some reasonable degree of consensus regarding what is true and what is not true about the workplace. Over time, conventional wisdom has developed regarding how consensus should be measured and what is regarded as a minimal level of within-unit agreement.

SUMMARY

Linkage research provides a powerful tool for identifying what can be changed in the work environment to improve organization performance. The methods for conducting linkage research are well documented in the literature, but the realization of benefits depends on management's ability to ask appropriate questions, interpret the research outcomes, and execute relevant strategies to address those results.

—William H. Macey

See also Feedback; Organizational Climate; Person–Environment Fit; Person–Organization Fit

FURTHER READING

- Dietz, J., Pugh, S. D., & Wiley, J. W. (1994). Service climate effects on customer attitudes: An examination of boundary conditions. *Academy of Management Journal*, 47, 81–92.
- Schneider, B., Salvaggio, A. N., & Subirats, M. (2002). Service climate: A new direction for climate research. *Journal of Applied Psychology*, 87, 220–229.
- Schneider, B., & White, S. S. (2004). *Service quality: Research perspectives*. Thousand Oaks, CA: Sage.
- Schneider, B., White, S. S., & Paul, M. C. (1998). Linking service climate and customer perceptions of service quality: Test of a causal model. *Journal of Applied Psychology*, 83, 150–163.
- Wiley, J. W. (1996). Linking survey results to customer satisfaction and business performance. In A. I. Kraut (Ed.), *Organizational surveys: Tools for assessment and change*. San Francisco: Jossey-Bass.

LOCUS OF CONTROL

Locus of control is a personality variable that reflects a person's general beliefs about whether he or she is in control or whether external forces are in control. Individuals who believe they are in control are called *internals*, whereas people who believe that external forces (luck, fate, or powerful others) are in control are called *externals*.

Studies of locus of control originate from the field of social psychology—specifically within the framework of social learning theory developed by J. B. Rotter (1954, 1966). The concept of locus of control addresses assumptions about one's responsibility for good or bad events. Internals attribute events in their lives to their own actions, motivations, or competencies, whereas externals attribute events to outside forces such as luck, chance, or powerful others.

MISCONCEPTIONS ABOUT LOCUS OF CONTROL

Researchers have expressed concern about the theoretical and measurement issues involved with locus of control, claiming that the concept has been overgeneralized and oversimplified. There is a misconception

that internality is invariably associated with positive elements and that externality is associated with negative events. In reality, however, people cannot exercise control over all events or situations—hence, we should try to alter what can be changed but accept what cannot be changed. Therefore, it is more meaningful to distinguish objective work control from people's beliefs and perceptions about control. Locus of control is a personality variable that concerns whether a person believes he or she can control certain types of events, whereas a *control perception* concerns whether a person can influence a particular event at a specific time.

In 1982, Rothbaum, Weisz, and Snyder proposed two categories of control, primary and secondary. *Primary control* consists of actions that a person takes to change the world or attempts to adapt the world to the person. *Secondary control* involves changing the self to fit the external environment. This two-process model of perceived control discusses not only the sources of control (i.e., locus of control) but also the direction or motivation of control.

MEASUREMENT OF LOCUS OF CONTROL

Julian Rotter's Internal-External Locus of Control Scale, published in 1966, is the most commonly used and cited locus of control instrument. It comprises 23 items. Since the early 1980s, more than 30 locus of control measurement scales have been developed and adapted to different domains or work settings, such as the Work Locus of Control Scale, developed by P. E. Spector in 1988, and the Vocational Locus of Control Scale, developed by Genevieve Fournier and Chantale Jeanrie in 1999. These researchers found that their locus of control scales are better predictors of situation-specific behavior than Rotter's scale.

THE IMPORTANCE OF LOCUS OF CONTROL AS A STRESS MODERATOR

The concept of locus of control has been examined in many disciplines, including psychology, education, and medicine. Internal locus of control has been found to moderate stressful life events and may alleviate emotional distress among cancer patients.

In the field of industrial/organizational psychology—specifically, in research on job stress and well-being—Spector used his control model of stress to explain that control helps to filter perceptions of

situations and influences whether situations are appraised as threatening. A person who perceives low control is more likely to appraise situations as job stressors. In Spector's 1986 meta-analysis, he stated that internal locus of control is related to a lower perception of work role stress (role conflict and role ambiguity) and less physical and psychological strain.

The moderating role of locus of control between job stressors and job strains has been well established. For example, work locus of control has been found to be a stress moderator in certain professions in Western and Chinese societies, a finding noted by Oi-ling Siu and colleagues in 1998 and 2002 and by Spector in 1988.

CROSS-CULTURAL STUDIES OF LOCUS OF CONTROL AND PERCEIVED CONTROL

Several studies have compared locus of control among country samples. Asians appear to believe that they have less personal control than Americans and those from other Western countries. For example, in 2002, Spector and his colleagues studied work locus of control across 24 nations. They found that Asian samples (e.g., Japan, Hong Kong, China) scored more external on the Work Locus of Control Scale than samples from other regions of the world, including North America and Europe.

In 2004, Spector and his colleagues argued that Asians scored more external on locus of control and appeared to be more passive than Americans because the research was conducted mainly with U.S.-developed constructs and scales, which assess primary control. Spector and his colleagues expanded the notion of control beliefs by developing scales to assess secondary control beliefs and the new construct of *socioinstrumental control* beliefs (i.e., control through interpersonal relationships). They suggested that views of Asians as passive avoiders of control at work may be incorrect, a result of overlooking socioinstrumental control.

LOCUS OF CONTROL AND POSITIVE HEALTH PSYCHOLOGY

In the 21st century, locus of control is considered one of the human virtues that promote *eustress*, a positive psychological response to a stressor. Internals are believed to be more likely to appraise demands as opportunities rather than threats, and they are more likely to select problem-solving forms of coping as a first choice rather

than emotion-focused coping mechanisms. As a result, it is uncommon for internals to report immune-system dysfunctions and related illnesses.

—Oi-ling Siu

See also Control Theory

FURTHER READING

- Fournier, G., & Jeanrie, C. (1999). Validation of a five-level locus of control scale. *Journal of Career Assessment, 7*(1), 63–89.
- Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two-process model of perceived control. *Journal of Personality and Social Psychology, 42*, 5–37.
- Rotter, J. B. (1954). *Social learning and clinical psychology*. Englewood Cliffs, NJ: Prentice Hall.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80*(1).
- Siu, O. L., & Cooper, C. L. (1998). A study of occupational stress, job satisfaction, and quitting intention in Hong Kong firms: The role of locus of control and organizational commitment. *Stress Medicine, 14*, 55–66.
- Siu, O. L., Spector, P. E., Cooper, C. L., Lu, L., & Yu, S. F. (2002). Managerial stress in greater China: The direct and moderator effects of coping strategies and work locus of control. *Applied Psychology, 51*, 608–632.
- Spector, P. E. (1986). Perceived control by employees: A meta-analysis of studies concerning autonomy and participation at work. *Human Relations, 39*, 1005–1016.
- Spector, P. E. (1988). Development of the Work Locus of Control Scale. *Journal of Occupational Psychology, 61*, 335–340.
- Spector, P. E., Cooper, Sanchez, et al. (2002). Work locus of control and well-being at work: How generalizable are Western findings? *Academy of Management Journal, 45*(2), 453–466.
- Spector, P. E., Sanchez, J. I., Siu, O. L., Salgado, J., & Ma, J. (2004). Eastern versus Western control beliefs at work: An investigation of secondary control, socioinstrumental control, and work locus of control in China and the U.S. *Applied Psychology, 53*, 38–60.

LONGITUDINAL RESEARCH/ EXPERIENCE SAMPLING TECHNIQUE

Longitudinal research involves the collection and analysis of comparable data at more than one point in

time. The exact number of time points and the interval between time points depend on the nature of the investigation. A longitudinal design is desirable for many research investigations because it enables an assessment of change over time. The history of research methods in industrial/organizational psychology shows the increasing importance of longitudinal designs (although they are still relatively rare) and advances in associated analytical methods. Experience sampling is one method of longitudinal research in which people are asked to report on particular aspects of their everyday experiences at frequent intervals (which may be more than once a day). This form of longitudinal research has become more commonplace in industrial/organizational psychology in recent years because of its potential for capturing the dynamic nature of work experiences.

LONGITUDINAL RESEARCH

The defining characteristic of *longitudinal research* is that it examines how data change over time. This contrasts with cross-sectional research, in which data are collected and analyzed at only one point in time in order to provide a single snapshot of the variables being studied. Research in which cross-sectional data collection is repeated over time—for example, when a survey is readministered in an organization—is considered longitudinal only if the analysis compares the data from different time points (rather than examining the data from each time point in isolation).

Data can be collected over time from the same sample or from different samples in longitudinal research. Retaining the same sample can be difficult from a practical viewpoint, but it allows the researcher to identify how individuals change over time and eliminates the possibility that identified changes are attributable to differences between samples rather than changes over time. Longitudinal data can be quantitative, qualitative, or both. There are many methods for collecting longitudinal data, but the measures used should be consistent over time so that identified changes cannot be attributed to changes in instrumentation. There are a variety of techniques for analyzing longitudinal data, including time-series analysis, longitudinal multilevel modeling, and latent variable modeling. Usually, studies that sample a large number of equally spaced time points (time-series analysis) offer the greatest potential for identifying the causes and nature of effects.

Types of Longitudinal Research

Five main types of longitudinal research study can be identified:

1. A *trend study* compares different groups from the same population at different points in time. It can provide information about net change but not individual change.
2. A *panel study* tracks the same individuals at fixed intervals over a period of time, which often covers many years.
3. A *cohort study* follows a sample of individuals from a particular group (e.g., an age or an employment group) at fixed intervals over a period of time. It is usually a form of panel study, but it becomes a trend study if a new sample is observed at each time point. A number of cohorts can be simultaneously observed and compared over time, which can be useful for separating the effects of maturational and external influences. For example, comparing different age cohorts measured at the same point in time and the same age cohorts measured at different points in time can help distinguish changes that normally occur as people get older from changes resulting from shifts in employment. If a cohort has received a treatment or intervention, the study is also a quasi-experiment because the individuals have not been assigned randomly to the groups being compared.
4. An *intervention study*—which is also a form of quasi-experiment—examines the effects of a naturally occurring intervention (e.g., occupational retirement) or an imposed intervention (e.g., a stress-prevention program) by comparing data collected from a group on one or more occasions, both before and after it receives the intervention. Collecting data at the same times from a comparison or control group that has not received the intervention can help to establish whether the changes resulted from the intervention.
5. An *experience sampling study* obtains reports from the same individuals on many occasions at frequent intervals. It is distinguished by its focus on individuals' immediate experiences in their natural environment and its high frequency of reporting.

Retrospective studies, in which participants recall aspects of their life histories or recent past, are sometimes also labeled longitudinal, but this is not strictly accurate because, although they cover periods of time, they do not usually involve real-time sampling at more than one time point. In genuinely

longitudinal retrospective studies, participants report at consecutive time points on their experiences since the last time point. Prospective studies are often preferred, however, because they are less susceptible to the problem of memory recall.

Advantages and Disadvantages

Longitudinal research is advantageous in situations in which the investigator wishes to (a) focus on change or patterns of change; (b) measure the duration of an effect; (c) investigate causal processes, including sleeper or delayed effects; (d) separate maturational and external influences; or (e) establish the effects of an intervention.

However, a number of disadvantages are also associated with longitudinal research. First, it can be difficult to retain participants between time points—for example, they may leave their job or no longer wish to participate. Sample sizes, therefore, commonly become smaller over time, and changes in the findings may actually reflect this attrition (or mortality) rather than true change if individuals drop out on a systematic basis. Second, there is the potential for reactivity—that is, responses may be influenced by previous participation, or respondents may actually change themselves as a consequence of participation. Third, longitudinal research has practical disadvantages in that it takes more time and resources to complete. Finally, although longitudinal research goes some way toward addressing the fact that psychological processes unfold in time, it still relies on the selection of discrete time points; therefore, what occurs between those time points must be inferred. Experience sampling is less prone to this problem because it uses frequent time points.

EXPERIENCE SAMPLING

The term *experience sampling method* (ESM) was coined during the late 1970s by Mihalyi Csikszentmihalyi to describe the technique of obtaining subjective reports of people's current experiences by signaling them at random times in their natural environment (using beepers, for example). Now, the term is used more broadly to refer to any research method that involves collecting subjective reports of episodic experiences from people on frequent occasions during their everyday life. This technique is also

known by other names, including *diary methods*, *time sampling*, and *ecological momentary assessment*.

The interval between sampling points in ESM varies from study to study, but the majority use either a number of sampling points within each day or a once-daily schedule. In designing an ESM study, researchers must strike a balance between sampling frequency, duration of study, and time needed to complete measures so as not to place excessive demands on participants. The intense nature of experience sampling means that studies usually involve a smaller sample size and a smaller number of measures than cross-sectional survey studies, but the number of time points contributes to the method's statistical power and reliability.

Experience sampling uses many means to signal participants to respond (pagers, telephone calls, e-mail messages, and palmtop computer alarms) and to collect data (paper diaries, telephone interviews, online surveys, and palmtop computer programs). Computerized devices have certain advantages for signaling and collection—for example, they are able to record the exact times when participants respond and provide greater efficiency in data processing. A variety of measurement formats can be used in ESM studies to record the thoughts, activities, and feelings of respondents. Analysis of ESM data is complicated by the fact that observations are not independent.

Types of Experience Sampling Study

There are three main types of experience sampling studies:

1. In *signal-contingent studies*, respondents report on their current experiences whenever they are prompted by a signal sent at quasi-random intervals. This procedure minimizes memory recall problems but may miss important low-frequency events. This type of study corresponds to the original intent of ESM.
2. In *interval-contingent studies*, a signal is sent at regular, fixed intervals, and respondents report on their experiences since the last signal. This procedure covers all events but relies on respondents' memory of them.
3. In *event-contingent studies*, respondents report on their experiences whenever a prespecified event

occurs (e.g., a work meeting, a conflict). This procedure investigates selected events in detail but is less amenable to time-series analysis.

Advantages and Disadvantages

Experience sampling offers four distinct advantages for research. First, the method enables an in-depth study of everyday experiences in a natural setting, which gives it high ecological validity. Second, experience sampling is suitable for examining how different kinds of individuals react to different kinds of everyday events and situations. Third, experience sampling allows researchers to study within-person processes and the temporal nature of their experiences (for example, how long it takes people to recover from negative events at work). Finally, the use of real-time assessment in experience sampling reduces the problem of memory biases, which are inherent in global retrospective reports.

Yet, like all research methods, experience sampling also has a number of disadvantages. The high frequency of reporting required of participants means that the method can cause a selection bias in the study sample (for example, an investigation of time demands at work will be compromised if only people with an abundance of time volunteer to participate). For the same reason, the method is also intrusive, heightens the risk of reactivity and habituation in responses, and is prone to missing data. Despite these problems, experience sampling is becoming an established method in

industrial/organizational psychology because of its capacity to address temporal variations in the psychological experience of work.

—Peter Totterdell

See also Experimental Designs; Quantitative Research Approach; Quasi-experimental Designs

FURTHER READING

- Alliger, G. M., & Williams, K. J. (1993). Using signal-contingent experience sampling methodology to study work in the field: A discussion and illustration examining task perceptions and mood. *Personnel Psychology, 46*, 525–549.
- Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology, 54*, 579–616.
- Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis for field settings*. Chicago: Rand McNally.
- Csikszentmihalyi, M., & Larson, R. (1987). Validity and reliability of the experience-sampling method. *Journal of Nervous and Mental Disease, 175*, 526–536.
- Menard, S. (2002). *Longitudinal research* (2nd ed.). London: Sage.
- Rogelberg, S. G. (2002). *Handbook of research methods in industrial and organizational psychology*. Oxford, UK: Blackwell.
- Scollon, C. N., Kim-Prieto, C., & Diener, E. (2003). Experience sampling: Promises and pitfalls, strengths and weaknesses. *Journal of Happiness Studies, 4*, 5–34.

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MACHIAVELLIANISM

Machiavellianism is a strategy of interpersonal conduct whereby others are manipulated and deceived in the pursuit of one's own interests. In the workplace, people who are high in Machiavellianism (referred to as *high Machs*) regard coworkers as means toward personal ends. High Machs are characterized by four criteria: lack of interpersonal affect, lack of concern for conventional morality, low ideological commitment, and lack of gross psychopathology. Machiavellianism shares some common features with psychopathy (similar to antisocial personality disorder) but is more situation dependent and lacks the pathological lying and anxiety that are usually associated with psychopathic behavior patterns. Although Machiavellianism is not related to intelligence, it is arguably a component of social intelligence. Machiavellian behaviors tend to be highest in late adolescence and decline with age, suggesting that this interpersonal strategy strikes a balance between "state" and "trait."

The term itself is a reference to the 16th-century Florentine diplomat Niccolo Machiavelli, who was expelled from office and briefly imprisoned in 1512 when the de Medici family overthrew the regime he had served. Machiavelli felt passionately about Florence, and he desperately wished to restore his political career. In an effort to win favor with the new rulers, he wrote and dedicated to them *The Prince*, an openly amoral treatise on methods of acquiring and retaining political power. Although Machiavelli was unsuccessful in his own bid to regain political power, *The Prince* had a lasting impact on political ideology and its relation to morality.

During the late 1960s, a number of pioneering studies conducted by Richard Christie and Florence Geis helped to define and explore the construct. These efforts developed and validated scales used to measure Machiavellianism, namely, the Mach IV and Mach V scales. Early laboratory research established that high Machs outperform low Machs in non-zero-sum games such as the prisoner's dilemma, in which two players can either "cooperate" or "defect." Both players gain if each chooses to cooperate, but a player can gain more by defecting when the other player cooperates (the typical strategy adopted by high Machs). High Machs succeed by employing both cooperative and defecting strategies, toggling between them as opportunity arises. Additional research established that high Machs succeed in bargaining or alliance-forming games by taking advantage of opportunities for physical confrontation, lack of formal structure, and emotionally charged situations. These factors—face-to-face interaction, latitude for improvisation, and arousal of irrelevant affect—are recognized as the situational antecedents of Machiavellian behavior.

MACHIAVELLIAN LEADERS

Machiavellianism is often studied in conjunction with charismatic leadership. Charismatic leaders are characterized by outgoing, dynamic, and persuasive conduct that creates powerful motivational bonds with their followers. Both charismatic leaders and high Machs engage in impression management and regulate their emotions in high-pressure situations. One notable position of leadership that has been examined for Machiavellian behavior is the U.S. presidency. The

U.S. president holds a position of tremendous power, requiring leadership and negotiation skills in critical situations that show little semblance of structure. Retrospective research methods have demonstrated that charismatic presidents, such as Franklin Roosevelt and Richard Nixon, had greater Machiavellian tendencies than presidents with less charisma, such as William McKinley. These high-Mach leaders were also perceived as more effective presidents.

When opportunities for personal gain emerge, high Machs employ a variety of influence tactics to satisfy their own needs. In competitive group settings, for example, Machiavellian leaders may exhibit prosocial behaviors toward members of their own group and aggressive behaviors toward members of competing groups. When attempting to influence those at higher organizational levels, high Machs may be more likely to use ingratiation than low Machs. To secure the compliance of subordinates, high Machs may threaten the use of exploitive tactics to block employees from accomplishing their own goals. In the absence of situational characteristics such as face-to-face interaction, however, such conduct is less likely to occur.

ASSESSING THE IMPACT OF MACHIAVELLIANISM IN ORGANIZATIONS

Although high-Mach employees may be misperceived as possessing superior intellect by coworkers, consistent relationships between Machiavellianism and job performance have not been demonstrated. Some studies show a positive relationship, some a negative relationship, and still others no relationship at all. Surprisingly few studies in organizational settings, however, have examined the impact of situational moderators on this relationship. For example, jobs with a greater degree of job autonomy or a laissez-faire organizational culture may allow the latitude for improvisation that enables high Machs to outperform low Machs. Indeed, research suggests that high Machs may gain the upper hand in positions marked by social interaction in loosely structured environments, such as stockbroker, politician, or senior executive. Another finding of note is a consistent negative relationship between Machiavellianism and job satisfaction, such that high Machs report low job satisfaction. One explanation for this finding is that many workplaces do not offer—or did not offer in the past—a great deal of autonomy to accomplish work tasks. Thus, high Machs may be frustrated by perceived situational constraints,

leading to low satisfaction but otherwise not affecting performance.

In managerial positions, high Machs are likely to use their power to the detriment of others. When subordinates disagree with the decisions of Machiavellian managers, they may be dealt with in harsh or even inhumane ways. Moreover, Machiavellianism may influence more than simply the interpersonal workings of organizations. In addition to their willingness to pursue personal gains at the expense of others, high Machs are willing to engage in ethically questionable behaviors to further the goals of the organization as well. Thus, Machiavellian leaders could conceivably commit transgressions that affect entire organizations or industries. A system of checks and balances, however, can minimize the harm done by aggressors. For example, establishing organizational norms that encourage full disclosure and documentation of work activities should thwart openly Machiavellian conduct.

—Steven S. Russell and Erin C. Swartout

See also Abusive Supervision; Charismatic Leadership Theory; Workplace Incivility

FURTHER READING

- Christie, R., & Geis, F. (1970). *Studies in Machiavellianism*. New York: Academic Press.
- Machiavelli, N. (1513/1966). *The prince*. New York: Bantam.
- McHoskey, J. W., Worzel, W., & Szyarto, C. (1998). Machiavellianism and psychopathy. *Journal of Personality and Social Psychology*, 74, 192–210.
- Wilson, D. S., Near, D., & Miller, R. R. (1996). Machiavellianism: A synthesis of the evolutionary and psychological literatures. *Psychological Bulletin*, 119, 285–299.

MEASUREMENT SCALES

Measurement scales refer to the types of information provided by numbers. Each scale (i.e., nominal, ordinal, interval, and ratio) provides a different type of information. Knowing which scale applies in a particular situation is necessary to accurately interpret numbers assigned to people, objects, or events. Ignorance of scales' distinguishing characteristics can lead to improper treatment of the numbers (e.g., computing

incorrect statistics) and inappropriate actions toward and decisions about people.

NOMINAL SCALES

Numbers are used to name or identify people, objects, or events—for example, a social security number or driver's license number. Gender is an example of a nominal measurement in which a number (e.g., 1) is used to label one gender, such as males, and a different number (e.g., 2) is used for the other gender, females. Numbers do not mean that one gender is better or worse than the other; they simply are used to classify persons. In fact, any other numbers could be used because they do not represent an amount or quality. It is impossible to use word names with certain statistical techniques (e.g., Pearson product-moment correlation or linear multiple regression), but numerals can be used in a coding system. For example, fire departments may wish to examine the relationship between gender (where male = 1, female = 2) and performance on physical ability tests (with numerical scores indicating ability).

Other examples of nominal scales used to classify people are race (e.g., Caucasian, African American, Asian) and political party affiliation (e.g., Democrats and Republicans). Examples of nominal measurements that can be used to classify objects are test items (e.g., multiple choice, short answer, and essay) and type of physical injury suffered on the job (e.g., slip, trip, or fall). Examples of nominal measurement of events are charges of discrimination (e.g., racial, gender, age, and disability) and selection procedures (e.g., interview, paper-and-pencil test, and assessment center exercise).

ORDINAL SCALES

Numbers are used to represent rank order and indicate the order of quality or quantity, but they do not provide an amount of quantity or degree of quality. Usually, the number 1 means that the person (or object or event) is better than the person labeled 2; person 2 is better than person 3, and so forth. For example, to rank order persons in terms of potential for promotion, May might be 1, Joe might be 2, and Wong might be 3. The 1 rating assigned to May indicates that she has more potential but does not indicate how much more potential than Joe. There may be very little difference between May and Joe, but Wong may be

extremely inferior to Joe. Academic journals (objects) have been rank ordered in terms of prestige. When ordinal measurement is used (rather than interval measurement), certain statistical techniques are applicable (e.g., Spearman's rank correlation).

INTERVAL SCALES

Numbers form a continuum and provide information about the amount of difference, but the scale lacks a true zero. The differences between adjacent numbers are equal or known. If zero is used, it simply serves as a reference point on the scale but does not indicate the complete absence of the characteristic being measured. For example, if an individual obtains a score of 0 on the extroversion scale of the Revised NEO Personality Inventory, the 0 score does not mean that he or she is completely unsociable. The Fahrenheit and Celsius scales are examples of interval measurement. It takes the same amount of heat to raise the temperature from 50 degrees to 60 degrees as it does to raise the temperature from 60 degrees to 70 degrees. The most powerful statistical techniques are appropriate with interval measurement.

Most measures of psychological constructs are not true interval scales, according to the strict definition. They provide information about order, but whole numbers on such a scale are not precisely equidistant from adjacent whole numbers. Moreover, the amount of difference (of the construct or trait) between numbers may be unknown. For example, the work scale of the Job Descriptive Index measures satisfaction with the work itself, separate from other aspects of the job (e.g., pay or promotion). The 18 items constituting the scale are scored 3 for favorable responses, 2 for unfavorable responses, and 0 if the respondent is undecided whether the item accurately describes the job. Although a score of 54 is three points higher than a score of 51, which is three points higher than 48, increases in the degree of satisfaction may actually be different from 48 to 51 than from 51 to 54. Although they do not adhere to the strict definition of interval scales, psychological tests (in the broad sense of the word) that have been carefully constructed can be treated as interval scales.

Before numbers can be assigned to people (reflecting a level or degree of some psychological characteristic), items (such as those on an application blank, mental ability test, or performance appraisal form) must be assigned numbers to reflect some quality, such

as relevance, difficulty, or importance. Using the method of equal appearing intervals, subject-matters experts may be instructed to indicate their opinion of items by rating them on an interval scale. For example, subject-matter experts constructing a job knowledge test for firefighters may be asked to rate the importance of knowing how to use certain pieces of equipment (e.g., the jaws of life) from 1 (not important at all) to 5 (extremely important). An importance index can then be computed by averaging item ratings.

RATIO SCALES

Ratio scales have all of the characteristics of interval scales as well as a true zero, which refers to complete absence of the characteristic being measured. Physical characteristics of persons and objects can be measured with ratio scales, but most psychological characteristics (e.g., intelligence, conscientiousness, and interests) cannot. Consequently, most measures of employees' and applicants' optimal and typical performance do not use true ratio scales. Height and weight are examples of ratio measurement. A score of 0 means there is complete absence of height or weight. Ratios can also be created such that a person who is 4 feet tall is two thirds (4 divided by 6) as tall as a 6-foot-tall person; a 100-pound person is two thirds as heavy as a 150-pound person.

SUMMARY

Measurement refers to the assignment of numbers in a meaningful way. Understanding scales of measurement is important to interpreting the numbers assigned to people, objects, and events. For the most part, numbers used in the work world are nominal, ordinal, or approach interval measurements. Assuming interval measurement permits the use of statistical techniques (parametric statistics) that are more powerful than other techniques (nonparametric statistics).

—Jo Ann Lee

See also Inferential Statistics; Item Response Theory; Measures of Association/Correlation Coefficient; Reliability; Statistical Power; Validity

FURTHER READING

Allen, M. J., & Yen, W. M. (1979). *Introduction to measurement theory*. Monterey, CA: Brooks/Cole.

Crocker, L., & Algina, J. (1986). *Introduction to classical and modern test theory*. New York: Harcourt Brace Jovanovich.

Murphy, K. R., & Davidshofer, C. O. (2005). *Psychological testing: Principles and applications* (6th ed.). Upper Saddle River, NJ: Prentice Hall.

Nunnally, J., & Bernstein, I. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.

Society for Industrial and Organizational Psychology. (2003). *Principles for the validation and use of personnel selection procedures* (4th ed.). Bowling Green, OH: Author.

MEASURES OF ASSOCIATION/ CORRELATION COEFFICIENT

In many situations, researchers are interested in evaluating the relationship between variables of interest. Such associations are important for testing theories and hypotheses in which changes in one variable are tied to changes in another. In other words, is an increase in one variable associated with a systematic increase or decrease in the other? The most frequently reported measure of association within industrial and organizational psychology is the correlation coefficient (r). Correlation is a standardized index of the extent to which two sets of scores vary together. As an index, correlation can vary between -1.00 (i.e., a perfect negative relationship) and $+1.00$ (i.e., a perfect positive relationship). Correlations near zero indicate the absence of a linear relationship between the variables of interest. Squaring the correlation (i.e., r^2) provides an indication of the percentage of variance in one variable that can be explained by the other variable. For example, if the correlation between height and weight is $.5$, then 25% of the variance in height can be explained by weight, or vice versa.

NUMERICAL REPRESENTATION OF CORRELATIONS

The correlation between two variables can be described in one of two ways: numerically or graphically. The following example illustrates how correlation is computed and what the numerical value indicates. First, assume that five individuals respond to two measures (x and y). Scores for the five individuals on x are 2, 4, 8, 6, and 5, and scores on y are 5, 7, 6,

8, and 4. Thus, the mean of x is equal to 5 (i.e., 25/5) and the mean of y is 6 (i.e., 30/5).

As a second step, deviation scores can be computed for each person on each variable by subtracting the mean of each distribution from each raw score. As a result, the deviation scores for x are $-3, -1, 3, 1,$ and $0,$ and the deviation scores for y are $-1, 1, 0, 2,$ and $-2.$ These deviation scores can then be used to compute the standard deviation and variances for these measures.

With the current data, these values are as follows:

$$\begin{aligned} \sigma_x &= 2 \\ \sigma_y &= 1.41 \\ \sigma_x^2 &= 4 \\ \sigma_y^2 &= 2 \end{aligned}$$

In addition to computing standard deviations and variances, deviation scores can also be used to construct a matrix of these data. Because there are only two variables, it will be a simple 2×2 matrix that describes all possible relationships among the data. To create the matrix, take the sums of the cross-products that are produced by cross-multiplying the deviation scores—that is $x^2, y^2,$ and $xy.$

$$20 = (-3)^2 + (-1)^2 + 3^2 + 1^2 + 0^2$$

$$10 = (-1)^2 + (1)^2 + 0^2 + 2^2 + (-2)^2$$

$$4 = (-3 \times -1)^2 + (-1 \times 1) + (3 \times 0) + (1 \times 2) + (0 \times -2)$$

In matrix form, these values can be represented as shown in Table 1.

Table 1 Cross-Products Matrix

	x	y
x	20	4
y	4	10

The matrix in Table 1 can then be transformed into a variance-covariance matrix (see Table 2) by dividing

Table 2 Variance-Covariance Matrix

	x	y
x	4.0	0.8
y	0.8	2.0

the elements by the number of cases (e.g., 20/5, 4/5, 10/5).

Importantly, the covariance in this example (0.8) is a measure of association between the two variables of interest. An important consideration in using covariance as a measure of association, however, is that it is fundamentally related to the scales of measurement for both x and y and therefore unstandardized. To get the correlation matrix, divide each of the elements by the product of the standard deviations of the variables involved. For example,

$$r_{xy} = \frac{.8}{\sqrt{4}\sqrt{2}} = .28.$$

This produces a standardized variance-covariance matrix and takes care of the problem of having different scales for each variable. A covariance of 10 tells us nothing because it is dependent on the scales used to obtain it, but a correlation of .40 means the same thing across any situation. Continuing with the current example, the resulting correlation matrix is displayed in Table 3.

Table 3 Correlation Matrix

	x	y
x	1.0	0.28
y	0.28	1.0

The preceding example illustrates the basic operations that underlie the computation of correlations. In practice, correlations would be computed directly from data using either the raw score formula,

$$r_{xy} = \frac{\sum xy}{N(\sigma_x)(\sigma_y)},$$

or the standard score formula,

$$r_{xy} = \frac{\sum z_x z_y}{N},$$

where z is the standard score (z score) for each case on a particular variable.

The preceding example and formulas make several features of correlations apparent. First, an increase in the numerator will increase r . Specifically, when both z_x and z_y are large and of the same sign, they contribute more to the numerator than if one or the other is small. Correlations also take into account whether the rank order of people on both variables is maintained and their relative distances from the mean. Importantly, the preceding discussion focused on the Pearson product-moment correlation, which is computed when both variables are continuous and measured at either the interval or ratio level of measurement. When one or both variables do not have these characteristics, alternative correlations must be computed. (More information regarding these alternative correlations is presented in the last section of this entry.)

GRAPHICAL REPRESENTATION OF CORRELATIONS

Correlations can also be depicted graphically. Scatterplot diagrams are a useful and instructive way of looking at data and often reveal the extent to which violations of assumptions of correlation are present. Chief among these assumptions are linearity and homoscedasticity. Because a correlation is an index of the extent to which two variables are linearly related, the more the relationship deviates from a straight line, the lower the observed correlation. Examples of different correlations are presented in Figure 1. Panel (a) illustrates a perfect positive correlation, panel (b) illustrates no correlation between two variables, and panel (c) reflects a correlation of .50. A real problem can occur when the relationship

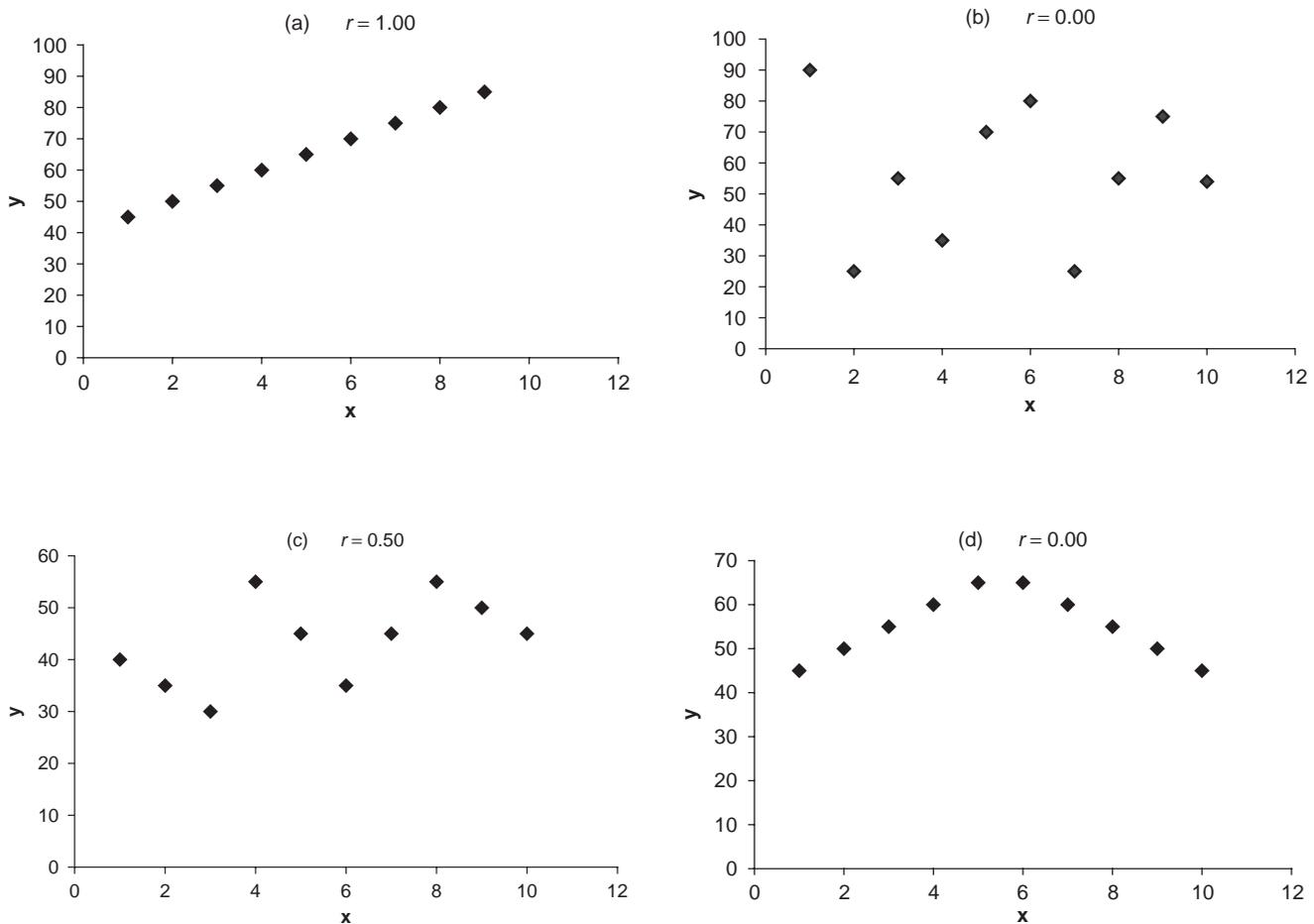


Figure 1 Graphical Depictions of Correlations

is not linear—panel (d) in Figure 1—but still systematic. Such nonlinear relationships can easily be overlooked if the scatterplot is not evaluated.

The assumption of homoscedasticity refers to the variances of either or both variables through their respective ranges. Specifically, variance is assumed to be equal throughout the range of scores. The assumption is fundamentally tied to another key assumption, the normality of both variables. When this assumption is violated, heteroscedasticity exists. Two possible causes of this include nonnormality of one or both variables, which can be the result of either the data being truly nonnormal or some data transformation. To the extent that variables are skewed and the homoscedasticity assumption has been violated, observed correlations will be reduced.

The following points should be noted with respect to correlation coefficients, scatterplots, and the preceding assumptions. First, correlations tend to be robust with respect to violations of the linearity assumption. Second, violations of homoscedasticity are more serious and, according to some reviews, more prevalent. Finally, any plotted score that is off the diagonal is not optimal in the sense of its contribution to the numerator in the preceding equations. The only situation in which a perfect correlation will be observed is that in which each person receives the same z score on both the x and y variable.

OTHER TYPES OF CORRELATIONS

Several different types of correlations can be computed depending on the scale of measurement of the two variables of interest. The following is a brief summary of some of these correlations. Although these correlations are computed differently and make different assumptions about the underlying structure of data, all range between -1.00 and $+1.00$ and are interpreted in the same way as the product–moment correlation discussed previously.

Spearman's rho correlation is computed when one or both variables are measured at an ordinal scale of measurement. For example, Spearman's rho would be computed if a researcher were interested in correlating SAT scores (interval-level variable) with birth order (ordinal-level variable).

The *point-biserial correlation* is computed when one of the variables is continuous and the other is truly dichotomous. A truly dichotomous variable is one for which only two scores are possible. For example, a multiple-choice item would be considered a truly

Table 4 Types of Correlations

Pearson product-moment	<ul style="list-style-type: none"> • Two continuous variables
Spearman's rho	<ul style="list-style-type: none"> • One or two ordinal variables
Point-biserial	<ul style="list-style-type: none"> • One continuous variable • One true dichotomous variable
Biserial	<ul style="list-style-type: none"> • One continuous variable • One artificially dichotomous variable
Phi coefficient	<ul style="list-style-type: none"> • Two truly dichotomous variable
Tetrachoric	<ul style="list-style-type: none"> • One or two artificially dichotomous variables

dichotomous variable insofar as an individual answers the question either correctly or incorrectly. Point-biserial correlations are used in the area of test construction, in which item responses (correct/incorrect) are correlated with total test score (interval-level variable). These item-total correlations are then used as the basis for removing items that are not strongly related to total score.

The *biserial correlation* is used in situations in which one variable is continuous and one is an artificial dichotomy. An artificially dichotomous variable is one that was originally measured with continuous scores (e.g., percentage of correct answers on an examination) but has been converted post hoc to a dichotomy (e.g., everyone scoring above 60% passes the test and everyone below 60% fails). Biserial correlations are not true product–moment correlations, and the standard error is larger than that of product–moment correlations.

The *phi coefficient* is used in situations involving two truly dichotomous variables. The correlation between gender and performance on a multiple-choice item is an example of a phi coefficient.

The *tetrachoric correlation* is used when one or both variables are artificially dichotomous. For example, tetrachoric correlation would be used when a researcher is interested in correlating performance in one class (pass/fail) with performance in another (pass/fail).

SUMMARY

Correlation is an essential statistic for researchers in the field of industrial and organizational psychology. Not only is this index important for assessing simple bivariate relationships; it also serves as the fundamental

statistic on which more sophisticated analyses (e.g., multiple regression analysis, factor analysis, path analysis) are based.

—Ronald S. Landis

See also Factor Analysis

FURTHER READING

- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.

MEETINGS AT WORK

A work meeting is a gathering of employees for a purpose related to the functioning of an organization or a group (e.g., to direct, to inform, to govern, to regulate). The gathering can occur in a single modality (e.g., a videoconference) or in a mixed-modality format (mostly face-to-face with one participant connected by telephone). A meeting can be described as more formal than a chat but less formal than a lecture. A meeting is usually characterized by multiparty talk that is episodic in nature. Typically, meetings are scheduled in advance (some notice is provided), informally or formally facilitated by one of the members, involve four to eight individuals (but can contain as few as two participants), last 30 to 60 minutes, and have some specific purpose or goal (which is often made known in advance). Less commonly, an annotated transcription of the meeting activity is undertaken (minutes). There are five principal types of meetings:

- Information-giving meeting: The meeting is primarily about announcing and discussing organizational, department, unit, team, or personnel news.
- Training meeting: The meeting is primarily about receiving some type of work training.
- Recognition meeting: The meeting is primarily about recognizing and celebrating relevant events or accomplishments.
- Routine monitoring and decision-making meeting: The meeting is primarily about day-to-day problems and issues; it is called to work on issues identified previously—for example, gathering reports about progress to date, assigning tasks, coordinating activities, or making decisions.
- Special problem-solving meeting: The meeting is primarily about new or unusual issues rather than day-to-day problems and issues; it is called to discuss one or more special issues—for example, aiming for a greater understanding, a preliminary decision, a final decision, or a plan.

Impromptu meetings are those in which the gathering of individuals has not been planned in advance. They are rarer than scheduled meetings. They are usually smaller in size, less structured, more informal, and often assembled to exchange information or make decisions quickly, as in a crisis situation. Alternatively, these events may occur spontaneously to consider routine matters, as when a lunch is transformed into a quick meeting.

Besides their more formal purposes, meetings have an employee socialization, relationship-building, and networking component. In addition, meetings can serve to enforce and make clear formal and informal reporting structures and power differentials.

TIME IN MEETING

The meeting is a common organizational activity across cultures. Estimates of an individual's time spent in meetings vary widely. On the high end, the average senior manager spends approximately 23 hours per week either preparing for, attending, or following up on meetings, and middle managers spend 11 to 12 hours per week on these activities. On the low end, estimates suggest that employees spend an average of approximately 6 hours in scheduled meetings during a typical week, and supervisors spend more time than nonsupervisors in meetings. Employees in large organizations tend to have more meetings than employees in small organizations.

Recent studies suggest that the amount of meeting activity in organizations appears to be rising. One study suggested that the average executive participated in twice as many meetings in the 1980s as in the 1960s. In a survey of 1,900 business leaders, almost 72% reported spending more time in meetings than they did five years ago. In addition, more than 49% surveyed expected to be spending even more time in meetings in the future.

RESEARCH ON MEETINGS

Despite the practical importance of meetings, the meeting, as an entity in and of itself, has rarely been studied. In one of the first scholarly treatments of the meeting, anthropologist Helen Schwartzman discussed how the meeting is a neglected social form in organizational studies and how it is taken for granted because it is so commonplace and accepted by members of an organization. She further discussed how meetings have been used as a methodological tool to study other topics (e.g., small-group dynamics and group decision making) but are rarely studied empirically in their own right as a legitimate area of research.

Recently, however, there appears to be an emerging empirical literature focusing on the characteristics of meetings. For example, sit-down meetings last longer than stand-up meetings, yet there is no improvement in decision quality. Another stream of research focuses on the impact of meeting demands (e.g., the number of meetings attended) on employee attitudes and well-being. For example, the relationship between meeting demands and employee well-being was found to be moderated by an individual difference characteristic called *accomplishment striving*. Namely, for individuals with a strong desire to accomplish work goals, a negative relationship between the number of meetings in a day and daily well-being was found. Conversely, a weak positive relationship between the number of meetings in a day and daily well-being was found when striving is low—for those who are less goal-oriented, meetings may be desired, perhaps to permit social interaction or to give structure to an unstructured day.

MEETING EFFECTIVENESS

The trade literature is replete with suggestions for improving the quality of meetings. Besides the overriding suggestion to meet only when necessary, the following structural and group dynamics factors are often mentioned in the literature. For the most part, these suggestions (in relation to meeting effectiveness) have not been empirically studied.

- Provide an agenda in advance of the meeting. Have specific meeting goals and objectives. Provide relevant materials in advance of the meeting so that participants have time to reflect on them.
- Establish a set of ground rules to promote good communication processes (e.g., staying on task, not

dominating the discussion, constructive conflict resolution, listening before responding to others).

- Evaluate the meeting periodically. Either midstream or at the conclusion, the group should reflect on what went well and what could be improved for the next meeting.
- Pay careful attention to time. Start the meeting on time. End the meeting on time.
- Assign someone to the role of meeting facilitator or leader to promote productive meeting practices (sticking to the agenda, not spending too much time to discuss trivial items).

—Steven G. Rogelberg

See also Group Decision-Making Quality and Performance; Group Decision-Making Techniques; Group Dynamics and Processes; Groups

FURTHER READING

- Luong, A., & Rogelberg, S. G. (2005). Meetings and more meetings: The relationship between meeting load and the daily well-being of employees. *Group Dynamics: Theory, Research, and Practice, 1*, 58–67.
- Rogelberg, S. G., Leach, D. J., Warr, P. B., & Burnfield, J. L. (2006). “Not another meeting!” Are meeting time demands related to employee well-being? *Journal of Applied Psychology, 91*(1), 83–97.
- Schwartzman, H. B. (1989). *The meeting: Gatherings in organizations and communities*. New York: Plenum.
- Tropman, J. E. (2003). *Making meetings work: Achieving high quality group decisions* (2nd ed.). Thousand Oaks, CA: Sage.

MENTORING

Workplace mentoring is generally described as a relationship between two individuals, usually a senior and a junior employee, in which the senior employee teaches the junior employee about his or her job, introduces the junior employee to contacts, orients the employee to the industry and organization, and addresses social and personal issues that may arise on the job. The mentoring relationship is different from other organizational relationships (e.g., supervisor–subordinate) in that the mentoring parties may or may not formally work together, the issues addressed may include nonwork matters, and the bond between mentor and protégé is usually closer and stronger than that of other organizational relationships.

MENTORING FUNCTIONS AND STAGES

Mentors provide two primary functions to their protégés. Psychosocial mentoring focuses on the enhancement of identity, competence, and effectiveness in the professional role and includes role modeling, acceptance and confirmation, counseling, and friendship. Career-related mentoring focuses on success and advancement within the organization and includes sponsorship, coaching, exposure and visibility, protection, and challenging assignments.

Mentoring relationships have been theorized to progress through four distinct stages. In the *initiation* stage, the mentor and protégé are just beginning the relationship and learning about each other. During the second phase, known as *cultivation*, the greatest amount of learning occurs and benefits are obtained. As the needs of the mentor and protégé evolve, the partnership enters the *separation* phase. During this phase, the protégé begins to assert independence, and the mentor begins to consider that he or she has no additional knowledge to share with the protégé or guidance to provide. The final phase of the mentoring relationship is referred to as *redefinition*. Redefinition occurs when the relationship transforms into one of peers or colleagues.

MEASUREMENT OF MENTORING

Two types of studies are commonly found in the literature. One type compares individuals with mentoring experience (protégés or mentors) with those without mentoring experience (nonprotégés or nonmentors) on some variable of interest. Participants are typically given a screening question that includes a definition of mentoring and classified into the experienced or nonexperienced group on the basis of their response. The second type of study examines the relationship between mentoring functions and other variables of interest. In this case, those who have mentoring experience also report on the career and psychosocial mentoring behaviors or functions provided during the course of the mentoring relationship.

MENTORING BENEFITS

Mentoring relationships are reputed to be beneficial for protégés, mentors, and organizations. Most benefits research has focused protégés. Recent meta-analytic research supports the notion that mentoring has both objective and subjective career benefits for

protégés. Specifically, individuals who are mentored advance more rapidly in the organization, earn higher salaries, have greater job satisfaction, and have fewer intentions to leave the organization. Research also indicates that being mentored is related to greater career planning, career involvement, career motivation, socialization, and career self-efficacy.

Less research has focused on benefits to the mentor. Qualitative studies suggest that mentors achieve personal satisfaction from passing knowledge and skills on to others, exhilaration from the fresh energy provided by protégés, improved job performance from receiving a new perspective on the organization from protégés, loyalty and support from protégés, and organizational recognition. A few quantitative studies have yielded similar findings, indicating that mentors report that mentoring provides personal satisfaction and improved work group performance. Researchers are beginning to examine how mentoring others may relate to more tangible career benefits to the mentor, such as increased promotion rates and salary. Initial results indicate that those who have mentored others report greater salary and rates of promotion than those without any mentoring experience.

Mentoring is also said to provide benefits to the organization, but organizational benefits have been inferred primarily based on the benefits to individuals within the organization. For example, mentoring can help the organization by reducing individual employee turnover, enhancing employee productivity, and increasing the retention of women and minorities. However, there is no empirical research showing that mentoring relates to organizational-level outcomes such as firm performance.

FACTORS RELATED TO MENTORING PROCESSES

Gender

Although men and women generally report similar access to mentors, once in a mentoring relationship, the type of mentoring provided may vary by gender. Though individual study results are mixed, when gender differences are detected, the results show that women report receiving more psychosocial mentoring than men and men report receiving more career-related mentoring than women.

The gender of the mentor may also matter in terms of the type of mentoring provided and the outcomes

realized. For example, female mentors have been found to provide more psychosocial mentoring than their male counterparts. Additionally, male mentors are associated with greater career outcomes (such as compensation) than female mentors. It may be that male mentors are in more powerful organizational positions and thus can better aid the career development of their protégés.

The dyadic composition of the mentoring relationship is also an important consideration. That is, it is not just the gender of the mentor or protégé that is important but the *interaction* between the two. For example, there is some evidence that greater psychosocial mentoring occurs in same-gender mentoring relationships than in cross-gender relationships.

Race

There is little evidence that minorities are less likely to have mentoring experience than are non-minorities. Additionally, there is no consistent evidence to suggest that the amount of career or psychosocial mentoring provided differs across race. However, the race of the mentor does appear to make a difference. Research has shown that Black employees with White mentors earn more compensation than do Black employees with Black mentors.

Like the findings regarding gender, research also indicates that protégés in same-race mentoring relationships report greater psychosocial support than do protégés in cross-race relationships. However, because of small samples, different minorities are often grouped together, and analyses are conducted examining minorities versus nonminorities. Thus, it is not certain to what extent the findings generalize to all minorities. Additionally, research that has focused on a single race has been almost exclusively on Black Americans.

Perceived Similarity

In addition to the impact of mentor–protégé similarity in terms of demographic characteristics such as race and gender, some research has examined perceived similarity in terms of attitudes, values, personality, interests, and work styles. Results show that protégés who perceive their mentors as similar to themselves are more satisfied with the relationship and report receiving more mentoring than do protégés who perceive their mentors as less similar to

themselves. Likewise, mentors with perceived similar protégés report more high-quality mentoring relationships than do mentors with protégés who are perceived to be less similar.

Protégé Attributes

Research suggests that dispositional characteristics relate to one's likelihood of engaging in a mentoring relationship. For example, individuals with an internal locus of control and high self-monitors are more likely to initiate mentoring relationships than individuals with an external locus of control and low self-monitors. Research also indicates that individuals who are high in need for achievement are more likely to report having a mentor than individuals who are low in need for achievement.

Some research suggests that mentors look for certain attributes in the protégés they mentor. Specifically, research has found that mentors prefer protégés who possess strong potential for achievement, favorable past performance, and a willingness to learn and accept feedback.

Mentor Attributes

Several factors relate to one's propensity or willingness to serve as a mentor to others. One consistent finding is that those with previous mentoring experience, either as a protégé or as a mentor, are more willing to mentor others than those with no previous mentoring experience. There is also evidence that dispositional factors relate to the willingness to mentor others. Specifically, a prosocial personality is associated with experience as a mentor and with future willingness to mentor others.

Few studies have examined individual mentor differences in mentoring behavior. One study found that individuals higher in openness to experience reported providing more mentoring than those lower in openness to experience. In another study, the mentor's learning-goal orientation was positively linked with mentoring. Recent research has examined the motives that mentors report for mentoring others. Mentors who are motivated to mentor others for self-enhancement reasons are more likely to provide career-related mentoring, whereas mentors who are motivated by the intrinsic satisfaction that mentoring others brings are more likely to provide psychosocial mentoring.

Organizational Factors

The organizational environment can inhibit or facilitate mentoring relationships. Organizations can foster mentoring relationships by encouraging an organizational learning and development climate. Mentoring relationships are more likely to occur naturally when the organization cultivates an environment that encourages employees to actively learn from and teach one another. This can be accomplished by recognizing and rewarding the efforts of those who mentor others, providing opportunities for junior and senior employees to interact, and helping employees develop the tools needed for coaching and counseling others.

FORMAL MENTORING

Formal mentoring programs are increasingly being used as a form of employee development. Formal and informal mentoring relationships differ in two primary ways. First, formal mentoring relationships may occur through an assignment or matching process instigated by a third party within the organization, whereas informal mentoring relationships develop spontaneously through a process of mutual attraction. Second, formal mentoring relationships are typically shorter in duration than informal mentoring relationships. Informal mentoring relationships generally last three to six years, whereas formal mentoring relationships generally last for six months to one year.

Interest in formal mentoring has generated research examining differences in outcomes for protégés involved in formal versus informal mentoring relationships. Generally, the research shows that formal mentoring relationships are less effective than informal relationships but better than no mentoring. However, research also shows that the quality of the relationship matters more than the manner in which the relationship was initially formed. High-quality mentoring relationships can evolve from both formal and informal pairings.

—Tammy D. Allen

FURTHER READING

Allen, T. D., Eby, L. T., Poteet, M. L., Lentz, E., & Lima, L. (2004). Career benefits associated with mentoring for protégés: A meta-analytic review. *Journal of Applied Psychology, 89*, 127–136.

- Dreher, G. F., & Cox, T. H. (1996). Race, gender, and opportunity: A study of compensation attainment and the establishment of mentoring relationships. *Journal of Applied Psychology, 81*, 297–308.
- Kram, K. E. (1985). *Mentoring at work: Developmental relationships in organizational life*. Glenview, IL: Scott, Foresman.
- Ragins, B. R., & Cotton, J. L. (1999). Mentor functions and outcomes: A comparison of men and women in formal and informal mentoring relationships. *Journal of Applied Psychology, 8*, 529–550.
- Turban, D. B., & Dougherty, T. W. (1994). Role of protégé personality in receipt of mentoring and career success. *Academy of Management Journal, 37*, 688–702.
- Wanberg, C. R., Welsh, E. T., & Hezlett, S. A. (2003). Mentoring research: A review and dynamic process model. In G. R. Ferris & J. J. Martocchio (Eds.), *Research in personnel and human resources management* (Vol. 22, pp. 39–124). Greenwich, CT: Elsevier Science/JAI Press.

MERGERS, ACQUISITIONS, AND STRATEGIC ALLIANCES

Mergers, acquisitions, and strategic alliances have become entrenched in the repertoire of contemporary business executives. Mergers and acquisitions have the potential to accelerate the execution of a business strategy by rapidly helping a firm expand its product or service mix, move into new regional or international markets, capture new customers, or even eliminate a competitor. In this era of intense and turbulent change involving rapid technological advances and ever-increasing globalization, mergers also help organizations gain flexibility, leverage competencies, share resources, and create opportunities that otherwise would be inconceivable.

A *merger* is the integration of two previously separate entities into one new organization, whereas an *acquisition* is the takeover and subsequent integration of one firm into another. Of course, there are many shades of gray here—there are very few “mergers of equals,” and a lead firm may adopt key components of the acquired target. Mergers can be opportunities to transform companies—for example, when Canadian paper producers Abitibi-Price and Stone Consolidates combined to form Abitibi-Consolidated, the new company selected best practices from the partners and adopted new ways of doing things where required. By

contrast, there is typically a clearly dominant partner in acquisitions in consolidating industries such as oil (e.g., Chevron–Texaco and Exxon–Mobil) and entertainment (e.g., Disney–ABC and General Electric–NBC).

A *strategic alliance* sidesteps the legal combination of the entities but requires a close working relationship. (Some observers liken strategic alliances to “living together” as opposed to “getting married” in a merger or acquisition.) For example, the large German pharmaceutical firm Schering entered into a strategic alliance with the small biotech firm Titan Pharmaceuticals. Titan had innovative products in development, and Schering brought marketing muscle to the relationship. Through this alliance, Schering and Titan hope to leverage each other’s strengths without making a commitment to change either company’s legal ownership or structure.

Despite their popularity, 75% of all mergers, acquisitions, and alliances fail to achieve their strategic or financial objectives. Many reasons have been suggested for this dismal track record, but research findings reveal that what matters most to eventual success is the human and cultural aspects of the process by which the partner companies are integrated.

THE MERGER SYNDROME

Organizational psychologists Philip H. Mirvis and Mitchell Lee Marks identified the *merger syndrome* as a primary cause of the disappointing outcomes of otherwise well-conceived mergers, acquisitions, and alliances. The syndrome is triggered by the unavoidably unsettled conditions present in the earliest days and months following the announcement of a deal and encompasses stress reactions and the development of crisis management in the companies involved.

Personal Signs of the Merger Syndrome

The first symptom of the merger syndrome is heightened self-interest—people become preoccupied with what the combination means for themselves, their incomes, and their careers. They develop a story line about the implications, but often it is a mix of fact and fantasy. No one has real answers, and if they do, the answers are apt to change. Not only do people become fixated on the combination, they also tend to focus on the costs and ignore the gains. Soon after a combination announcement, the rumor mill starts and people trade on dire scenarios.

Combination stress takes its toll on people’s psychological and physiological well-being. Reports of tension and conflict increase at the workplace and at home—spouses and children worry about their fates and grow anxious, too. Rates of illness and absenteeism rise in workforces going through combinations. Interviews with executives in the early stages of a combination are colored by reports of headaches, cold and flu symptoms, sleeplessness, and increased alcohol and drug use.

Organizational Signs of the Merger Syndrome

To cope with the many tasks of combining, teams of executives in both the lead and target companies typically lurch into a crisis management mode. The experience is stressful yet exhilarating, and many liken themselves to generals in a war room. Decision making in these top groups can be crisp and decisive. However, top management is generally insulated during this period and often prepares self-defeating gambits. They cut themselves off from relevant information and isolate themselves from dissent. All of this is symptomatic of what psychologist Irving Janis terms *groupthink*—the result of accepting untested assumptions and striving for consensus without testing the possible consequences.

While the executive teams are in their respective war rooms, people in one or both organizations are adrift. Decision-making powers become centralized and reporting relationships clogged with tension and doubt. Priorities are unsettled, and no one wants to make a false move. Meanwhile, downward communications tend to be formal and unsatisfactory. Official assurances that any changes will be handled smoothly and fairly ring hollow to the worried workforce.

Cultural Signs of the Merger Syndrome

All of these symptoms are exacerbated by the clash of cultures. By their very nature, combinations produce an us-versus-them relationship, and there is a natural tendency for people to exaggerate the differences as opposed to the similarities between the two companies. First, differences are noted in the ways the companies do business—maybe their relative emphasis on manufacturing versus marketing or their predominantly financial versus technical orientation. Then, differences in how the companies are

organized—say, centralization versus decentralization or differing styles of management and control—are discerned. Finally, people ascribe these differences to competing values and philosophies, seeing their company as superior and the other as backward, bureaucratic, or just plain bad.

Ironically, a fair amount of diversity in approaching work aids combinations by sparking productive debate and discussion of the desired norms in the combined organization. When left unmanaged, however, the clash of cultures pulls sides apart rather than joining them together.

MAKING MERGERS, ACQUISITIONS, AND ALLIANCES WORK

Psychologists and other professionals work with executives to minimize the unintended consequences of mergers and acquisitions and to put combinations on the path toward financial success. Some common trends are emerging that distinguish successful deals from the majority of failures:

- Managing the merger syndrome: Many firms act to raise awareness of the merger syndrome. Consultations guide executives and managers on leading their people during a difficult time. Workshops help all employees understand methods for minimizing the stress, uncertainty, and culture clash present in any combination. In addition to practical tactics, employees get a sense that leadership is acknowledging and managing their issues rather than ignoring or denying them.
- Managing culture clash: The primary method for minimizing the unintended consequences of culture clash is to establish a basis of respect for the partner cultures. This is true even if the ultimate intention is to absorb a company and assimilate its culture. Managers who display a consideration for the partner's way of doing things rather than denigrate it are likely to gain a reciprocal sense of respect for their own culture. In mergers in which a new culture is being built—either through transformation or by selecting the best from both organizations—a tone of cross-cultural consideration helps employees open up to different ways of doing things rather than tightly hold on to their ways.
- Managing the transition: The upside of a merger, acquisition, or alliance is the opportunity to generate breakthrough ways of thinking that can leverage the strengths of both partners to accelerate the achievement of a business strategy. This requires an effective

transition management structure that creates a forum in which the parties can study and test whether or how hoped-for synergies can be realized, that contributes to relationship and trust building across partners, and that involves people close to the technical aspects and key business issues implicated in the combination. Psychologists contribute to this process by facilitating transition decision-making meetings, providing credible and rigorous issue identification and decision-making processes, and accelerating the development of teamwork across typically sparring partners.

—Mitchell Lee Marks

FURTHER READING

- Haspeslagh, P., & Jamison, D. B. (1991). *Managing acquisitions: Creating value through corporate renewal*. New York: Free Press.
- Marks, M. L. (2003). *Charging back up the hill: Workplace recovery after mergers, acquisitions and downsizings*. San Francisco: Jossey-Bass.
- Marks, M. L., & Mirvis, P. H. (1998). *Joining forces: Making one plus one equal three in mergers, acquisitions, and alliances*. San Francisco: Jossey-Bass.
- Stahl, G. K., & Mendenhall, M. E. (2005). *Mergers and acquisitions: Managing culture and human resources*. Stanford, CA: Stanford Business Books.

META-ANALYSIS

The best way to understand meta-analysis is to begin with a review of basic statistics. There are two main areas in statistics: descriptive and inferential. The former deals with the basic organization and presentation of data, the latter with the process of deriving conclusions and generalizations (i.e., inferences) about a population based on an analysis of sample data taken from that population.

Significance testing is an older and more traditional means of making inferences about populations based on sample data. Developed by the eminent statistician Ronald Fisher during the early 1930s, significance testing focuses on the concept of the null hypothesis and involves estimating the probability that differences observed in a sample occurred entirely by chance, with no true effect in the corresponding population. The real strength of significance testing is that it constrains Type I errors (i.e., rejecting the null

hypothesis when there is no true effect in the population) to the α level or less. The Achilles' heel of significance testing is that it does not have any formal control over Type II errors. Some have estimated that the average probability of a Type II error (i.e., retaining the null hypothesis when there is a true effect in the population) in the behavioral sciences is as high as 50%.

Meta-analysis is a second approach to inferential statistics. Like significance testing, its goal is to make inferences about a population based on an analysis of sample data taken from that population. However, the process by which meta-analysis makes inferences is very different. Whereas significance testing focuses on evaluating the probability of chance with a single (usually new) research study, meta-analysis seeks to mathematically combine a group of related studies that have already been conducted. In meta-analysis, the primary analysis computes the mean (often weighted by sample size) of the common test statistic that is reported or computed for each study, which represents the best available estimate of the true strength of the effect in the population.

Meta-analysis began to be formally developed during the late 1970s, pioneered independently by two camps of researchers: Gene Glass in the clinical area and Frank Schmidt and John Hunter in the industrial and organizational area. Two factors contributed to the emergence of meta-analysis. One was a growing concern about the impact of Type II errors on behavioral science research. Traditional thinking maintained that it is more important to prevent researchers from claiming false effects (i.e., making Type I errors), but some began to believe it is also (even equally) important to prevent researchers from missing real effects (i.e., making Type II errors). In psychotherapy, for example, a series of studies with Type II errors could lead to the conclusion that a particular technique is not consistently helpful, when in fact it might have at least some benefit for most clients.

The second factor that contributed to the development of meta-analysis was a realization that large numbers of studies had accumulated in some areas of behavioral science research. Employment interviews, gender differences in personality, and psychotherapy are examples of areas in which literally hundreds of independent studies are available. In these areas, it made sense to pull together these vast bodies of research to gain a better understanding of the characteristic in question.

Unfortunately, the only technique available at the time for integrating a group of studies was to have a prominent researcher look at them and present his or her impressions, a process known as a *narrative review*. Not surprisingly, narrative reviews are problematic because they are subjective and prone to personal interpretations and perspectives. Moreover, the significance testing results in the studies can be misleading because at least some of the studies retaining the null hypothesis could actually have Type II errors, leading the reviewer to underestimate the true strength or consistency of the effect or relationship. Meta-analysis provided a way to synthesize a body of literature but in a more objective and mathematical way.

In terms of methodology, meta-analysis involves five steps:

- **Step 1: Clearly specify the characteristic to be studied.** Being very specific about what is to be studied helps to focus the meta-analysis and make it more meaningful. For example, the relationship between employment interview ratings and job performance is probably too vague because interviews can vary greatly in terms of their structure, job performance can be assessed in different ways (e.g., objective, subjective), and the jobs for which the interviews were developed can vary (e.g., low, medium, or high complexity). Unfortunately, there is a trade-off in regard to specificity, at least in most cases. The more specific the focus (e.g., the validity of situational interviews for predicting subjective ratings of performance with managerial positions), the more meaningful the results tend to be. In turn, the number of available studies also tends to decrease. Thus, one must balance scientific precision with practical constraints.
- **Step 2: Search for research studies that have analyzed the characteristic.** Journals, technical reports, and dissertations are all good sources. This step can be very time-consuming, often taking several months or more. A common problem during this phase is the tendency that only studies with strong results are published in journals, a phenomenon Rosenthal referred to as the *file drawer* problem. To minimize this problem, which can result in overestimation of the true strength of the effect or relationship in the population, it is important to spend time looking for technical reports, theses, dissertations, and unpublished studies, which are not subject to publication bias.
- **Step 3: Establish a list of criteria (standards) the studies must meet before including them in the meta-analysis.** These criteria can involve the type of

test used, the experimental procedure employed, the date of publication, or anything else the researcher deems important. In regard to employment interviews, for example, the researcher might want to drop studies conducted before the 1964 Civil Rights Act, which increased awareness of minority group issues and likely influenced the questions asked in most interviews. Studies in which the interviewer had test results available (e.g., mental ability) might also be dropped because they may have led to preconceived notions about the candidates. These criteria act as a filter, refining the nature of the studies and the results.

- **Step 4: For every study that meets the criteria, collapse the findings into a common test statistic.** Although t , F , r , and χ^2 are the main test statistics used in significance testing, the two main test statistics used in meta-analysis are r and d . The correlation coefficient has the distinction of being the only test statistic used in both approaches. Although it may seem as if r and d are unrelated—the former is used for variables, the latter for groups—one statistic can be converted into the other using commonly available formulas, and meta-analysis can be done either way. (With correlations, some choose to use the r -to- z transformation to prevent the distribution from becoming progressively more skewed as the magnitude increases.)
- **Step 5: Mathematically summarize the findings of the studies.** The first analysis that is typically done in a meta-analysis is to find the mean of the test-statistic values, usually weighting them by their sample size. The rationale for sample weighting is the basic notion that sampling error—the difference between the characteristics of a sample and those of the population from which it was drawn—tends to decrease as the sample size increases. The mean test-statistic value then becomes a direct estimate of the strength of the relationship or effect in the population. The next analysis typically analyzes the variability to determine whether moderator variables are present. The most common approach is the classic Schmidt and Hunter 75% rule, whereby the actual (observed) variance across the studies is computed and compared with the variance expected to occur as a result of sampling error and other sources of artifactual variance. If the latter is at least 75% as large as the former, moderator variables are assumed not to exist or, if present, to have minimal influence. Some have turned to significance tests to help assess whether a moderator variable is present. Though interesting statistically, doing so is problematic because it courts one of the main problems that meta-analysis was designed to prevent: Type II errors.

Why does meta-analysis work? The meta-analytic technique is based on two fundamental principles. First, each study included in a meta-analysis represents one sample taken from the population being studied, commonly referred to as the *target population*. Thus, if 50 studies are combined in a meta-analysis, in effect, 50 samples from the target population are used. Not surprisingly, the total sample across the studies can be quite large in a meta-analysis, which is beneficial because of the general tendency for the magnitude of sampling error to decrease as the sample size increases.

The second fundamental principle relates to sampling error itself, specifically, that sampling errors are random. Even if the studies in a meta-analysis are drawn from the same (homogeneous) population, it is unlikely their respective test-statistic values will match the true population value. Rather, each study is likely to contain some degree of sampling error, which will push the test statistic higher or lower by varying amounts.

Borrowing from classical test theory, the actual value of the test statistic in a given study can be conceptualized as comprising the population value plus or minus sampling error. For example, using the correlation form of meta-analysis, the value in the first study in the meta-analysis can be represented as

$$r_1 = \rho + \varepsilon_1.$$

The second study would then be represented as $r_2 = \rho + \varepsilon_2$, the third study as $r_3 = \rho + \varepsilon_3$, the fourth study as $r_4 = \rho + \varepsilon_4$, and do on. Note that ε represents the random error component, one that, as noted previously, can either increase or decrease the starting population value by varying amounts. Accordingly, to find the mean correlation across the studies, the following formula is used, where k is the total number of studies:

$$\bar{r} = [(\rho + \varepsilon_1) + (\rho + \varepsilon_2) + (\rho + \varepsilon_3) + (\rho + \varepsilon_4) + \dots + (\rho + \varepsilon_k)] / k$$

Continuing, the foregoing formula can be rearranged and simplified mathematically as

$$\bar{r} = (k * \rho + \Sigma\varepsilon) / k.$$

Because the sampling errors are random, they tend to form a symmetrical distribution with a mean of zero.

Accordingly, the sum of the errors in the foregoing formula is zero, leaving the number of studies (k) times ρ divided by k , which simplifies to just ρ , the value of the correlation in the population. In short, this mathematical exercise demonstrates that the mean correlation (or effect size) in a meta-analysis is a reasonable estimate of the true strength of the effect in the target population.

Is meta-analysis a perfect technique? Absolutely not. In fact, there are three situations in which the mean value in a meta-analysis may not reflect the true effect or relationship in the target population. The first is the situation in which the test-statistic values are influenced by artifacts such as measurement error (e.g., performance criterion in validity studies) and range restriction (e.g., using only interview ratings from those hired). Fortunately, methodology exists to correct for these artifacts.

The second is the situation in which one or more moderator variables are present. A moderator is a characteristic that changes the strength of the relationship or effect in the target population. Structure, for example, moderates the validity of the employment interview, increasing it from around .20 for unstructured interviews to around .50 for highly structured interviews. There are several ways to detect the presence of a moderator variable, the most common of which is the Hunter and Schmidt 75% rule. If a moderator variable is found, then the studies should be separated according to the levels or categories of that variable and a new meta-analysis conducted for each (e.g., for low-, medium-, and high-structure interviews). Confirmation that a variable is a moderator generally occurs when the mean test-statistic values separated in terms of magnitude and artifactual variance exceeds 75% of the observed variance in the levels or categories of that variable.

In the third problematic situation in meta-analysis, only a small number of studies is analyzed, a phenomenon that is quite common in most areas of research. In these situations, there is no guarantee that the sampling errors will sum to zero, in which case the mean value could be biased. What constitutes a reasonable number of studies in a meta-analysis? Stability traditionally has been overlooked in the field. A new line of research is addressing this issue by modifying Rosenthal's original fail-safe N concept for modern use. Though highly preliminary, early results suggest that many meta-analytic results are not as stable as might be imagined.

In conclusion, meta-analysis has emerged as a method for making inferences about populations based on sample data taken from those populations. It has gained popularity not only in the behavioral sciences but also in other areas, such as the medical field. It is not uncommon for major conclusions in textbooks to reference a meta-analysis. Though the technique is not without limitations, meta-analysis has emerged as a prominent and powerful technique for data analysis.

—Allen I. Huffcutt

See also Descriptive Statistics; Inferential Statistics; Statistical Power

FURTHER READING

- Fisher, R. A. (1932). *Statistical methods for research workers* (4th ed.). Edinburgh, Scotland: Oliver and Boyd.
- Fisher, R. A. (1935). *The design of experiments*. Edinburgh, Scotland: Oliver and Boyd.
- Glass, G. V. (1976). Primary, secondary and meta-analysis of research. *Educational Researcher*, 5, 3–8.
- Glass, G. V., McGaw, B., & Smith, M. L. (1981). *Meta-analysis and social research*. Beverly Hills, CA: Sage.
- Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. Orlando, FL: Academic Press.
- Huffcutt, A. I., & Arthur, W. (1994). Hunter and Hunter (1984) revisited: Interview validity for entry-level jobs. *Journal of Applied Psychology*, 79, 184–190.
- Hunter, J. E., & Schmidt, F. L. (1990). *Methods of meta-analysis: Correcting error and bias in research findings*. Newbury Park, CA: Sage.
- Hunter, J. E., Schmidt, F. L., & Jackson, G. B. (1982). *Meta-analysis: Cumulating research findings across studies*. Beverly Hills, CA: Sage.
- Rosenthal, R. (1979). The “file drawer problem” and tolerance for null results. *Psychological Bulletin*, 86, 638–641.
- Rosenthal, R. (1984). *Meta-analysis procedures for social research*. Beverly Hills, CA: Sage.
- Schmidt, F. L. (1992). What do data really mean? Research findings, meta-analysis, and cumulative knowledge in psychology. *American Psychology*, 47, 1173–1181.

MODERATOR AND MEDIATOR VARIABLES

Organizational researchers frequently propose and test hypotheses that involve relationships between

variables. Beyond simple bivariate associations, more complex models may involve third variables that provide greater explanatory power. Two common types of explanatory mechanisms are *mediator* and *moderator* variables. Importantly, mediator and moderator variables have fundamentally different effects in causal models and must be kept conceptually and statistically distinct. A mediator variable is part of a longer causal chain. In the simplest case, an antecedent variable causes the mediator variable, which, in turn, causes an outcome variable. Alternatively, a moderator variable does not imply a particular causal sequence. A variable is said to act as a moderator to the extent that the relationship between two other variables changes depending on the level of the moderator. Because of the different nature of these variables, mediator and moderator variables are discussed separately, as well as the statistical tests typically associated with evaluating their presence.

In this discussion, x represents the predictor variable, y represents the criterion variable, and m represents either the mediator or moderator.

MEDIATOR VARIABLES

Graphically, mediation may be represented by the simple model $x \rightarrow m \rightarrow y$. In this model, m mediates the relationship between x and y . As this model illustrates, a mediator variable transmits variance between two other variables. Thus, a mediator serves as an explanatory mechanism in the model. That is, the mediator provides an explanation of how and, to some extent, why two variables are related. For example, consider a model in which a researcher believes that student learning is negatively related to class size (i.e., students in smaller classes learn more than students in larger classes). To explain this effect, the researcher includes a mediator variable (e.g., the amount of student–teacher interaction) in the model. That is, in smaller classes, teachers are expected to spend more time with each student, and that, in turn, is related to student learning. The amount of student–teacher interaction provides a mechanism through which the bivariate relationship between class size and learning can be explained.

The extent to which a variable serves as a mediator can be easily tested using a three-step process of ordinary least squares regression. In the first analysis, y is regressed on x . This step is necessary insofar as there must be a relationship for m to mediate. If x and y are unrelated, m cannot mediate a relationship that does

not exist. In a second analysis, m is regressed on x . If x and m are unrelated, m cannot serve as a mediating mechanism. Finally, y is regressed on both x and m together, and the regression coefficient associated with x is compared with the regression weight computed in the first step. The extent to which m mediates the x – y relationship is defined in terms of the difference between these coefficients. If the regression weight associated with x is reduced to zero, m is said to fully mediate the relationship between x and y . In short, the effect of x on y is fully explained when m is included in the model. Evidence for partial mediation is provided to the extent that the regression weight associated with x drops but is not reduced to zero. In this case, m explains some of the variance in the x – y relationship, but there is still a direct effect of x on y . The Sobel test is often used to test for the presence of this indirect (i.e., mediated) effect.

Recently, scholars have debated the extent to which these steps are required to argue for mediation; some have argued that the relationship between x and y need not be significant in order for m to serve as a mediator variable. In this alternative process of testing for mediation, the first step is unnecessary when the x – y relationship is relatively small in magnitude or when suppression is a possibility.

MODERATOR VARIABLES

A variable is said to moderate a relationship to the extent that the relationship between x and y changes depending on the level of m . In short, moderation is fundamentally an interactive effect. Again, ordinary least squares regression may be used to test for moderation. Two steps are required to test for moderation. First, the main effects of x and m are entered in the first step of an analysis in which y is the criterion variable. In the second step, the product of x and m is entered and the change in R -squared from the first to the second model is evaluated for statistical significance. If this value is significant, evidence is provided for moderation.

When the interaction term is significant, the nature of moderation (i.e., ordinal versus disordinal interaction) can easily be illustrated in a two-dimensional graphical representation. For example, imagine a test of general reading ability (x) and college performance measured by teacher ratings (y). Assume that a researcher who is interested in evaluating whether the relationship between these variables is the same across gender (m) subgroups applies the statistical

technique described in the previous paragraph and observes the following regression equation:

$$\hat{Y} = .58(x) + 31.03(m) + (-.24)(x)(m) + (-9.92)$$

This equation can be used to plot the regression lines for these two groups using values from both x and m .

Though conceptually distinct, mediation and moderation analyses share several common issues. For example, both analyses can be strongly influenced by multicollinearity. In the case of mediation, a strong correlation between x and m can influence the precision of estimates of regression coefficients in the final equation. In tests of moderation, given that the interaction term is directly computed as the product of x and m , this term can be strongly related to either or both of the individual predictors. To address this issue, x and m are often centered by subtracting each observed score from the corresponding mean prior to forming the interaction term.

Finally, mediation and moderation can be present within the same causal model. Mediated moderation is said to exist when the interactive effect of two variables on an outcome of interest passes through an intervening variable. Alternatively, moderated mediation is said to exist when a mediation model is stronger for one group than another.

—Ronald S. Landis

FURTHER READING

- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, *7*, 422–445.

MOOD

The late 20th and early 21st centuries have seen a dramatic increase in the study of affect in organizations. The affective realm consists of state and trait affect,

and there are many types of each. *Mood* is a transitory affective state that is relatively mild and long lasting. Different from other transitory affective states (i.e., emotions), mood does not have a clear triggering stimulus or a specific object. Rather, mood is present at all times in the background of our minds (i.e., we are not void of mood at any given point in time), although we are not always aware of it. Mood is generally considered either positive or negative, whereas emotions are discrete and specific, such as anger, fear, hope, and joy. Although it is possible to talk about an angry mood, for example, this is different from the emotion of anger in that the angry mood is not related to any known stimulus, is generalized and diffused, lasts a longer time, and is characterized by an overall irritability and tendency to view external stimuli as negative.

There are several theoretical models of the structure of mood. These models describe mood according to two orthogonal and bipolar dimensions, pleasantness and activation. The interplay between these dimensions results in mood ranging from activated (e.g., aroused) to deactivated (e.g., calm); from pleasant (e.g., happy) to unpleasant (e.g., unhappy); from pleasant and activated (e.g., excited) to unpleasant and deactivated (e.g., tired); and from unpleasant activated (e.g., tense) to pleasant deactivated (e.g., relaxed). Other structural models of mood also exist.

Most research has focused on the effects of positive mood. However, there is an asymmetry between the influences of positive and negative moods, such that the effects of negative mood are not necessarily the opposite of those of positive mood. Therefore, caution must be exercised when inferring conclusions about negative mood from research conducted on positive mood, and vice versa.

METHODOLOGIES FOR STUDYING MOOD

Industrial/organizational researchers typically measure mood using self-report measures or implicit measures of mood, usually behaviors. Mood has been studied in both laboratory and field settings using experimental and nonexperimental methods. When studying mood, researchers either manipulate it or measure research participants' naturally occurring mood. Common methods for manipulating mood are movies, music, and small gifts. The induction of negative moods has been found to result in larger effects than the induction of positive moods. Films and stories are the most efficient methods of mood elicitation.

INFLUENCES ON MOOD

Because mood does not have concrete causes, it may be influenced by an infinite number and unlimited types of causes. Among the commonly studied influences are personality, external factors, and internal factors. External factors that have been found to affect mood are weather, temperature, odor, physical activity, food, and drugs; these factors affect mood through their influence on biological processes. Social influences also affect mood—for example, when people look at the mood of others as a source of information or when the moods of others affect one's own mood. Internal influences on mood include biological, physiological, and neurological determinants, such as circadian rhythms, fatigue, and arousal. Emotions can also influence mood, which becomes an aftereffect of emotion.

MOOD AND PERSONALITY

In addition to having transient positive and negative moods, people also have positive and negative personality tendencies, known as *positive* and *negative affectivity*. It is generally agreed that people who are high in positive affectivity tend to experience more positive moods, and people who are high in negative affectivity tend to experience more negative moods. However, because the correlations between state and trait affect are modest at best, trait affect is not the strongest predictor of mood. Other affective dispositions such as trait affect, also affect mood. For example, trait anxiety leads people to react with more anxiety to certain events and makes it difficult for them to differentiate between justified and unjustified anxiety. Affect intensity (the intensity of an individual's affective responsiveness) is another personality trait that affects people's tendency to experience different mood states and ability to regulate their moods.

MOOD AND COGNITION

Mood is related to the cognitive processes of memory, recall, and attention. Consistent findings show mood congruency effects, that is, a congruence between an individual's mood state, attention to information, coding of information, and retrieval of information, such that mood facilitates the processing of state-congruent materials. For example, people in a positive mood tend to perceive neutral stimuli as more positive, have

more positive perceptions of others, and can better recall events that were congruent with their mood when the event occurred. Similar congruency effects have been found for negative moods.

Other robust findings refer to thought processes that are affected by mood. Specifically, people who are in a positive mood tend to use more heuristics, use broader categories to analyze and classify data, and are more cognitively flexible than people in a negative mood, who tend to go through very elaborative thought processes. These processes can lead to a *depressive realism effect*, whereby people who are slightly depressed have a more realistic grasp of reality and their control of it. People in positive mood, however, look at themselves in ways that are more positive and overestimate their abilities. Thus, there is a trade-off between the accuracy of perception and self-enhancement.

Whereas the preceding research emphasized the importance of valence in affecting cognition, other research has examined the importance of the energy dimension of mood in influencing cognition. According to this research, mood affects cognitive processes through its influence on the efficiency with which people process information. Specifically, mood affects available cognitive resources, attentional selectivity, readiness to respond, and short-term memory, such that higher arousal leads to higher availability of most cognitive resources. These results apply to some tasks, but not to others. Apparently, the relative importance of valence and the energy dimensions of mood depend on the kind of task being performed and the cognitive processes required.

MOOD AND PERFORMANCE

Mood can affect performance through its influence on cognitive processes and on motivation. It is generally assumed that people who are in a positive mood are motivated to maintain it, whereas people who are in a negative mood are motivated to repair their emotional state. These motivations sometimes lead to similar behavioral influences of positive and negative mood. At other times, behaviors will differ based on mood.

Research has found that people who are in a positive mood tend to engage in prosocial behaviors, such as helping other people and volunteering more, but only if they perceive their behaviors as affecting them positively. Under some circumstances, people in a

negative mood also help others as a means of improving their own emotional state.

Mood has also been found to influence withdrawal behaviors, such as absenteeism. To the extent that the work situation is perceived as negative, withdrawal behaviors will increase. Both positive mood and negative mood have been shown to be related to absenteeism in this manner. Individuals who experience a positive mood at the workplace are less likely to be absent, whereas those who experience a negative mood at work are more likely to be absent.

As for the performance of duties required by a job, the influence of mood is related to the kind of performance that is required. That is, when flexibility, working with others, and creativity are needed, positive mood has a positive influence. For example, research has found a positive relationship between positive mood and customer service activities and between positive mood and creativity. Positive mood also positively influences negotiation and conflict resolution because people in a positive mood are better able to understand the other person's point of view and more often adopt constructive problem-solving strategies.

When attention to detail and vigilant information processing are needed, negative mood may be preferable; research has shown that negative moods influence more systematic and detailed processing of information. Still, under some circumstances, negative mood leads to less effort on cognitive processes and positive mood leads to more effort in cognitive processing. Depending on the ability of information processing to alleviate a sad mood or worsen a positive mood, and depending on the relevancy of the information, individuals use more or less effort in processing the information, depending on their mood.

Mood also has strong implications for decision making. Research has found that positive moods lead to simplification of complex tasks (which can be beneficial or harmful, depending on the task) and more efficient decision-making processes. People who are in a positive mood also tend to take fewer risks when more is at stake because they have higher sensitivity to loss, which may diminish their positive mood.

Finally, an important indicator of people's performance is their performance appraisals. Here, mood may have an indirect effect by influencing raters' tendency to be more lenient, subjected to rating biases, or affected by irrelevant information, such as affection for the individual.

MOOD AT THE TEAM LEVEL

Until now, the moods of individuals have been discussed. Recently, however, mood has also been studied as a group-level phenomenon, usually referred to as *group affect*, which is the shared affect among group members. It has been found that mood is contagious—this is one mechanism through which it transfers from one individual to others. In this way, the mood of a single individual affects the mood of the group. Other factors that have been shown to influence the convergence of group members' mood are task and social interdependence, group membership stability, mood regulation norms, and the leader's mood.

To conclude, mood plays an important role in the behavior of people and groups in organizations. It is both a result of working in organizations and a cause of people's behavior.

—Yochi Cohen-Charash and Brittany Boyd

See also Affective Traits; Contextual Performance/Prosocial Behavior/Organizational Citizenship Behavior; Group Dynamics and Processes; Withdrawal Behaviors, Absenteeism; Withdrawal Behaviors, Lateness

FURTHER READING

- Barsade, S. G. (2002). The ripple effect: Emotional contagion in groups. *Administrative Science Quarterly*, 47, 644–675.
- Forgas, J. P., & George, J. M. (2001). Affective influences on judgments and behavior in organizations: An information processing perspective. *Organizational Behavior & Human Decision Processes*, 86, 3–34.
- George, J. M., & Brief, A. P. (1992). Feeling good—doing good: A conceptual analysis of the mood at work—organizational spontaneity relationship. *Psychological Bulletin*, 112, 310–329.
- Larsen, R. J. (2000). Toward a science of mood regulation. *Psychological Inquiry*, 11, 129–141.
- Wegener, D. T., Petty, R. E., & Smith, S. M. (1995). Positive mood can increase or decrease message scrutiny: The hedonic contingency view of mood and message processing. *Journal of Personality and Social Psychology*, 69, 5–15.
- Westermann, R., Spies, K., Stahl, G. N., & Hesse, F. W. (1996). Relative effectiveness and validity of mood induction procedures: A meta-analysis. *European Journal of Social Psychology*, 26, 557–580.
- Yik, M. S. M., Russell, J. A., & Barrett, L. F. (1999). Structure of self-reported current affect: Integration and beyond. *Journal of Personality and Social Psychology*, 77, 600–619.

MORALE

Employee *morale* is a term that is often used loosely by professionals and laypeople. Morale refers to employees' shared attitudes toward and identification with the elements of their job, working conditions, fellow workers, supervisors, and general management. As a group-level term, morale is akin to the affective climate of an organization. Although morale is often equated with intrinsic job satisfaction averaged across a work group, department, or organization, more technical definitions posit that morale refers to a summary evaluation of a broader range of job-related attitudes (e.g., organizational commitment, employee loyalty, job involvement, employee engagement, and employee well-being). Whereas some of the evaluations an employee expresses toward the organization are unique to himself or herself, members of one's work group may have similar views as a result of sharing common experiences at work. These shared perceptions tend to be reinforced and maintained by the group. Hence, morale is often influenced by factors present in the work environment that are common to all employees in the group or organization.

The use of employee morale surveys is a relatively common practice among businesses. Management's concern for employee morale was heightened as a result of the Hawthorn studies at the Western Electric Company from 1927 to 1932. These studies suggested that the feelings and sentiments of being a part of a special work group had a greater effect on performance than changes in physical working conditions such as illumination, incentives, work hours, and rest breaks. In addition to recognizing important social motives, these findings implied an important relationship between morale and productivity as suggested by the well-known adage of the *happy/productive worker*. Along this vein, morale is often assumed to relate to motivation in general and to intrinsic motivation and pride in one's work in particular. Although some research has demonstrated a relationship between morale and performance, the relationship may be reciprocal, such that being a member of a high-performing team actually enhances morale. On the other hand, low morale is assumed to be evidenced in high turnover, high absenteeism, tardiness, and customer complaints.

RESEARCH ON MORALE

As a result of its long history and multiple meanings, the empirical research on employee morale is difficult to summarize. For example, research claiming to examine morale has often operationalized morale as a specific attitude (e.g., job satisfaction, organizational commitment) at the individual (rather than group) level. Recently, researchers have begun to examine group-level organizational phenomena such as organizational climate. In light of this research, consideration should be given not only to workers' average scores but also to the consistency between scores (e.g., intraclass correlation coefficient, r_{wg}), which indicates the extent to which employees share a common perception of the workplace.

Although research has largely neglected the underlying structure of employee morale, some empirical evidence suggests the following five basic dimensions or patterns of attitudes:

- **General management:** This dimension relates to employees' relationships with general management and the organization and includes identification with the organization and a sense of security for the future. It also represents an evaluation of communication within the organization and management's competencies and concern for employee welfare.
- **Immediate supervision:** This dimension relates to attitudes toward immediate supervision and includes interpersonal relations and people skills, as well as the administrative aspects of supervision.
- **Material rewards:** This facet deals with material rewards in terms of pay and benefits.
- **Fellow employees:** This dimension relates to friendliness, motivation, and cohesion among employees.
- **Job satisfaction:** This dimension relates to the intrinsic motivation and satisfaction associated with the nature of the job. Related to this, employees feel that the job is worthwhile, provides a meaningful service, and affords opportunities for personal growth and development.

Empirical studies have found that employee morale (loosely defined) is positively associated with customer satisfaction, particularly among employees who have direct contact with customers. Research also suggests that the closeness of employee-management relations is related positively to morale and teamwork, especially when combined with feedback, incentives, and autonomy. Research further suggests

that the reduced morale of survivors following an organizational downsizing may undermine any expected gains from the restructuring, presumably because it destroys trust and reduces employees' sense of empowerment.

IMPROVING MORALE

The trade literature offers several suggestions for improving employee morale. For the most part, these suggestions for improving work group morale have not been empirically examined.

- **Compensation:** Provide formal, fair, and accurate performance evaluations and merit systems, paying attention to shift differentials and overtime pay. Clarify the link between achievements and rewards.
- **Benefits:** Provide benefits such as paid holidays, vacation and sick leave, pension and retirement plans, health care coverage, and life insurance. Consideration may also be given to providing tuition reimbursement, paid parking, employee assistance and well-being programs, and child care.
- **Communications:** Provide employees a chance to express their opinions and concerns by forming employee committees, holding regular meetings with management, conducting attitude surveys, instituting employee recognition practices, publishing newsletters, and putting up bulletin boards. Let employees know when management has considered or implemented employee suggestions. When people work hard to complete a project, make sure their accomplishments are acknowledged.
- **Respect:** Make sure guidelines for staff behavior are reasonable and appropriate. Staff participation in the formulation of workplace rules can reduce management's efforts to reinforce compliance with unpopular regulations. When making a policy ruling, explain its purpose and enforce it fairly. Be tactful with discipline; reprimand should be private rather than public and should address the specific fault rather than the person's character. When they are forced to downsize, companies that provide outplacement services, training, and career counseling have a better chance of retaining the loyalty and trust of survivors.
- **Conditions, facilities, and services:** Provide employees with safe, clean working conditions and reasonable workloads. Work underload and overload can be equally damaging to morale.
- **Personnel functions and policies:** Provide an orientation and early socialization program to help employees

feel welcomed and valued by the organization. Ensure clear and fair performance appraisal systems, grievance procedures, promotion systems, and training opportunities. Hold regular work parties or company retreats. Provide family-friendly practices. Promoting from within demonstrates that management believes talent already exists within the organization.

—Craig Crossley

See also Attitudes and Beliefs; Job Satisfaction; Organizational Climate; Organizational Commitment

FURTHER READING

- Abbott, J. (2003). Does employee satisfaction matter? A study to determine whether low employee morale affects customer satisfaction and profits in the business-to-business sector. *Journal of Communication Management, 7*, 333–339.
- Griffith, J. (2001). Do satisfied employees satisfy customers? Support-services staff morale and satisfaction among public school administrators, students, and parents. *Journal of Applied Social Psychology, 31*, 1627–1658.
- McKnight, D., Ahmad, S., & Schroeder, R. G. (2001). When do feedback, incentive control, and autonomy improve morale? The importance of employee-management relationship closeness. *Journal of Managerial Issues, 13*, 466–482.
- Mishra, K., Spreitzer, G. M., & Mishra, A. (1998). Preserving employee morale during downsizing. *Sloan Management Review, 39*, 83–95.
- Viteles, M. S. (1953). *Motivation and morale in industry*. New York: W. W. Norton.

MOTIVATIONAL TRAITS

Motivation refers to an internal set of nonability processes that channel, energize, and sustain behavior over time. Motivation influences the direction (i.e., choice of activities), intensity (i.e., amount of effort), and persistence (i.e., duration of effort) of an individual's behavior. A trait can be defined as a distinguishable feature of a person's nature that demonstrates consistency across situations and over time. Traits are often contrasted with states, which are more situation specific and change relatively quickly. That is, a trait exhibits temporal stability and has a similar effect on

behavior in different situations, whereas states are much more temporary.

A motivational trait can be defined as a stable and distinguishable feature of an individual that is distinct from cognitive ability yet influences the choice of goal-directed activities, the amount of effort expended on tasks, and the duration of time activities are pursued. Furthermore, a motivational trait has a similar effect on behavior in different situations (e.g., work, recreation, social) and over time (e.g., today and in six months).

MOTIVATIONAL TRAITS AS DISTAL INFLUENCES ON WORK BEHAVIOR

Motivational traits have been shown to predict training outcomes, job performance, and organizational citizenship behaviors. Motivational traits are believed to affect behavior largely through task-specific motivation (i.e., state motivation) and self-regulation (i.e., self-management). Indeed, several studies have shown that motivational traits affect individuals' self-efficacy (i.e., task-specific confidence), goal choice, and goal commitment (i.e., strength of attachment to a goal). These more statelike motivational factors are then believed to influence performance. In addition, some researchers have argued that motivational traits affect performance through task-specific self-regulatory processes, such as motivation control (i.e., keeping motivation high by creating personal rewards or challenges), emotion management (i.e., preventing worry and negative emotions from interfering with performance), mental focus (i.e., staying focused on the task), and metacognition (i.e., monitoring one's learning and progress). In sum, motivational traits are expected to affect work behaviors through task-specific motivation and self-regulation variables.

MOTIVATIONAL TRAIT CONCEPTUALIZATIONS

There is little consensus about which traits best represent dispositional motivation. As a result, several parallel streams of research have developed based on different theories of motivation. Although the particular traits differ across frameworks, many have a foundation in the long-standing distinction between approach and avoidance motivation. *Approach motivation* refers to a general sensitivity to rewarding stimuli and the tendency to seek out such stimuli. *Avoidance motivation* refers to a general sensitivity to

punishing stimuli and the tendency to move away from such stimuli. Approach and avoidance motivation are considered to be independent such that individuals can be high on both, low on both, or high on one and low on the other.

The following sections provide a brief overview of some recent and influential motivational trait conceptualizations. This overview is not intended to be comprehensive but to describe traits that are grounded in well-articulated motivation theories. This overview does not include personality traits that are very broad in focus, tapping more than motivation (e.g., conscientiousness includes the motivation variable of achievement striving, as well as nonmotivation variables such as competence, order, and dutifulness), or traits that affect motivation only in particular situations (e.g., openness to experience may yield strong motivation to explore a new city, but it may not lead to strong motivation to perform a familiar work task).

Behavioral Activation System and Behavioral Inhibition System

Jeffrey Gray developed a theory of motivation based on evidence from physiological research. This theory argues that motivational traits are captured by the *behavioral activation system* (BAS) and the *behavioral inhibition system* (BIS), which correspond to approach and avoidance motivation, respectively. High-BAS individuals tend to seek out rewarding activities and have a strong drive to attain goals. These individuals exhibit impulsivity, sensation seeking, and a tendency to experience positive emotions (e.g., hope, happiness, elation). High-BIS individuals strive to avoid threatening or punishing situations, leading to low levels of goal-directed behavior and the experience of negative emotions (e.g., fear, frustration, sadness). Measures of BIS and BAS sensitivity have been linked to distinct areas of the prefrontal lobe, supporting the biological foundation of these traits. Although the BIS–BAS framework represents perhaps the most basic model of approach and avoidance motivation, it has received no attention in the organizational research.

Goal Orientation

The concept of goal orientation was originally developed by Carol Dweck. Goal orientation refers to differences in the way people interpret and respond to achievement situations. Because it focuses on learning

and achievement, this concept has become one of the most widely studied motivational trait frameworks in organizational research. Generally, individuals adopt either a *learning goal orientation* (LGO) or a *performance goal orientation* (PGO). Individuals high in LGO wish to develop their knowledge, skills, and competence on tasks and believe that ability is changeable. This orientation is considered an approach motivation trait. Individuals high in PGO seek to demonstrate their competence and ability in comparison to others and tend to believe that ability is fixed. This orientation can be divided into approach and avoidance subtraits. Individuals who are high in PGO-approach seek to prove their competence and ability in comparison to others. Individuals who are high in PGO-avoid seek to avoid displays of incompetence and negative judgments from others. Although goal orientation has been shown to predict a variety of work outcomes, there is some debate as to whether it is best conceptualized as a trait, a state, or something in between (i.e., a contextualized trait).

Motivational Traits

Ruth Kanfer and colleagues developed a theory of motivational traits based on the approach and avoidance distinction but with an emphasis on organizational applications. In addition, they developed a corresponding measure, the Motivational Trait Questionnaire, which measures individual differences in motivation across three domains: *personal mastery*, *competitive excellence*, and *motivation related to anxiety*. Personal mastery is an approach trait comprising a *desire to learn* subtrait (i.e., the need to achieve in the context of learning) and a *mastery* subtrait (i.e., the desire for continuous task improvement). Competitive excellence is made up of an *other referenced goals* subtrait (i.e., looking to others to determine how well one is performing), which is a mix of approach and avoidance motivation, and a *competitiveness* subtrait (i.e., a focus on competition and outperforming others), which is an approach trait. Motivation related to anxiety is an avoidance-oriented trait and is made up of a *worry* subtrait (i.e., worrying about being evaluated in performance contexts) and an *emotionality* subtrait (i.e., experiencing emotions in an evaluation situation). Kanfer and colleagues provided construct validity evidence for the scales, but no research has examined whether the scales predict job performance.

Action–State Orientation

Action–state orientation was first described by Julius Kuhl as part of a larger theory of action control. Action–state orientation reflects differences in the ability to manage one’s goal-directed behaviors over time and comprises three dimensions: preoccupation, hesitation, and volatility. Action-oriented individuals are generally more effective than state-oriented individuals. *Preoccupation* refers to differences in one’s ability to disengage from thoughts regarding failure or alternative goals and states. State-oriented individuals cannot easily disengage from negative thoughts, whereas action-oriented individuals put such thoughts out of mind and move forward with new activities. The *hesitation* dimension reflects differences in one’s ability to initiate action on already chosen tasks. Action-oriented individuals are able to easily begin work on tasks, whereas state-oriented individuals have difficulty starting activities. The *volatility* dimension pertains to the ability to persist in tasks until they are completed. Action-oriented individuals finish activities, whereas state-oriented individuals stop activities before they are completed. Research has demonstrated that action–state orientation predicts job performance, classroom performance, and job attitudes.

Regulatory Focus

E. Tory Higgins and colleagues developed *regulatory focus theory*, which argues that individuals differ in their propensity to be promotion focused and prevention focused. *Promotion-focused* individuals seek to minimize differences between their actual and ideal selves (e.g., hopes, aspirations), and prevention-focused individuals seek to minimize differences between their actual and “ought” selves (e.g., duties, responsibilities). Individuals who are high in promotion focus seek out their desires and strive for personal growth. As a result, promotion-focused individuals experience eagerness when striving for goals, joy when goals are attained, and sadness when goals are not attained. Individuals who are high in prevention focus see goals as obligations and are concerned with maintaining security and avoiding losses. As a result, prevention-focused individuals tend to be cautious when striving for goals, feel relaxed when goals are attained, and experience nervousness when goals are not attained. Applications of this theory to organizational research are just beginning, with most efforts focused on theory development.

Self-Determination

Edward Deci and Richard Ryan's *self-determination theory* distinguishes between intrinsically motivated behavior (i.e., activities that are performed because they are enjoyable) and extrinsically motivated behavior (i.e., activities that are performed to receive some external reward). Self-determination theory describes three traits that are related to intrinsic and extrinsic motivation: autonomy orientation, control orientation, and impersonal orientation.

Autonomy orientation refers to differences in the extent to which individuals regulate their behavior based on personal interests and preferences. Autonomy-oriented individuals seek opportunities to satisfy their personal needs and desires. As a result, they tend to experience intrinsic motivation, feelings of competence, and task enjoyment. *Control orientation* refers to differences in the extent to which individuals regulate behavior based on external constraints and controls. Control-oriented individuals perceive that others control their behaviors. As a result, these individuals experience extrinsic motivation and little task enjoyment. *Impersonal orientation* refers to the extent to which individuals focus on information that suggests they are incompetent and will not succeed. Impersonal-oriented individuals believe that they cannot do well and therefore experience neither intrinsic nor extrinsic motivation. This lack of motivation leads to a sense of helplessness, depressed mood, and low levels of goal-directed action. Initial research on this topic has shown that these traits predict job performance and employee well-being.

SUMMARY

Motivational traits are stable, nonability characteristics that influence the direction, intensity, and persistence of individuals' goal-directed behaviors across situations. Motivational traits are thought to affect behavior through task-specific motivation and self-regulation. Several motivational trait frameworks exist, each deriving from a different theory of motivation. One avenue for future research would be to develop an integrative model of motivational traits that consolidates these approaches into a comprehensive framework.

—James M. Diefendorff

See also Work Motivation

FURTHER READING

- Brett, J. F., & VandeWalle, D. (1999). Goal orientation and goal content as predictors of performance in a training program. *Journal of Applied Psychology, 84*, 863–873.
- Brockner, J., & Higgins, E. T. (2001). Regulatory focus theory: Implications for the study of emotions at work. *Organizational Behavior and Human Decision Processes, 86*, 35–66.
- Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology, 67*(2), 319–333.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227–268.
- Diefendorff, J. M., Hall, R. J., Lord, R. G., & Streat, M. (2000). Action–state orientation: Construct validity of a revised measure and its relationship to work-related variables. *Journal of Applied Psychology, 85*, 250–263.
- Elliot, A. J., & Thrash, T. M. (2002). Approach-avoidance motivation in personality: Approach and avoidance temperaments and goals. *Journal of Personality and Social Psychology, 82*(5), 804–818.
- Farr, J. L., Hoffmann, D. A., & Ringenbach, K. L. (1993). Goal orientation and action control theory: Implications for industrial and organizational psychology. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (Vol. 8, pp. 193–232). New York: Wiley.
- Kanfer, R., & Ackerman, P. L. (2000). Individual differences in work motivation: Further explorations of a trait framework. *Applied Psychology, 49*, 470–482.
- Kanfer, R., & Heggestad, E. D. (1997). Motivational traits and skills: A person-centered approach to work motivation. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 19, pp. 1–56). Greenwich, CT: JAI Press.
- Kuhl, J., & Beckmann, J. (1994). *Volition and personality: Action versus state orientation*. Seattle, WA: Hogrefe & Huber.

MULTILEVEL MODELING

As scholars of human behavior in organizations, industrial and organizational psychologists often find themselves trying to understand phenomena that are inherently nested, hierarchical, and multilevel. From private industry to universities to the military to nearly all forms of government, organizations comprise

hierarchical structures that loosely resemble pyramids (even if the structures resemble flat pyramids, they are still hierarchical).

Consider a large chain of department stores: Individual employees are nested within different departments (e.g., sporting goods, men's clothing, women's clothing), which are, in turn, nested within a store in a particular location, which is, in turn, nested within the overall organization. In this example, influences and consequences occur at the individual, department, store, and organizational levels of analysis, including relationships that cross these levels. Furthermore, the people within these units (department, store, organization) are not there randomly; rather, they share some similarities that make them distinct from other units. There are many consequences of this natural nesting, which will be described shortly. But first, let us consider the consequences of ignoring hierarchical structures in organizational research.

CONSEQUENCES OF IGNORING MULTILEVEL INFLUENCES

A number of theoretical and methodological fallacies may occur as a result of ignoring multilevel structures. This entry focuses on the following theoretical fallacies:

- Misspecification fallacies involve assigning the wrong level of theory to a construct. For example, a researcher may wish to study organizational flexibility, but using only measures of individual employee flexibility does not operationalize the construct at the appropriate (organizational) level.
- Cross-level fallacies involve inappropriately equating findings at one level to other levels. If a researcher adopts a theory of individual flexibility to understand organizational-level flexibility, he or she must show how the theory adequately explains phenomena at the organizational level or risk committing a cross-level fallacy.
- Contextual fallacies involve instances in which a researcher ignores important contextual (higher-level) influences on lower-level relationships and outcomes. This is a big one in psychology: For years, the field studied individuals as if situations did not matter. For example, if organizational flexibility constrains or enhances individual-level flexibility, then both levels should be studied to truly understand how individual flexibility relates to individual-level outcomes.

The bottom line is that ignoring multilevel relationships when they exist may lead us to inappropriate conclusions from our research. This is not a trivial issue because the validity of our science depends on adequately understanding these relationships.

PROPERTIES OF EMERGENCE

Measuring individual-level cognitions, attitudes, and behaviors is relatively straightforward. But how do such constructs manifest themselves in higher-level units such as teams and organizations? Sometimes, higher-level constructs are easy to measure (e.g., organizational size, location, or money spent on human resources). But more often than not, researchers want to understand psychological phenomena that exist at higher levels (e.g., climate, customer satisfaction, or turnover). Perhaps one of the most important theoretical advancements in recent years has been the clarification of the process of *emergence*—that is, how lower-level psychological constructs manifest as higher-level constructs. There are numerous ways this can occur, but for simplicity's sake, two extreme forms will be discussed.

First, *composition* represents similarity, consensus, or "sharedness" among within-unit observations. For example, if lower-level observations are hypothesized to be sufficiently similar to form some aggregate, higher-level construct, one is dealing with a composition model. In such a model, the higher-level construct is the unit average of within-unit members' scores. For example, organizational climate may be the average of all employees' climate perceptions within that organization. Notice what just happened: The mean scores within the organization were used to create an organization-level score based on that mean. Hence, there is no direct measure of organizational climate in this case but instead an indirect measure based on an average of employees' scores. Beyond having a strong theory to justify aggregation, one must statistically demonstrate it through indexes of agreement and consensus. A composition model, by focusing on similarity, frequently makes a claim that the lower- and higher-level constructs are reasonably isomorphic (i.e., similar in their nature).

Second, *compilation* represents dissimilarity, dissensus, or, simply put, within-unit disagreement. If it is hypothesized that the unit-level score is based on differences among unit members, then one need not

justify similarity to create the aggregate-level variable. Instead, one directly estimates the amount of within-unit disagreement. For example, climate strength is a variable that is hypothesized to explain how strongly climate perceptions are held. It has been operationalized as the within-unit standard deviation in climate perceptions. The higher the within-unit standard deviation, the more disagreement there is among unit members. There are other ways of operationalizing the unit-level compilation model, but the within-unit standard deviation appears to be the most popular.

Thus, composition and compilation processes represent two forms of emergence. They are not simply different sides of the same construct; with a perfectly normal distribution, means and variances are uncorrelated. In practice, they are often correlated with each other, and the researcher must clearly justify why one or both forms of emergence are relevant in a given setting.

TYPES OF MULTILEVEL RELATIONSHIPS

At the risk of oversimplifying a detailed topic, multilevel relationships can be categorized into three types. The first relationship is single level, wherein all predictors and criteria reside within a single level of analysis. This is the dominant approach in psychology, particularly industrial psychology. The second relationship is cross-level, wherein the predictors exist at multiple levels, but the criteria exist at a single level (alternatively, the predictors exist at a single level, and the criteria exist at multiple levels). For example, one might hypothesize that organizational climate moderates the relationship between individual service provider attitudes and individual customer's satisfaction. The final relationship is homologous, meaning that the same set of relationships is found at each level of analysis. For example, individual service provider attitudes may influence individual customer satisfaction, and aggregate organizational service climate influences aggregate customer satisfaction. A variety of advanced statistical techniques are capable of modeling the multilevel relationships described here, but the real difficulty is articulating a theory that makes such statistics meaningful.

SUMMARY

Industrial and organizational research continues to shift from single-level questions to multilevel questions. This research is challenging yet ultimately necessary if we are to truly understand how the behavior

of the people *within* organizations contributes to the behavior *of* organizations. Many advancements have already been made, and this is likely to be an active area of research for the next several years.

—Robert E. Ployhart

See also Multilevel Modeling Techniques

FURTHER READING

- Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 349–381). San Francisco: Jossey-Bass.
- Chen, G., Mathieu, J. E., & Bliese, P. D. (2004). A framework for conducting multilevel construct validation. In F. J. Dansereau & F. Yamarino (Eds.), *Research in multi-level issues: The many faces of multi-level issues* (Vol. 3, pp. 273–303). Oxford, UK: Elsevier Science.
- Hofmann, D. A., Griffin, M. A., & Gavin, M. B. (2000). The application of hierarchical linear modeling to organizational research. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 467–511). San Francisco: Jossey-Bass.
- Klein, K. J., & Kozlowski, S. W. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 3–90). San Francisco: Jossey-Bass.
- Ployhart, R. E. (2004). Organizational staffing: A multilevel review, synthesis, and model. In J. Martocchio (Ed.), *Research in personnel and human resource management* (Vol. 23, pp. 121–176). Oxford, UK: Elsevier.
- Von Bertalanffy, L. (1972). The history and status of general systems theory. In G. J. Klir (Ed.), *Trends in general systems theory* (pp. 21–41). New York: Wiley.

MULTILEVEL MODELING TECHNIQUES

As researchers who examine phenomena within and around organizations, industrial and organizational psychologists must deal with nested data. Consider that individuals are nested within job categories, job categories are nested within work groups, work

groups are nested within departments, departments are nested within organizations, and organizations are nested within nations and cultures. Furthermore, people do not enter these jobs and organizations in random ways; rather, people choose which organizational environments to enter, and organizations choose which people to select and retain. All of this leads to the important observation that much of the data obtained in organizational settings is unlikely to be independent within units. This, in turn, carries a statistical consequence: that some key assumptions of our tried-and-true statistical methods (regression and analysis of variance, or ANOVA) are likely to be violated in most organizational research.

Recently, several theoretical, methodological, and statistical advancements have made multilevel research more feasible. This entry focuses on one particularly useful statistical advancement, *hierarchical linear modeling* (HLM). This regression-based approach is useful for testing the presence of higher-level (contextual) effects on lower-level relationships and outcomes.

STATISTICAL CONSEQUENCES OF NESTED DATA

The general linear model, which subsumes both regression and ANOVA, assumes that errors are independent and normally distributed, with a mean of zero and a constant variance. Yet when the data are nested—for example, when the behaviors and attitudes of individuals within a team are affected by teammates—this assumption is violated. This is known as *nonindependence*, and its major consequence is that standard errors are smaller than they should be, which, in turn, contributes to inflated Type I errors. There are other, more subtle effects of nonindependence that can cause problems with estimation of effect size and statistical significance; the Further Reading section contains links for more details.

Nonindependence is most frequently documented by the intraclass correlation coefficient. When nonindependence exists, the use of HLM becomes problematic; however, we now have the tools to more directly model the data in such situations.

A NONTECHNICAL INTRODUCTION TO HLM

Many references to the technical details of HLM are provided in the Further Reading section. The purpose

of this entry is only to introduce the concept, and this is done through the use of figures and an example. Figure 1 shows a simple example in which organizational climate is hypothesized to influence individual job satisfaction directly, as well as the relationship between satisfaction and pay. This hypothesis can be represented in terms of two levels. In the Level 1 model, job satisfaction can be regressed on pay. One would expect a positive relationship, such that higher pay is associated with more job satisfaction. However, what if multiple organizations were sampled and it was found there are mean differences in satisfaction across organizations, as well as differences in the relationship between pay and job satisfaction? Such a situation might occur when individuals within an organization share at least some common sources of influence, hence the nonindependence of their job satisfaction scores.

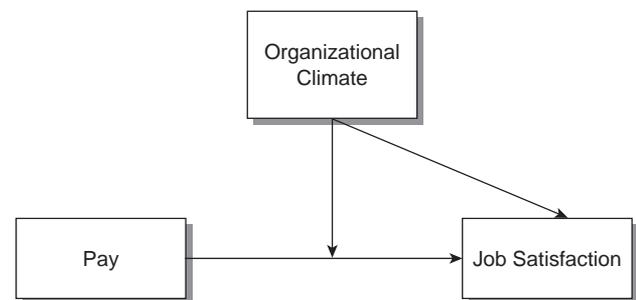


Figure 1 Graphical Example of Hierarchical Linear Modeling

The between-organization differences could be explained by organizational climate. Note that organizational climate would be considered a Level 2 predictor because the Level 1 scores are nested within organizations. Hence, one could determine whether organizational climate directly explains mean organizational differences in job satisfaction and whether the relationship between pay and satisfaction differs as a function of climate. The hypothesis might be that favorable climates enhance satisfaction and weaken the relationship between pay and satisfaction.

Thus, HLM offers the ability to link predictors at multiple levels of analysis with a dependent variable at a lower level of analysis. In the following section, some examples of research questions are provided in which HLM is most appropriate and necessary.

COMMON INDUSTRIAL AND ORGANIZATIONAL RESEARCH QUESTIONS THAT REQUIRE HLM

Hierarchical linear modeling is not necessary or even appropriate for all research questions. As reviewers and readers of the literature, we believe it is sometimes overused. In this section, examples illustrate HLM when it is most appropriate. For the sake of brevity, two major categories of applications of HLM will be considered, as well as the substantial research questions that can be addressed.

The first type of application supports a *mixed-determinants model*. This is the model described in Figure 1, which illustrates situations in which the dependent variable or criterion is at the lowest level of analysis and the independent variables or predictors are at the same or higher levels. In this case, the higher-level variable explains between-group and between-organization variance, and the lower-level variable explains within-group and within-organization variance. With regard to these models, researchers have identified four primary research questions that can be answered by HLM: (a) Does the unit in which individuals work make a difference? (b) What is the impact of individual differences across units? (c) Are individuals influenced by characteristics of the unit? and (d) Do unit properties modify individual-level relationships?

The second type of application in which HLM has proved useful is the analysis of longitudinal data. Longitudinal research questions are multilevel questions because the repeated observations within a person over time (Level 1) are nested within a person (Level 2). Such models are called *growth curve models*, and they need not occur only at the individual level; any repeated observations within a person, group, or organization can be modeled using growth models. Key questions of interest with growth models include the following: (a) Do individual differences change over time (intraindividual change)? (b) What pattern of change does the outcome variable follow over time (e.g., linear, nonlinear)? (c) Are there between-person differences in the change patterns (interindividual differences in intraindividual change)? and (d) Why are there individual differences in the change patterns? The advantage of applying HLM to these longitudinal models comes from its capability to simultaneously analyze intraindividual and interindividual differences, handle missing data and unequal measurement periods, and model correlated errors.

For example, one may want to understand how performance changes over time and the factors that explain this performance change. Suppose a researcher hypothesizes that (a) performance will follow a curvilinear pattern over time; (b) there are significant individual differences in performance change over time; and (c) personality explains these individual differences in patterns of change. In this situation, the Level 1 model has the repeated performance observations as the criterion and time as the independent variable (time may be structured in a variety of ways to test different patterns of change). Provided there are individual differences in patterns of change, we can determine whether these differences are explained by the Level 2 personality predictor.

SUMMARY

Although the origins of HLM can be traced back to decades of educational research, its applications in industrial/organizational psychology and organizational behavior have just begun to appear. Yet the timing could not be better: We now fully realize that many organizational phenomena are inherently nested and hierarchical. Hierarchical linear modeling has already been applied to such diverse topics as modeling the interaction between the individual and situation, understanding the dynamic nature of performance criteria, and illustrating the moderating effects of leadership climate, to name just a few examples. This technique is not a solution for all such questions; rather, it is most useful for questions in which the predictors exist at multiple levels and the criterion exists at the lowest level of analysis (this is true in both mixed-determinants models and growth models). These questions are frequently of great interest to organizational scholars. Therefore, HLM will likely continue to grow in application and help us to test our multilevel theories of organizational behavior.

—Robert E. Ployhart and Adrian H. Pitariu

See also Multilevel Modeling

FURTHER READING

Bliese, P. D. (2002). Multilevel random coefficient modeling in organizational research: Examples using SAS and S-PLUS. In F. Drasgow & N. Schmitt (Eds.), *Measuring and analyzing behavior in organizations: Advances in*

- measurement and data analysis* (pp. 401–445). San Francisco: Jossey-Bass.
- Bliese, P. D., & Ployhart, R. E. (2002). Growth modeling using random coefficient models: Model building, testing, and illustration. *Organizational Research Methods*, 5, 362–387.
- Hofmann, D. A., Griffin, M. A., & Gavin, M. B. (2000). The application of hierarchical linear modeling to organizational research. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 467–511). San Francisco: Jossey-Bass.
- Klein, K. J., & Kozlowski, S. W. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 3–90). San Francisco: Jossey-Bass.
- Ployhart, R. E., Holtz, B. C., & Bliese, P. D. (2002). Longitudinal data analysis: Applications of random coefficient modeling to leadership research. *Leadership Quarterly*, 13, 455–486.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Newbury Park, CA: Sage.

MULTITRAIT–MULTIMETHOD MATRIX

In 1959, Donald T. Campbell and Donald W. Fiske published an article in the *Psychological Bulletin* that, approximately 30 years later, would become the most cited article in the history of the social sciences. By 1992, it had been cited more than 2,000 times by other authors, and a 2005 search of the Social Sciences Citation Index showed more than 4,000 citations. The subject of this article was a statistical tool known as the *multitrait–multimethod* (MTMM) *matrix*. An MTMM matrix is a matrix of correlation coefficients computed between each pair of a set of measures (the correlation coefficients indicate how strongly each pair of measures is related).

The correlation matrix is intended to evaluate psychological measures—it is used to help determine how well scores on the measures actually reflect the intended traits. For example, personality traits such as extroversion and conscientiousness are often measured by self-reports, but they could also be measured

by reports from others (e.g., friends or coworkers). If all psychological measurements were perfectly accurate, we would not need to consider different methods because all would be identical. But measurements are never perfect; they can be influenced by a variety of factors in addition to the intended traits (e.g., a person's self-assessments of personality might partially reflect that person's idealized view of him- or herself instead of his or her actual personality). The MTMM matrix is designed to evaluate the extent to which measures are influenced by the intended traits versus other systematic factors, commonly referred to as *method effects*.

Industrial and organizational psychologists have made extensive use of the MTMM matrix. They have conducted large-scale reviews of MTMM studies of job affect and perceptions (using different standard surveys as methods), job performance ratings (using performance dimensions as traits and rating sources such as supervisors and peers as methods), and assessment centers (a set of exercises used to assess potential or current workers; the assessment dimensions serve as traits and the exercises serve as methods). Individual studies have focused on other topics, such as measuring personality. In many cases, the studies indicate substantial method variance—for example, job performance ratings are fairly heavily influenced by the perspective of the particular individual providing the ratings.

Computing the MTMM matrix begins with a study in which multiple traits are measured by multiple methods. This might mean that a sample of people are asked to complete a survey rating their own personality traits, and their personalities are also rated on the same survey by close friends and then again by coworkers. If, for example, five personality traits are measured by these three methods, there would be a total of 15 measures (five traits \times three methods). The MTMM matrix can then be computed.

In their original paper, Campbell and Fiske described two main components of validity that, when taken together, provide information on the overall validity of the measures. One component is *convergent validity*. This means that two measures of the same trait, provided by different methods, should converge on the same conclusion. If ratings of personality are valid, then reports of extroversion by friends and coworkers should tend to agree about how extroverted the person is. A second criterion is *discriminant validity*.

This means that measures of different traits should be distinct. When rating someone's personality, a friend or coworker should distinguish between that person's extroversion and his or her conscientiousness.

Statistical evaluation of the MTMM matrix is fairly complex, and there is no consensus that there is any single best way to do it. Table 1 shows a sample matrix from Campbell and Fiske's 1959 article in which five personality traits are rated for clinical psychology students living together in teams and participating in assessment exercises. Ratings of personality were provided by staff members, teammates, and the students themselves.

Campbell and Fiske stated that convergent and discriminant validity could be evaluated using four criteria. The first criterion, intended to evaluate convergent validity, is that measures of the same traits by different methods should correlate reasonably highly. These correlations are shown in Table 1 (in the "validity diagonals") in bold. The staff-teammate same-trait, different-method correlations average .47, which seems reasonable. Convergence between self-ratings and the two other methods is lower; the mean correlations are .32 for staff-self and .30 for teammate-self. Convergent validity is therefore fairly good, at least for staff and teammate ratings.

The other three criteria are aimed at evaluating discriminant validity. The second criterion is that the same-trait, different-method correlations should be higher than the different-trait, different-method correlations that surround them (shown in Table 1 in regular font). This criterion is generally met in Table 1; same-trait, different-method correlations are almost always higher than the different-trait correlations in the same columns and rows (even for self-ratings). Third, the same-trait, different-method correlations (on the validity diagonals) should be higher than correlations for different traits measured by the same method. The different-trait, same-method correlations are shown in italics. Again, the MTMM matrix in Table 1 generally meets this criterion.

Fourth, the various sets of different-trait correlations should all show the same pattern of correlations. These sets include, for example, different-trait correlations for staff (near the top of the MTMM matrix), correlations between staff and teammates (below the staff correlations), and correlations between staff and self-ratings (below staff-teammate ratings). For example, in Table 1, all correlations between *assertive* and *cheerful* are positive, indicating that assertive

people tend to be cheerful, whereas all correlations between *cheerful* and *serious* are negative, indicating a slight tendency for serious people to be less cheerful. Evaluation of this criterion is more subjective and involves comparing many correlations. Finally, the matrix in Table 1 was chosen by Campbell and Fiske because it demonstrates good convergent and discriminant validity. Many matrixes studied by industrial and organizational psychologists (and by researchers in other fields) have shown poorer results.

Recently, flaws in Campbell and Fiske's analysis procedures have been identified. For example, researchers have had to subjectively evaluate how well the criteria are met because there are no procedures for quantifying the criteria; the correlations in the matrix are influenced by how reliably the variables are measured; and there is no procedure for separating method effects from random errors of measurement. Since the publication of the original article in 1959, a variety of statistical methods have been suggested to overcome these problems. Currently, there is no consensus that there is any single best way to analyze MTMM matrixes, but one approach that has gained popularity is *confirmatory factor analysis*.

Confirmatory factor analysis provides quantitative methods for evaluating Campbell and Fiske's criteria, takes into account the reliability of the measures, and separates method effects from random errors. It deals with variation in each measure (e.g., ratings of extroversion), which simply means that some people are rated as more extroverted and others as less extroverted. This variation is conceived as a combination of three factors: (a) variation resulting from the trait (i.e., real differences in extroversion); (b) variation resulting from method effects (i.e., systematic factors unrelated to real differences—for example, a self-rater's desire to be extroverted rather than his or her actual extroversion); and (c) variation resulting from random factors (e.g., the rater's mood at the particular moment of rating).

The analysis estimates how much of the total variation results from each of the three factors. This is done separately for each measure by calculating the loadings of each measure on (a) its trait factor (e.g., a loading of an extroversion self-rating on the extroversion factor; extroversion ratings from other sources would also have loadings on this factor); (b) its method factor (all self-ratings, including the self-rating of extroversion, would load on the self method factor); and (c) a random factor (each measure has its own random factor).

Table 1 Multitrait–Multimethod Matrix Included in Campbell and Fiske’s 1959 Article

Staff Ratings	Staff Ratings					Teammate Ratings					Self-Ratings					
	A _i	B _i	C _i	D _i	E _i	A _i	B _i	C _i	D _i	E _i	A _i	B _i	C _i	D _i	E _i	
Assertive	1.00															
Cheerful	.37	1.00														
Serious	-.24	-.14	1.00													
Unshakable poise	.25	.46	.08	1.00												
Broad interests	.35	.19	.09	.31	1.00											
Teammate Ratings																
Assertive	.71	.35	-.18	.26	.41	1.00										
Cheerful	.39	.53	-.15	.38	.29	.37	1.00									
Serious	-.27	-.31	.43	-.06	.03	-.15	-.19	1.00								
Unshakable poise	.03	-.05	.03	.20	.07	.11	.23	.19	1.00							
Broad interests	.19	.05	.04	.29	.47	.33	.22	.19	.29	1.00						
Self-Ratings																
Assertive	.48	.31	-.22	.19	.12	.46	.36	-.15	.12	.23	1.00					
Cheerful	.17	.42	-.10	.10	-.03	.09	.24	-.25	-.11	-.03	.23	1.00				
Serious	-.04	-.13	.22	-.13	-.05	-.04	-.11	.31	.06	.06	-.05	-.12	1.00			
Unshakable poise	.13	.27	-.03	.22	-.04	.10	.15	.00	.14	-.03	.16	.26	.11	1.00		
Broad interests	.37	.15	-.22	.09	.26	.27	.12	-.07	.05	.35	.21	.15	.17	.31	1.00	

The confirmatory factor analysis results provide information similar to that provided by Campbell and Fiske's criteria—for example, the higher the same-trait, different-method correlations, the higher the trait factor loadings will be, indicating convergent validity. The confirmatory approach removes subjectivity by using statistical significance testing to determine whether there is significant convergent validity (trait variance) and significant method variance. It also quantifies how large the trait versus method effects are. This information can be useful for determining how “good” a measure is and which measures need to be improved (generally speaking, it is desirable to have high trait effects and small method and random error effects).

The confirmatory factor analysis approach does have its shortcomings. The sources listed in the Further Reading section may be consulted for more information on this topic, as well as for other analysis methods.

—Jim Conway

See also Quantitative Research Approach

FURTHER READING

- Campbell, D. T. (1992). Citations do not solve problems. *Psychological Bulletin*, *112*, 393–395.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait–multimethod matrix. *Psychological Bulletin*, *56*, 81–105.
- Kenny, D. A. (1995). The multitrait–multimethod matrix: Design, analysis, and conceptual issues. In P. E. Shrout and S. T. Fiske (Eds.), *Personality, research, methods, and theory: A festschrift honoring Donald W. Fiske* (pp. 111–124). Hillsdale, NJ: Lawrence Erlbaum.
- Lance, C. E., Noble, C. L., & Scullen, S. E. (2002). A critique of the correlated trait-correlated method and correlated uniqueness models for multitrait–multimethod data. *Psychological Methods*, *7*, 228–244.
- Marsh, H. W. (1989). Confirmatory factor analyses of multitrait–multimethod data: Many problems and a few solutions. *Applied Psychological Measurement*, *13*, 335–361.
- Schmitt, N., & Stults, D. M. (1986). Methodology review: Analysis of multitrait–multimethod matrices. *Applied Psychological Measurement*, *10*, 1–22.

N

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH/OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

The U.S. Congress passed the Occupational Safety and Health Act of 1970, which resulted in the formation of two federal agencies: the National Institute for Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA). These agencies were established to reduce and prevent work-related injuries, illnesses, and deaths. Although both organizations focus on work-related health issues, they serve distinct purposes and are located in different branches of the U.S. government. Often, NIOSH and OSHA work together in an effort to protect worker health and safety.

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

As part of the Centers for Disease Control and Prevention in the U.S. Department of Health and Human Services, NIOSH was established to conduct research and make recommendations pertaining to work-related injury and illness prevention. Headquartered in Washington, D.C., NIOSH has offices and research laboratories in Cincinnati, Ohio; Morgantown, West Virginia; Pittsburgh, Pennsylvania; and Spokane, Washington. Although all research facilities assess occupational health, most of the NIOSH investigations on occupational stress are conducted by researchers at the Cincinnati office. In 1996, NIOSH

and more than 500 partners developed the National Occupational Research Agenda (NORA), which identified 21 priority areas (e.g., traumatic injury, work-related musculoskeletal symptoms) to guide research in the occupational safety and health community.

Organizational Composition

Of NIOSH's more than 1,400 employees, many are research staff. Researchers at NIOSH work in multidisciplinary teams, representing a wide range of disciplines, such as epidemiology, industrial hygiene, occupational medicine, psychology, ergonomics, engineering, chemistry, and statistics. The institute is organized in nine research divisions:

- *Pittsburgh Research Laboratory*: addresses the safety and health hazards of mining (e.g., coal) and disaster prevention (e.g., mine ventilation, explosives safety)
- *Spokane Research Laboratory*: addresses mine safety and health, primarily in the metal and non-metal mining sector (e.g., detection/prevention of collapse of mine roofs)
- *Division of Applied Research and Technology*: aimed at preventing occupational injury and illness; assesses intervention effectiveness; examines ergonomic and organization of work factors (e.g., psychosocial factors) in work-related illness and injury
- *Division of Surveillance, Hazard Evaluations and Field Studies*: conducts systematic, ongoing research to examine patterns of work-related illnesses, exposures, and hazardous agents in the U.S. workforce; studies the causes of work-related diseases; provides technical help on occupational safety and health issues to other organizations

- *Education and Information Division:* creates/disseminates information; makes recommendations to prevent occupational injuries/diseases; develops risk assessments
- *Division of Respiratory Disease Studies:* aims to identify, evaluate, and prevent occupational respiratory diseases (e.g., asthma); administers legislatively mandated medical services for coal miners; researches the quality of respiratory devices
- *Division of Safety Research:* takes a public health approach to occupational injury prevention (including traumatic occupational injuries); incorporates surveillance, analytic epidemiology, safety engineering, and health communication
- *Health Effects Laboratory Division:* conducts laboratory research (e.g., on causes, prevention, and control of biological health problems resulting from workplace exposure to hazardous substances); develops interventions; designs, tests, and implements communications to control and prevent workplace safety/health problems
- *National Personal Protective Technology Laboratory:* aims to prevent and reduce occupational disease, injury, and death for workers who use personal protective technologies (e.g., respirators, chemical-resistant clothing)

Mission

The mission of NIOSH is to help assure safe and healthful conditions for workers by providing research, information, education, and training in occupational safety and health. To accomplish this mission, NIOSH has three primary objectives: (a) to conduct research in an effort to reduce work-related injuries and illnesses; (b) to encourage the safety and health of workplaces through interventions, offering recommendations and building capabilities in safe work practices and conditions; and (c) to enhance workplace safety and health around the world through international collaborations.

Functions

To further its mission, NIOSH engages in both intramural and extramural programs, which are aligned to increase research in the NORA priority areas. Intramural programs include the research conducted at the nine NIOSH research divisions described previously. Extramural programs provide opportunities for researchers at other institutions to conduct quality research, receive education and

training, and develop worldwide collaborations in the area of occupational safety and health. As part of its extramural program, NIOSH sponsors 16 Education and Research Centers (ERCs) and 35 Training Project Grants to enhance the training of occupational safety and health professionals and researchers. Some of the ERCs offer competitive pilot grants for doctoral students and junior faculty who conduct research related to occupational health and safety. The ERCs also provide continuing education programs for practicing professionals.

The Agricultural Centers Program also was established by NIOSH and is a national resource for agricultural health and safety problems by means of education, research, prevention, and interventions. More than 370 collaborative programs were established across the country via regional NIOSH Agricultural Centers and other regional and national agricultural agencies.

In addition, NIOSH runs state programs to enhance worker safety and health. Activities include grants and cooperative agreements to build competencies in state worker safety, evaluating hazards in the workplace and recommending solutions when requested, funding occupational safety and health research at academic institutions and other organizations, and supporting occupational safety and health training programs.

Further, the NIOSH Web site offers information on occupational health, including NIOSH publications, access to databases, and information on specific topics related to occupational safety and health. Also, NIOSH communicates occupational safety and health information in Spanish.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

Established in 1971, OSHA is a regulatory agency for worker safety and health protection in the U.S. Department of Labor. By providing leadership and encouragement to organizations, OSHA seeks to help them recognize and understand the value of safety and health at work. Under the Occupational Safety and Health Act of 1970, OSHA is authorized to conduct workplace inspections and investigations to assess the extent to which employers comply with the standards issued by OSHA for safe and healthy workplaces. The national office is located in Washington, D.C., and 26 states also run their own OSHA state programs.

Employees and Divisions

The Occupational Safety and Health Administration has more than 2,300 employees, including more than 1,100 inspectors, complaint discrimination investigators, physicians, standards writers, engineers, and educators, as well as other technical and support staff. The agency and its state affiliates have more than 200 offices in the United States and are organized in terms of 10 directorates. Aside from the three directorates that serve primarily administrative or support functions (e.g., public affairs, technical support), the directorates include the following:

- *Directorate of Construction:* works with the construction industry on engineering issues to improve safety and health awareness and reduce fatalities, injuries, and illnesses
- *Directorate of Cooperative and State Programs:* develops, recommends, and implements policies and procedures; coordinates programs that support OSHA's cooperative efforts (e.g., compliance assistance, small business assistance)
- *Directorate of Enforcement Programs:* establishes and maintains a comprehensive occupational safety and health compliance guidance and assistance program, as well as discrimination complaint investigation programs
- *Directorate of Evaluation and Analysis:* provides advice and recommendations to the assistant secretary for occupational safety and health and OSHA program directors based on evaluations, analyses, and studies it conducts in support of OSHA activities
- *Directorate of Science, Technology, and Medicine:* provides expertise on scientific, engineering, and medical issues pertaining to occupational safety and health; provides technical assistance and support to OSHA national and regional offices
- *Directorate of Standards and Guidance:* develops workplace standards, regulations, and guidance that are feasible, addresses significant workplace risks, and considers the potential effects of standards on the economy, affected industries, and small businesses
- *Regional Administrators, Occupational Safety and Health Administration:* plans, directs, and administers a comprehensive occupational safety and health program throughout the 10 U.S. regions and U.S. territories

Mission

The mission of OSHA is to assure the safety and health of America's workers by setting and enforcing

standards; providing training, outreach, and education; establishing partnerships; and encouraging continuous improvement in workplace safety and health. These strategies are authorized by the Occupational Safety and Health Act to help organizations reduce work-related illnesses, injuries, and deaths.

Functions

The primary function of OSHA is to establish standards for protection from work-related safety and health hazards, enforce those standards, and provide consultations and technical support to employers and employees. Nearly every type of worker is included within OSHA's jurisdiction, with a few exceptions (e.g., miners, transportation workers, many public employees, and the self-employed).

The agency promotes workplace safety and health through a variety of activities in pursuit of its mission (i.e., enforcement, outreach/education, and partnerships). In terms of enforcement, OSHA develops mandatory job safety and health standards and enforces them through worksite inspections, by providing assistance to employers, and by imposing citations and/or penalties. More than 39,000 federal inspections were conducted in fiscal year 2004, with more than half conducted in the construction industry. The penalty for violating an OSHA standard ranges from \$0 to \$70,000, depending on the likelihood that the violation could result in serious harm to employees. In addition to conducting inspections, OSHA establishes rights and responsibilities for employers and employees to reach better safety and health conditions. Further, the agency maintains a system to report and maintain records to monitor job-related injuries and illnesses.

In terms of outreach, education, and compliance assistance, OSHA establishes training programs to increase the competence of occupational safety and health professionals and to educate employers to reduce accidents and injuries. Also, OSHA supports the development of new methods of reducing workplace hazards and encourages organizations to reduce hazardous conditions (e.g., by applying new safety and health management systems or improving existing programs). Other sources of education include OSHA's Web site (www.osha.org), which offers publications and interactive e-tools to help organizations address specific hazards and prevent injuries, a hotline for workplace safety and health information

and assistance, and Spanish-language services (e.g., Web page, publications).

In addition, OSHA has cooperative programs, partnerships, and alliances to promote the safety and health of workplaces. For instance, OSHA partners with states that operate their own occupational safety and health programs, and it provides a consultation service regarding workplace safety and health issues.

—Jennifer Burnfield

See also Occupational Health Psychology

FURTHER READING

National Institute for Occupational Safety and Health. (2005, June). Retrieved March 29, 2006, from <http://www.cdc.gov/niosh>

Occupational Safety and Health Administration. (2003). *All about OSHA: Occupational Safety and Health Administration* (OSHA 2056-07R). Washington, DC: U.S. Department of Labor. Retrieved March 29, 2006, from <http://www.osha.gov/Publications/osha2056.pdf>

Occupational Safety and Health Administration. (2004, December). *OSHA facts*. Retrieved March 29, 2006, from <http://www.osha.gov>

NATURALISTIC OBSERVATION

Observational techniques, a cornerstone of the qualitative research paradigm, can be divided into two main categories: participant and naturalistic observation. *Naturalistic observation* is a method of collecting information in a setting in which the behavior of interest occurs, typically unbeknownst to the targets of observation. Naturalistic observation is often used by ethnographers examining cultural behavior, organizational development researchers, and program evaluators. The hallmark of naturalistic observation is the lack of intrusion by the researcher into the setting and behavior of interest. An example of naturalistic observation would be a training program evaluator watching the content of the training and participant observations through closed-circuit television to assess comprehensiveness of the training program. In this example, the participants are not aware of the observer and, as such, do not shift their behavior to make a favorable impression.

Participant observation is the other broad category of observational techniques and can take one of three forms:

- *Complete participant*. The researcher conceals his or her role to more fully examine the issue of interest.
- *Observer as participant*. The role of the researcher is known to those being observed.
- *Participant as observer*. The research function performed by the observer is secondary to his or her role as a participant in the actions and behaviors.

In all of these cases, the researcher's role as an observer is overt and may influence the behaviors of those being observed.

KEY ELEMENTS FOR CONDUCTING A NATURALISTIC OBSERVATION STUDY

As with any research design, decisions regarding the specific methods and scope of the study must be made. However, a number of decisions are unique to observational research:

1. *Level of involvement* of the researcher/observer depends on the nature and sensitivity of behaviors to be observed. Naturalistic observation is better suited to settings in which a researcher's presence might change the behavior (e.g., Western Electric employees in the Hawthorne studies). Participant observation may be more suited to those situations in which actively performing the behavior of interest lends a higher level of understanding to the researcher (e.g., understanding job content in the process of job analysis).
2. *Amount of collaboration* in the coding process depends on the setting of the observation (e.g., is it feasible to involve multiple coders?). The inclusion of two or more coders allows the research team to assess the interobserver reliability of their observations.
3. *Length of time* for observation of behaviors depends on the goal of the study. There are three general sampling frames for observational research: (a) Time sampling, in which the behavior is observed for a set period of time (e.g., 3 days); (b) point sampling, in which one individual or group is observed before moving on to the next individual or group of interest (e.g., observing the training department in one plant before moving to a different plant); and (c) event sampling, in which an event is observed every time it occurs (e.g., observing the administration of annual performance appraisals).

4. *Focus and nature of the observation* depends on the specific research question. The narrower the focus, the easier it will likely be to code the behaviors reliably and efficiently using a structured approach. Broader, unstructured context examinations (e.g., narratives) may be better suited for descriptive studies in the nascent stage of a research area.

The design of a naturalistic observation study relies on clarity in goals and measurement to target the behaviors of interest to adequately address the research questions. Because the behaviors of interest are occurring in their natural context, the researcher must be able to adeptly classify and interpret only relevant behaviors. For this reason, operationalization of behaviors is critical. The creation of a comprehensive coding sheet and training on the coding of behaviors is critical to ensure that behaviors are accurately captured.

Depending on the type of data collected during the observation period, analysis remains qualitative or turns to a more quantitative approach. If structured observation was used with behavioral checklists, descriptive statistical information may be compiled (e.g., frequencies). If the focus was broader and unstructured, narrative reviews may tell the story of the behavior in context.

RELIABILITY AND VALIDITY OF NATURALISTIC OBSERVATION

Interobserver reliability is the only way to assess the consistency of behavioral coding in a naturalistic observation study. For this reason, it is critical to include multiple coders in an effort to demonstrate a lack of observer bias. However, calculation of interobserver reliability is only feasible when using structured and systematic observation. If an unstructured method is used, demonstration of consistency in observation is very difficult.

In terms of validity, naturalistic observation sacrifices internal for ecological validity. Because the behaviors observed occur in context with no interference from researchers, the extent to which the behaviors observed in this naturalistic setting mimic the “real world” is very high. However, because the observer does not interact with or participate in the context of behavior, there is no control of potentially influencing variables. To link internal and ecological validity, an observational study may be used to

replicate and/or extend findings from a laboratory study on the same topic.

ADVANTAGES AND DISADVANTAGES OF NATURALISTIC OBSERVATION

The benefits of naturalistic observation research are numerous. Specifically, naturalistic observation allows researchers to examine behaviors directly in context without interference, thus providing a foundation for understanding the environmental conditions associated with the issues of interest. This is especially true when the topic under investigation is very sensitive or the presence of the researcher would likely influence behavior.

Beyond the time commitment required to conduct this type of research, the disadvantages of naturalistic observation center on three main issues: reliability, validity, and ethics. Because observation is an inherently perceptual process, bias can be introduced in the coding and interpretation of observational results in a number of ways (e.g., coding the behavior, interpreting results). Therefore, some question the accuracy of observation records (e.g., checklists, narrative reviews) and disregard their value as contextual markers.

As previously discussed, because the observer does not influence the situation, the influence of extraneous variables on the behaviors of interest cannot be assessed (e.g., no internal validity). The real-world aspect of the data may be high, but without the knowledge and/or control of influential variables affecting these behaviors, the value of the research may be limited.

Because of the unobtrusiveness of the researcher in naturalistic observation, informed consent cannot be given by participants. Under American Psychological Association (APA) guidelines, informed consent procedures do not need to be initiated when there is no expectation of harm to the participant as a result of the research.

However, the application of this standard has been controversial (e.g., R. D. Middlemist and colleagues' study of personal space invasions in the lavatory). Institutional review boards should provide guidance in the interpretation of waived informed consent for naturalistic studies.

—Jennifer P. Bott

See also Qualitative Research Approach

FURTHER READING

- Creswell, J. W. (1994). *Research design: Qualitative and quantitative approaches*. Thousand Oaks, CA: Sage.
- Denzin, N. K., & Lincoln, Y. S. (2000). *Handbook of qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.
- Middlemist, R. D., Knowles, E. S., & Matter, C. F. (1977). Personal space invasions in the lavatory: Suggestive evidence for arousal. *Journal of Personality and Social Psychology*, 35(2), 122–124.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

**NEED FOR ACHIEVEMENT,
POWER, AND AFFILIATION**

The need for achievement, power, and affiliation are three primary types of motives or motivational drives that influence a broad spectrum of behavior, from how one interacts on an interpersonal level to one's choice of and/or success in an occupation. These motives can be either *implicit*—that is, developed prior to the formation of language in the developing infant—or *self-attributed*, meaning they developed as a result of social and cultural influences. With an understanding of these sources of motivation, one can predict occupational performance and managerial success; design jobs and provide incentives most suited to an employee's type of motivation; determine the contexts in which employees will be most successful; and design training programs to enhance employee performance.

Implicit motives indicate the generalized orientation of an individual's motivation, whereas self-attributed motives indicate the context or under what circumstances the motive will find expression. Implicit motives are not readily recognizable to individuals, existing on a more subconscious level of awareness, and are associated with primary emotions such as anger, sadness, love, and happiness. These motives are measured by arousing them with stimuli that are associated with each motive in the form of pictures for which an individual writes a story that describes what he or she imagines is occurring in the picture. The tool used for this purpose is referred to as the Thematic Apperception Test (TAT), consisting of a series of pictures designed to elicit the three implicit motives. Alternately, self-attributed motives or needs, referred to with the subscript *san* (for "self-attributed need"), are related to motives that one would

consciously characterize oneself as having and are associated with behavior that is normative for a culture or group. They are measured best with self-report measures, because they are motives individuals would ascribe to themselves.

Implicit motives are useful for predicting long-term behavioral tendencies, whereas self-attributed motives are more useful for predicting short-term behavior that is contextually specific and more related to a conscious choice on the part of the individual. Implicit motives are more readily aroused by task incentives (i.e., a moderately difficult task for someone high in need for achievement), whereas self-attributed motives are aroused by more explicit social incentives (i.e., a task that can earn prestige for someone high in *san*Power). Measuring both types of motives together enhances the ability to predict a person's behavior beyond the individual measurement of either implicit or self-attributed motives alone.

NEED FOR ACHIEVEMENT

The *need for achievement* is defined as a continual striving for excellence, improvement in performance, and innovation. Those high in this need tend to take intermediate risks and prefer moderate challenges, ones that are not too easy yet ensure some measure of success. Individuals high in need for achievement (nAch) are more persistent in attaining goals and exert more effort when engaged in tasks than those who are low in nAch. Additionally, those high in nAch often attribute success to ability and failure to lack of effort, whereas those low in nAch attribute failure to lack of ability.

Occupationally, people high in nAch are ideally suited for entrepreneurial types of employment because of their preferences for being individually responsible for relevant outcomes, having the ability to select their own goals, the freedom to work toward their goals in a manner of their own choosing, and a desire for more immediate feedback that occurs often and is related to mastery (i.e., proficiency at completing a task). Their ability to readily obtain and use new information may also contribute to entrepreneurial success. Working environments that are less restrictive and allow greater autonomy in terms of procedures and work outcomes are contexts in which the high nAch individual will be most successful. High achievement motivation is associated with rapidity of promotions and increases in salary, in addition to future projections of income being greater for those high in nAch as compared with individuals with low

nAch. Of the three motives, nAch can be increased through learning or training, with the result being increases in managerial effort, sales performance, and academic success.

Given the desirable qualities of this motive, employers may be inclined to facilitate it in employees. To do so, employers must be aware that those high in nAch are motivated by the task itself and will perform best if given a moderately challenging task with few procedural and/or organizational constraints, performance feedback, and a goal that is future oriented (i.e., one that will help them achieve a desired future goal). Those high in *sanAch* will be more responsive to a working environment that encourages achievement and provides tangible rewards for an employee's efforts. If there is no external incentive, those high in *sanAch* will demonstrate decreases in performance, whereas those high in nAch (as well as those low in nAch) will not be responsive to external incentives.

There are two paths that direct the energies of an aroused motive toward behavioral expression, and these are polar in nature. The positive path is the motive to achieve success and is theorized to have resulted from positive parental reinforcement for achievement behavior demonstrated by the developing child. The negative path is the motive to avoid failure, which is theorized to result from punishment of the developing child for lack of achievement. Both paths result in need for achievement but have different behavioral manifestations. For example, people who have high nAch tend to persist at difficult tasks when the motive to avoid failure is greater than the motive to achieve success, whereas when the motive to achieve success is greater than the need to avoid failure, people persist at easier tasks. Furthermore, those high in nAch and low in the motive to avoid failure tend to be optimistic about success, set realistic performance goals, and persist in tasks unless there is a minimal chance of success. Those who are low in nAch and high in the motive to avoid failure tend to avoid tasks that will be evaluated and choose easy tasks or ones that are so difficult, few could successfully accomplish them.

NEED FOR POWER

The *need for power* is defined as the desire to have an impact on or influence another person or situation. Those high in need for power have a strong concern for reputation and engage in activities that are highly visible and designed to garner prestige. For them,

power needs to be of a direct and interpersonal nature, often legitimized by social systems. People high in need for power tend to have careers such as executives, teachers, journalists, and clergy—careers that afford one the ability to have influence over others. Often, the most successful managers and executives are characterized by a high need for power. Leaders who have high power motivation tend to create high morale in their subordinates, although they may not be generally liked by others (the need for power is negatively correlated with the need for affiliation).

The power motive, like the achievement motive, is characterized by two polarized aspects, personal power and social power. Personal power is more associated with the negative aspects of power and is characterized by aggressiveness and competitiveness, exploitation of others, excessive indulgence, relationship discord, and decreases in immune system function. Personal power is most associated with a fear of powerlessness, whereas social power is related to the motivation to influence. Social power is characterized by a concern for social, group, or organizational benefit and is less egoistic in nature. The degree to which individuals are more oriented to personal versus social power is contingent on their level of responsibility or activity inhibition. Those who have a high need for power and a high level of activity inhibition display more of the behavior associated with social power and fewer of the destructive tendencies characteristic of personal power.

NEED FOR AFFILIATION

The *need for affiliation* is defined as the desire to establish, maintain, and/or restore positive affective relationships. Those high in need for affiliation spend more time interacting with others, express more of a desire to be with others (as opposed to those low in this need), more readily learn social networks, tend to be more accommodating to others, and avoid situations that are characterized by interpersonal conflict. Individuals high in this need prefer to work with friends (rather than with experts, who are popular with those high in nAch), to have relationship-oriented feedback, and to work in supportive contexts. Compared with people low in this motive, those high in need for affiliation tend to interact more with others whom they like, like those with whom they interact more, and interact with and like those who are more similar to them in terms of values, attitudes, and beliefs. They are more likely to cooperate with and

adopt the views of individuals whom they like and tend to dislike people dissimilar to themselves.

The two polar aspects of need for affiliation are a desire for inclusion and a fear of rejection. The affiliation motive has been shown to be a poor predictor of social success, because it is essentially a measure of fear of rejection. People with high need for affiliation are no better at developing and maintaining quality relationships than people low in need for affiliation. This is likely because of the need for affiliation being related to actively striving for a relationship, which could result from being unable to have meaningful or successful relationships. A new motivational conceptualization called *need for intimacy* has been shown to be a better predictor of interpersonal and social success. The need for affiliation should be viewed as a measure of anxiety related to affiliation and concern about rejection.

—Jason R. Williams

See also Intrinsic and Extrinsic Work Motivation; Motivational Traits; Need Theories of Work Motivation

FURTHER READING

- McClelland, D. C. (1985). How motives, skills, and values determine what people do. *American Psychologist*, 40(7), 812–825.
- McClelland, D. C., & Burnham, D. H. (2003). Power is the great motivator. *Harvard Business Review*, 81, 117–123.
- Smith, C. P. (Ed.). (1992). *Motivation and personality: Handbook of thematic content analysis*. Cambridge, England: University Press.
- Stahl, M. J. (1986). *Managerial and technical motivation: Assessing needs for achievement, power, and affiliation*. New York: Praeger.
- Winter, D. G. (1996). *Personality: Analysis and interpretation of lives*. New York: McGraw-Hill.
- Winter, D. G. (1998). The contributions of David McClelland to personality assessment. *Journal of Personality Assessment*, 71(2), 129–145.

NEED THEORIES OF WORK MOTIVATION

Among the best-known theories of work motivation in both academic and applied settings are models predicated on the assumption that, at root, humans are need-driven creatures, most of whose behavior can

best be understood by examining their need states and identifying the goals or goal states they seek to satisfy their needs.

WHAT IS A NEED?

A variety of definitions of *need* have been offered, but the one favored by the author is attributable to Henry A. Murray. In his 1938 book *Explorations in Personality*, Murray wrote, first, that need is a hypothetical construct, not a physical entity: We cannot assess it directly or determine its color. It has no physical mass, density, or specific gravity. Second, Murray's definition also implies that a person in a state of need feels a force that activates and helps to direct him or her. Third, according to Murray, needs can be aroused by characteristics of the environment. A fourth feature of Murray's definition is that it helps us understand approach behaviors as well as avoidance behaviors. Needs are also tightly connected with emotions, although whether there are one-to-one connections between particular needs and specific emotions is still being examined by psychologists.

NEEDS AND BEHAVIOR

Perhaps the most important point in Murray's definition has to do with the connection between needs and behavior. A number of points need elaboration here. First, not all need-driven, goal-oriented behavior is successful in reaching the goals sought. The result is defined as frustration, and sometimes fantasy must suffice to quell the force generated by a need. Nevertheless, observing behavior as a means to infer a person's needs can be a tricky proposition. One reason for this difficulty is that most needs, except for the most basic biological ones, are said to be overdetermined—that is, instigated and directed by more than one motive. Hence, any behavior, such as quitting a job, may be motivated by the frustration of many needs, as well as by the attraction of an alternative job that may help to satisfy those frustrated needs and even satisfy other needs. Moreover, different people may seek the satisfaction of a common need through different behaviors. Jon may seek a leadership position in his union to satisfy power and affiliation needs, whereas Marie may coach junior hockey to satisfy her needs for power and affiliation. In short, there is a complex relationship between needs and behavior, and we frequently project our own need state or

behavior state onto others, assuming that others behave the same way(s) we do when in need.

Consider the difficulty involved in making inferences about the need(s) that determine a person's behavior. First, as previously mentioned, most motivated behavior is said to be *overdetermined*, meaning that deliberately or inadvertently, behavior is driven by the force to satisfy more than one need.

For example, an employee might seek a promotion for the sake of meeting several needs (although the person may be more conscious of the importance of some of them than others). The same need may be satisfied by any of a variety of acts. So our upwardly aspiring employee may in part be seeking greater satisfaction of esteem needs. Notice that gaining a promotion is one way—but only one way—to meet esteem needs. Volunteer service after hours or becoming president of the employees' union are alternative behaviors that might be employed. In short, there is no one-to-one relationship between the force of a particular need and the type of behavior observed. To complicate matters, there is a common tendency for people to *project* their own need-behavior styles into their interpretations of the behavior. (For example, one might conclude that a friend accepted a position at the grocery store rather than a flower shop because it is closer to his or her house. Here, the mistake would be attributing to the friend a preference for short commutes to work, mostly because the person making the attribution hates to commute long distances to work!)

NEED SATISFACTION

Need satisfaction is usually thought of as the feeling of relief or reduced tension that occurs after a goal has been attained or an act has been accomplished (e.g., a funny stomach following a favorite meal). In the case of certain needs, however, satisfaction may consist more of the experience one has while in the process of *reducing* the tension. Continuing our example, satisfaction consists of both the joy of eating and the state of having eaten. Moreover, greater satisfaction can occur when more tension is reduced, so people may be motivated to deprive themselves of gratification (within safe limits) so that they can experience greater subsequent satisfaction from the process of need fulfillment. Sexual foreplay illustrates this principle, as does the notion of not eating lunch to ensure that one has a strong appetite for a special dinner.

TYOLOGIES OF NEEDS

Much of the modern work on need theory has been devoted to making categories of needs. David McClelland, a student of Murray, spent much of his career pursuing the measurement and behavioral significance of three particular needs: power, affiliation, and achievement. Early work in this tradition suffered from problems of measurement, inasmuch as it relied heavily on the use of projective techniques to assess the strength of these needs in individuals. Nevertheless, the tradition started by McClelland and his colleagues has revealed considerable insight into the power–need profiles of effective and ineffective leaders and managers. McClelland and D. G. Winter even demonstrated in 1969 how the levels of achievement orientation in a society relate to its prosperity, and they had some success in developing achievement motivation in Third World countries, resulting in increased levels of entrepreneurial behavior in those countries.

HIERARCHICAL THEORIES

McClelland never suggested any relationships among his need categories, whereas another famous American psychologist, Abraham Maslow, did. His 1943 hierarchical theory of human motivation is among the most paradoxical approaches to work motivation. On the one hand, it is one of the most familiar theories among academics and practitioners, as noted by J. B. Miner in 2003. On the other hand, it is likely the most misunderstood and most frequently oversimplified and misrepresented. For decades after it was proposed, the theory enjoyed only mixed and poor evidence of scientific validity. But it has remained popular nevertheless.

Maslow's theory holds that there are basically five categories of human needs and that these needs account for much or most of human behavior. The needs vary in their relative *prepotency*, or urgency for the survival of the individual, arranging themselves in a hierarchical order of importance. As the most prepotent needs become reasonably satisfied, the less prepotent ones (the higher-order needs) become increasingly important for causing behavior.

The most prepotent needs in the theory are physiological in nature. They function in a homeostatic fashion, such that imbalances or deficiencies in certain physiological substances instigate behavior aimed at

restoring the balance by filling the deficiencies. Hunger, sex, and thirst are three examples of such needs. Next come the physiological needs, or so-called security needs. When unfulfilled, they possess the same sort of potential for dominating a person's behavior as the physiological needs do when they are not being met. Later versions of this model have often combined these two categories into one set, arguing that need frustration or a threat is equally powerful in instigating and directing behavior, whether posed at the physiological or security level.

The *love needs* are next in importance; that is, they take on comparatively more influence in behavior as the physiological and safety needs are reasonably satisfied. The individual desires relations with other people, and he or she will feel more compelled than before to achieve such relations. Feelings of loneliness, ostracism, rejection, and friendlessness will become more acute. Maslow claimed in 1954 that the thwarting of the love needs is at the root of many cases of maladjustment. The theory claims that people need both to give and to receive love, and that social interactions need not be cordial to satisfy these needs.

The *esteem needs* are the next most prepotent category in the hierarchy. Maslow groups them into two sets: one includes desires for strength, achievement, adequacy, mastery and competence, independence, freedom, and a fundamental confidence in facing the world. The second set consists of needs for prestige and reputation—the esteem of others. It motivates people to seek recognition, praise, dominance, glory, and the attention of other people.

The esteem needs are seen as less prepotent than the highest set of needs on the hierarchy—the so-called *need for self-actualization*. In his various writings, Maslow provided differing interpretations of the meaning of this need, but the clearest and most widely accepted view is that it consists of a requirement for individuals to fulfill their potentials, to become that which they are capable of becoming. An important feature of self-actualization needs is that they express themselves in different behaviors in different people. Moreover, the satisfaction of self-actualization needs tends to *increase* their importance rather than reduce it—they become somewhat addictive. This difference between self-actualization and the other needs in the hierarchy makes it the most unusual. These are the primary elements of Maslow's theory. More detailed descriptions and interpretations of the research into the theory were given by C. C. Pinder in 1998.

EXISTENCE, RELATEDNESS, AND GROWTH

About the time Maslow completed his writings about human needs, in 1972, Harold Alderfer generated and tested an alternative to Maslow's model, the theory of *existence, relatedness, and growth*. This model has its roots in Maslow's work, as well as in the theory and research of a number of other psychologists before Maslow who had been concerned with human motivation.

The theory posits three general categories of human needs, categories similar to, and partly derived from, those in Maslow's model. All of the needs are seen as primary, meaning they are innate to human nature, rather than learned, although learning increases their strength.

The first set in the model is referred to as the *existence* needs. They correspond closely to the physiological and security needs Maslow associated with species survival. Research by Alderfer and others justifies combining them into a single category.

Similarly, the goals typically sought by people to satisfy what Maslow calls *love needs* are fundamentally the same as those that are necessary to provide for the need for prestige or the esteem of others, as well as for the interpersonal-security needs included in the second level of Maslow's hierarchy. Successful satisfaction of each of the needs identified by Maslow requires interaction with other human beings and the development of meaningful relationships with others. Moreover, each of these three varieties of social needs, on a logical level at least, seem equally important, or prepotent. Therefore, these specific Maslovian needs are combined by Alderfer as the *relatedness* needs. Alderfer's third category roughly combines Maslow's concepts of self-esteem and self-actualization into a category he calls the *growth* needs.

CURRENT ASSESSMENT OF NEED THEORIES OF WORK MOTIVATION

As mentioned, decades of research following the publication of Maslow's work were not very encouraging. It took a while even to establish the distinctiveness of the categories. Cross-cultural work by Simcha Ronen in 1994 established at least a two-level hierarchy, with evidence that the physiological and security needs do form a coherent set, whereas the other needs may be essentially of equal importance among themselves. As in the case of so many theories of work motivation, it

may be that the need theories of work motivation are more valid than social scientists are capable of demonstrating, given the practical problems of measurement, manipulation (for experimentation), and generalization, not to mention the ethics of conducting internally valid research into this subject on human beings.

—Craig C. Pinder

See also Motivational Traits; Need for Achievement, Power, and Affiliation; Personality; Work Motivation

FURTHER READING

- Alderfer, C. P. (1972). *Existence, relatedness, and growth*. New York: Free Press.
- Latham, G. P., & Pinder, C. C. (2005). Work motivation theory and research at the dawn of the 21st century. *Annual Review of Psychology*, 56, 485–516.
- Maslow, A. H. (1954). *Motivation and personality*. New York: Harper & Row.
- McClelland, D. C., & Winter, D. G. (1969). *Motivating economic achievement*. New York: Free Press.
- Miner, J. B. (2003). The rated importance, scientific validity, and practical usefulness of organizational behavior theories: A quantitative review. *Academy of Management Learning and Education*, 2, 250–268.
- Murray, H. (1938). *Explorations in personality*. New York: Oxford University Press.
- Pinder, C. C. (1998). *Work motivation in organizational behavior*. Upper Saddle River, NJ: Prentice Hall.
- Pinder, C. C. (in press). *Work motivation in organizational behavior* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum.
- Ronen, S. (1994). An underlying structure of motivational need taxonomies: A cross-cultural confirmation. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 4, pp. 241–269). Palo Alto, CA: Consulting Psychologists Press.

NEGOTIATION, MEDIATION, AND ARBITRATION

The term *negotiation* conjures up a variety of images in people's minds, most notably deal making and dispute resolution. Indeed, individuals negotiate job assignments, supplier contracts, joint ventures, and the resolution of conflict in the workplace. Whether applied to crafting deals or resolving disputes,

negotiation refers to a joint decision-making process in which two or more parties, whose interests conflict, attempt to reach an agreement. When negotiations become difficult or impossible, and when the costs of disagreement are high, others often intervene. These third parties typically act as mediators or arbitrators as they assist negotiators in reaching agreement.

Negotiation, mediation, and arbitration are therefore distinct but related processes. An important difference among them, however, is in the degree of control individuals have over the process (i.e., *how* they come to agreement) and over the outcome (i.e., *what* agreement they reach). In negotiation, parties generally have a high degree of control over both process and outcome. For example, job candidates and recruiters work together through discussion and exchange of offers in an attempt to craft an agreement that is mutually acceptable.

When third parties become involved, however, negotiators (or disputants) relinquish some control for the sake of reaching agreement. In mediation, they give up control over the process, and in arbitration they give up control over the outcome. In other words, mediators work with the parties to help them develop and endorse an agreement, whereas arbitrators listen to the parties and impose a decision.

The study of negotiation and third-party processes has a long and somewhat fragmented history. In part, this complicated past arises from differences in the nature of the processes themselves and their objectives, as well as differences in their intellectual traditions. Not surprisingly, each has its distinct challenges; together, though, they promote processes designed to help individuals with diverse preferences work together to enhance individual and organizational effectiveness.

NEGOTIATION

Because of its link to deal making, negotiation is often conceptualized primarily in economic terms. Economists, some of the first scholars to study the topic, tend to adopt a prescriptive approach; that is, they analyze the outcomes that should result assuming that negotiators act rationally. From this perspective, negotiators are often believed to be *Olympian*, meaning that they are fully informed, having perfect information about their preferences, their counterpart's preferences, the possible outcomes, and the expected utility or value associated with those outcomes. They

are also believed to be motivated exclusively by self-interest, striving to make choices that maximize their individual outcomes.

Psychologically oriented researchers have challenged this perspective, pointing out that it fails to capture the experiences of negotiators and the complexity of their motivation. In reality, negotiators rarely know their counterpart's preferences and sometimes are even unsure about their own preferences, which may shift during the course of a negotiation. Moreover, negotiators are often concerned about the other party's outcomes as well as their own, suggesting that self-interest is not the only motivation.

Other perspectives have emerged, most notably cognitive and behavioral perspectives that are primarily descriptive and emphasize negotiator aspirations, perceptions, and behavior. Unlike the traditional economic approach, these perspectives focus on conflict situations as they are understood by actual negotiators who often have incomplete and perhaps biased information, limited cognitive capacity to remember facts and imagine possible alternatives, and multiple (often conflicting) motives. Psychological approaches analyze negotiation from a negotiator's point of view and identify the main tasks of negotiation.

Cognitive and Behavioral Perspectives

To analyze negotiation from a negotiator's point of view, two important questions need to be asked. First, what is the negotiators' best alternative to a negotiated agreement (BATNA)? Figuring out a negotiator's BATNA places a boundary on the negotiation and establishes a *reservation point*, which is the point at which a negotiator is indifferent between settlement and impasse. Because negotiators are unlikely to accept offers that are less attractive than their best alternatives, it is important to know the parties' reservation points.

Second, what are the negotiators' interests? That is, what are the reasons behind the positions they take in a negotiation? Consider a job candidate who asks a recruiter for a \$10,000 increase in starting salary because of a desire to pay down substantial educational loans. The candidate's interest is in paying down the loans, whereas the specific position the candidate has taken is for a \$10,000 increase in starting salary. Additionally, the candidate indicates that the starting date is relatively unimportant in comparison to the financial issues. This difference in the relative

importance of issues suggests certain tradeoffs or concessions the candidate might make during the negotiation.

Taken together, the assessment of the negotiators' BATNAs and interests create the structure or psychological context of the negotiation. It is within this structure that negotiators attempt to craft mutually acceptable agreements.

The Two Tasks of Negotiation

Working within this psychological context, negotiators face two primary tasks, namely *distribution* and *integration*. *Distribution* refers to the division of existing value or resources. When managers haggle over the size of their budgets, they are negotiating the division of a fixed resource or "pie." To reach a mutually agreeable settlement, negotiators generally engage in a give-and-take process and settle on a compromise. Because of the nature of the distribution task, tough bargaining tactics are commonplace, including misrepresentation, bluffing, silence, extreme positions, and threats to walk away. Distribution represents the competitive or win-lose aspect of negotiation.

Integration contrasts sharply with distribution and refers to the creation of additional value or resources. By discovering tradeoffs that meet both parties' needs, for example, negotiators increase the resource pie and create more value as a result of cooperating and working together. In general, when a negotiation involves multiple issues, which are valued differently by the parties, there is the potential for integration. For example, when organizations subsidize employee health club memberships, they are attempting to increase employee health and well-being as well as increase employee productivity, a tradeoff that is intended to create value. In general, integrative agreements that are created out of complementary interests tend to support and even strengthen long-term relationships between parties.

Although desirable, integration is not an easy task. To create integrative agreements, negotiators need to know each other's interests and be motivated to work creatively to meet each other's needs. Not surprisingly, integrative negotiations are often referred to as *joint problem solving*. Because of the nature of the integration task, cooperative bargaining tactics, including honesty, openness, information sharing, and trust, are commonplace. Integration reflects the cooperative aspect of negotiation.

Negotiations that involve both integration and distribution are called *mixed-motive* negotiations, primarily because they include both cooperative and competitive aspects. In general, most negotiations are mixed-motive. Even a negotiation such as buying an automobile, which may seem to be a purely distributive task, typically involves integration as well as distribution. For example, at some point in the negotiation, one of the parties may begin to expand the set of issues beyond price, to include such things as financing, new tires, floor mats, sound-system upgrades, extended warranty, and other issues that may be valued differently by the two parties. By adding issues to the negotiation, the resource pie increases; however, these added resources still need to be divided between the buyer and seller.

Perhaps one of the greatest challenges for disputants is to realize the integrative potential in their negotiations and to create mutually beneficial agreements. Many disputants feel uneasy about sharing information about their interests, which is an important part of identifying complementary interests and creating integrative agreements. In cases of protracted union-management negotiations, for example, the low level of trust between the parties may cripple integrative bargaining.

There are several cognitive biases that hamper effective integrative bargaining, most notably the *mythical fixed pie perception*. According to this perceptual bias, negotiators assume from the start that their interests and those of their counterpart necessarily and directly conflict. This initial win-lose bias, along with its associated tough tactics, heightens the competitive aspect of negotiation and hampers a problem-solving approach. For example, because of the mythical fixed pie perception, negotiators often misperceive shared interests as conflicting, leading them to overlook areas of mutual benefit.

WHEN OTHERS INTERVENE: MEDIATION AND ARBITRATION

When two parties run into trouble and can no longer manage their negotiation, they often turn to a neutral third party for help. For example, negotiations may become tense and difficult, creating frustration, anger, and distrust, or they may just stall because the parties lose momentum or direction, or find themselves at an impasse on critical issues. Sometimes third-party intervention is an informal process, such as when two

employees turn to a respected coworker or to their manager for help in resolving a dispute. Other times it is part of an organization's formal dispute resolution system, in which case it may be either voluntary or required.

In general, third-party intervention is designed to get negotiations back on track. At a minimum, it brings negotiators back to the table and provides a cooling-off process for highly emotional negotiations. It also can reestablish and refocus communication on the substantive issues and impose or reinforce deadlines designed to keep the negotiation moving forward.

Neutral third parties may also help negotiators resolve the *substance* of their conflicts. Mediators, who take control of the process, work with the parties both to repair strained relationships and to help them develop and endorse an agreement; mediators meet with parties individually, gaining an understanding of the various issues and perspectives, and identify—and help the parties develop—possible agreements.

Arbitrators, who take control of the outcome, help negotiators primarily by providing a solution. Thus, the goal of arbitration is to design settlements. In general, the arbitrator hears each party's case and then decides the outcome; however, there are several forms of arbitration. In binding arbitration, for example, the parties agree beforehand that they will accept any resulting settlement an arbitrator designs. In final-offer arbitration, parties submit their preferred agreements, one of which is selected by the arbitrator.

Mediation and arbitration may also be combined to create hybrid processes. In some organizational dispute-resolution systems, mediation is a preliminary step leading to arbitration if an agreement is not reached. The reasoning behind this “med–arb” procedure is that if the parties cannot craft a solution themselves with the help of a mediator, then the dispute automatically goes to arbitration (i.e., the mediator becomes an arbitrator) and is resolved for them.

Another hybrid process is “arb–med,” which consists of three phases. In the first phase, the third party holds an arbitration hearing and places the decision in a sealed envelope. This phase is followed by mediation, during which the arbitrator's envelope (i.e., decision) is prominently displayed. If mediation fails, the envelope is then opened, revealing the arbitrated decision. When comparing these two hybrid processes,

arb-med resulted in more mediated settlements and in settlements of greater joint benefit.

Like negotiation, mediation and arbitration can be extremely effective ways of resolving disputes. As mentioned above, when negotiations are tense and emotional, or if the parties reach an impasse and cannot themselves figure out a solution, it may be wise to involve a neutral third party. It can also offer the parties a way to save face by allowing them to make concessions during mediation without appearing weak, or letting them blame an arbitrator if the settlement is unsatisfactory to a party's constituents. Research shows that it is best to involve third parties only after negotiators have made a serious effort to resolve their own conflict and when they realize that they can no longer manage their negotiation. The use of third parties is particularly helpful for managing conflicts in ongoing work relationships.

Researchers also point out some important challenges, however. Turning to third parties, especially to arbitrators, usually signals that the negotiation process has failed and that the parties could not settle their differences themselves. In the case of ongoing work relationships, this failure can be problematic. Organizations generally prefer that workers become skilled in managing their relationships, even strengthening them to benefit the organization.

Additionally, because arbitration involves imposing a settlement on the parties, there may be less commitment to the settlement than if the parties crafted an agreement themselves. The process may also inadvertently create systemic problems. For example, merely anticipating arbitration may inhibit serious negotiation, especially when both parties feel strongly about their positions and believe that a neutral third party will side with them. Such overconfidence may undermine the negotiation process and needlessly escalate conflict. It may also jeopardize the parties' acceptance of the arbitrated decision.

One of the biggest challenges for neutral third parties is being perceived as neutral by both sides. To be effective, third parties need to be acceptable to both parties and perceived to be unbiased. This may be very difficult to achieve. For example, mediators require discretion: Even when feeling strongly about one party's proposal, they risk undermining the process by appearing to side with one party. They must be careful not to systematically favor one side or they may compromise their image of fairness and impartiality.

SUMMARY

Negotiation and third-party processes are part of everyday life in organizations. Work group members negotiate task assignments and days off, and prospective employees negotiate the terms of their new jobs. When negotiation stalls, third parties often step in and assist. Mediators take control of the process, attempting to help the parties find a mutually acceptable agreement. Arbitrators, who take control of the outcome, listen to the parties and then decide on a settlement. Negotiation, as well as third-party processes, has shortcomings. However, despite these challenges, these processes serve to help individuals with diverse preferences work together to enhance individual and organizational effectiveness.

—Susan E. Brodt

See also Conflict Management; Judgment and Decision-Making Process

FURTHER READING

- Babcock, L., & Laschever, S. (2004). *Women don't ask: Negotiation and the gender divide*. Princeton, NJ: Princeton University Press.
- Brett, J. (2001). *Negotiating globally: How to negotiate deals, resolve disputes, and make decisions across cultural boundaries*. San Francisco: Jossey-Bass.
- Brodt, S., & Dietz, L. (1999). Shared information and information sharing: Understanding negotiation as collective construal. *Research in Negotiation in Organizations*, 7, 263–283.
- Brodt, S., & Thompson, L. (2001). Negotiating teams: A levels of analysis framework. *Group Dynamics*, 5, 208–219.
- Friedman, R. A. (2000). *Front stage, back stage*. Cambridge, MA: MIT Press.
- Lewicki, R., Saunders, D., & Barry, B. (2005). *Negotiation*. Boston: McGraw-Hill/Irwin.
- Tinsley, C., & Brodt, S. (2004). Conflict management in East Asia: A dynamic framework and future directions. In K. Leung and S. White (Eds.), *Handbook of Asian management*. New York: Kluwer Academic.
- Walton, R. E., & McKersie, R. (1991). *A behavioral theory of labor negotiations* (2nd ed.). Ithaca, NY: ILR Press.

NETWORKING

Networking refers to the development, maintenance, or use of social or professional contacts for the purpose of exchanging information, resources, or

services. Networking typically occurs between two individuals but can be examined as an interaction between groups, companies, or institutions.

Industrial/organizational psychologists have been primarily concerned with how networking affects *individual* employment status and career mobility. For instance, in the context of job search, *networking* refers to contacting social and professional acquaintances, or other persons to whom the job seeker has been referred, for the purposes of gaining information, leads, or advice related to obtaining a job. Research suggests that as many as 60% to 90% of individuals find jobs by networking, as opposed to traditional job search methods, such as sending out lead inquiry résumés or responding to want ads. Similarly, networking is also used by individuals for the purposes of seeking promotion, gaining visibility, or seeking out career advice or mentoring (i.e., for the purpose of upward career mobility). In fact, research suggests that individual career mobility may be equally or more influenced by informal social relationships than by formal organizational policies and infrastructure.

Both the degree to which people engage in networking and the types of people with whom they network seem to play an important role in determining career outcomes. Although there has been relatively little research on networking behavior (e.g., the intensity with which one engages in networking), a fair amount of research (in particular, from the sociology literature) has examined the structural characteristics of individuals' current social and professional networks as predictors of career outcomes. A social or professional network can be thought of as a web or series of interconnected webs, whereby links or ties exist between focal individuals and the individuals or entities with whom they share a connection or relationship. Structural characteristics of networks include things such as the size of one's network, the strength of ties that exist between focal individuals and other individuals or entities in their network, and the diversity that exists among and between the various individuals or entities in one's network. In addition, the power and influence held by individuals in one's network may play a particularly important role in whether networking will lead to upward career mobility.

NETWORKING BEHAVIOR

Research suggests that not all individuals engage in networking to the same extent. In one of few studies

examining individual differences in networking behavior, Connie Wanberg and her colleagues examined both the intensity with which individuals engage in networking and the level of comfort (versus apprehension) individuals express about engaging in such behaviors during a job search. Results of this study suggest that individuals' reported *comfort with networking* is positively related to *networking intensity* (defined as an individual action directed toward contacting friends, acquaintances, and referrals to get job information, leads, or advice) and further, that the "Big Five" personality characteristics are all related to *networking comfort* and *networking intensity*. With the exception of neuroticism, which was negatively related, all traits were positively related to both comfort and intensity, with conscientiousness and extraversion being the strongest predictors of intensity. Finally, self-reported comfort with networking was related to networking intensity above and beyond the effects of personality.

In another recent study of networking behavior, researchers examined the extent to which several other individual differences predict networking intensity. Specifically, this study found no differences with regard to age, race, or gender when it came to the intensity with which individuals reported networking. However, proactive personality trait (the dispositional tendency toward proactive behavior across situations) was positively related to networking intensity.

STRUCTURAL NETWORK CHARACTERISTICS

Size of Network

Among structural characteristics of individual networks, the size of one's network is thought to affect access to information and leads. However, several qualifications about network size should be made. Namely, the strength of connections or ties, the diversity of contacts, and the status of contacts in one's network may have a bigger impact than network size alone.

Strength of Ties

Despite the size of one's network, dyadic relationship characteristics such as the strength of ties between individuals and their network contacts seem to be important predictors of information exchange. In

a seminal piece on network ties, Mark Granovetter explored the degree to which weak versus strong network ties would lead to information exchange. The idea set forth by Granovetter was that because individuals who share close or strong relationship ties (e.g., friends and family members) often share access to the same information, focal individuals can benefit more from maintaining weak ties with multiple individuals (e.g., acquaintances) who do not share common information with them. This argument, called the *strength of weak ties*, led to a series of studies examining the structure of networks, or *network analysis*, as a means of determining the relationship between network characteristics and career-related outcomes. The conclusion of the resulting body of literature on network ties is that both weak and strong network ties can be beneficial to career outcomes.

Diversity Among Contacts

In addition to research examining strength of ties, the diversity among contacts in one's network has been examined as a predictor of information exchange and positive career outcomes. In particular, work by Ronald Burt suggested that the extent to which one's network contacts know one another will determine the amount of overlapping and redundant information they offer. Thus, diversity among and between one's contacts will provide greater opportunities to access unique and different information.

Power and Influence of Contacts

Last, but certainly not least, the power and influence held by individuals in one's network may be one of the most important factors influencing the utility of networking for career success. In particular, the occupational status of one's contacts (e.g., a high-ranking manager versus a low-ranking nonmanager) may determine their ability to exert influence on one's career outcomes (e.g., hiring or suggesting that one be hired, exposing one to challenging projects that help one gain visibility in the organization), as well as the quality of information they have and are able to exchange (e.g., access to important leads, or reliable and accurate career advice).

—Tracy A. Lambert

See also Career Development; Job Search

FURTHER READING

- Burt, R. S. (1992). *Structural holes*. Cambridge, MA: Harvard University Press.
- Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360–1380.
- Granovetter, M. S. (1974). *Getting a job: A study of contacts and careers*. Cambridge, MA: Harvard University Press.
- Lambert, T., Eby, L. T., & Payton, M. (in press). Predictors of networking intensity and network quality among white-collar job seekers. *Journal of Career Development*.
- Lin, N., Ensel, W. M., & Vaughn, J. C. (1981). Social resources and strength of ties: Structural factors in occupational status attainment. *American Sociological Review*, 46, 393–405.
- Wanberg, C. R., Kanfer, R., & Banas, J. T. (2000). Predictors and outcomes of networking intensity among unemployed job seekers. *Journal of Applied Psychology*, 85, 491–503.

NEW EMPLOYEE ORIENTATION

New employee orientation occurs in almost every type of organization: schools, colleges, work organizations, government agencies, social/religious/volunteer organizations, the military, and prisons. The common objective is to help newcomers make a smooth transition from outside to inside the organization.

Despite the widespread use of newcomer orientation, very little research has been conducted about it when compared with other types of staffing activities, such as interviewing, testing, and recruitment sources. Although most organizations have common objectives for newcomer orientation, the methods used vary considerably both by organization type (e.g., military versus voluntary organizations) and even within a particular type of organization (e.g., work organizations).

We begin with a definition of *newcomer orientation* by comparing it with organizational socialization. Following this comparison, seven recommended principles for conducting newcomer orientation are presented.

DEFINITION

A definition of *newcomer orientation* should address four questions: (a) Who is involved? (b) When does it occur? (c) What is learned? and (d) How is the

teaching conducted? First, newcomer orientation concerns only those who are new members of an organization. It does not concern those who have been rehired, nor those who move internally, such as when a student changes his or her college major from music to business. Second, there is a loose consensus among writers that orientation almost always occurs on the first day, but less agreement exists as to how long it lasts. Most would agree that it probably does not go too much beyond the first week, as asserted John Wanous in 1992. Third, what is learned in orientation varies with both the amount of time devoted to it and the objectives to be achieved. A minimal orientation might include just the filling out of forms related to one's employment (e.g., income tax withholding and medical benefits), or it could be a tour of the organization. A typical newcomer orientation session is often limited to the presentation of factual information. Fourth, because presenting factual information is so common, the typical orientation methods and media are lecturing, videos, and brochures.

Another approach to defining *newcomer orientation* is to compare it with organizational socialization. This is because some writers do not separate them, by asserting that orientation is nothing more than the beginning of socialization. A different position is taken here. Newcomer orientation is not the same as organizational socialization, for a number of reasons.

First, orientation concerns a much shorter time period. Socialization continues well after the initial entry period. Socialization can occur years after entry, because it becomes relevant during internal transitions, such as a promotion or a move to a different functional area within the organization, as pointed out by E. H. Schein in 1971. Second, socialization typically involves a far greater number of organization members than does orientation. For example, coworkers usually are not involved in orientation. Third, the content of an orientation program is quite limited compared with socialization. Orientation concerns issues typically faced by newcomers, whereas socialization concerns all facets of one's experience in an organization. Many issues of concern in socialization do not occur until years later—learning and accepting organizational values, learning how to cope with organizational politics, understanding the performance expectations for one's own job, and so on. Fourth, the available research evidence shows that newcomers are under considerable stress resulting from organizational entry but that this stress decreases fairly rapidly.

As a result, newcomer orientation should concern how to cope with these particular stressors. Finally, orientation can be viewed as a specific event or program that is limited by both time and content, whereas socialization is considered to be a long-term process. Thus, it is much easier to conduct research on orientation than on socialization.

DESIGN OF NEWCOMER ORIENTATION PROGRAMS

Because there was no consensus about how to conduct newcomer orientation, John Wanous proposed in 1992 a new approach called Realistic Orientation Programs for new Employee Stress (ROPES). This approach was based on the idea that newcomers "need to learn the ropes" to be both effective and satisfied in a new organization. A key assumption of ROPES is that newcomers experience very high stress during their first few days. In 2000, Arnon Reichers joined with Wanous to update the ROPES model.

The ROPES approach to newcomer orientation incorporates ideas from three different areas of previously existing research: (a) both of the primary ways to cope with stress, (b) some of the principles for training developed by Arnold Goldstein and Melvin Sorcher, and (c) the stress-inoculation method described by Irving Janis and Leon Mann. With these three research areas as the foundation for ROPES, seven implementation principles were derived. Each is described below.

First, one of the two basic approaches for coping with stress has been called the *problem-focused* approach, because it concerns actions that a person can take to reduce stress by addressing its origin. Thus, newcomers need realistic information about the most likely causes of stress experienced by the typical newcomer. After being provided realistic information about the most common, important stressors, newcomers are also told about specific actions that can reduce stress. Bruce Meglino, Angelo DeNisi, Stuart Youngblood, and Kevin Williams provided an excellent example of this approach for those entering basic training with the U.S. Army. New recruits anxious about meeting new people are told that getting to know one new person is the best solution.

Second, the other basic approach for coping with stress has been called the *emotion-focused* method, because it concerns thoughts, feelings, and moods. This is an intrapsychic approach, and it is best used

when taking action to reduce stress is futile. Raymond Novaco, Thomas Cook, and Irwin Sarason provided an excellent example of this approach being used for U.S. Marines entering basic training. One aspect of emotion-focused coping is to provide emotional support, through statements such as, "Everyone feels the same pressure to perform well in rifle training . . . you can help yourself by focusing on the specific task at hand." Emotional support can also be more specific: "If you can make it through the first two weeks, you can make it through basic training."

Whereas the first two principles are drawn from the stress-coping research literature, the next three are drawn from advice on training adults to master specific types of interpersonal skills, developed by Goldstein and Sorcher, including how to give praise to an average-performing employee. Thus, the third principle for newcomer orientation is to use role models as examples of how to handle stressful situations. For example, consider the experiences of international graduate students in United States universities. Many such students, particularly those from Asian countries, are uncomfortable with asking questions or making comments in the classroom. Showing a short video of a student doing this successfully is the first step toward helping them overcome this fear and also demonstrates how to participate in class successfully.

The fourth principle follows directly from the third. It is to discuss what the role model did. In the example of international students, this is important so that newcomers can learn all of the specific actions necessary to speak successfully in class. The fifth principle is to have newcomers rehearse the actions that were shown by the role model. Learning is unlikely to result from just observing a role model, as is obvious to all novice golf and tennis players.

Principle 6 is to teach newcomers how to control their own thoughts *and* feelings, as demonstrated in research by Marie Waung. This is a technique that was initially developed to help patients cope with the stress of going to the dentist or undergoing an invasive or obnoxious medical procedure. As applied to newcomer orientation, such advice might be to "listen to what your drill instructor is saying, and try to ignore the shouting that goes with it."

Principle 7 is to target certain specific stressors to particular newcomers, as originally suggested decades ago by Earl Gomersall and Scott Myers. In any group of newcomers, it is likely that they will be dispersed throughout the organization, thus reporting to different bosses. To the extent that certain specific

characteristics of different bosses can be identified, the idea is to provide newcomers with the most relevant information for their own new boss. For example, one newcomer might be told: "Richard may appear to be unfriendly, but that is just his shyness. So, be sure to start a conversation on something you might have in common. His hobbies are . . ." A different newcomer in the same orientation session might be told: "Your new boss, Susan, prefers to have you check in with her before taking a break from work."

—John P. Wanous

See also Organizational Socialization; Organizational Socialization Tactics; Realistic Job Preview; Training

FURTHER READING

- Goldstein, A. P., & Sorcher, M. (1974). *Changing supervisor behavior*. New York: Pergamon.
- Gomersall, E. R., & Myers, M. S. (1966, July–August). Breakthrough in on-the-job training. *Harvard Business Review*, 62–72.
- Janis, I. L., & Mann, L. (1977). *Decision-making: A psychological analysis of conflict, choice, and commitment*. New York: Plenum Press.
- Meglino, B. M., DeNisi, A. S., Youngblood, S. A., & Williams, K. J. (1988). Effects of realistic job previews: A comparison using an "enhancement" and a "reduction" preview. *Journal of Applied Psychology*, 73, 259–266.
- Novaco, R. W., Cook, T. M., & Sarason, I. G. (1983). Military recruit training: An arena for stress-coping skills. In D. Meichenbaum & M. E. Jaremko (Eds.), *Stress reduction and prevention* (pp. 377–418). New York: Plenum Press.
- Schein, E. H. (1971). The individual, the organization, and the career: A conceptual scheme. *Journal of Applied Behavioral Science*, 7, 401–426.
- Wanous, J. P. (1992). *Organizational entry: Recruitment, selection, orientation, and socialization* (2nd ed.). Reading, MA: Addison-Wesley.
- Wanous, J. P., & Reichers, A. E. (2000). New employee orientation programs. *Human Resource Management Review*, 10, 435–451.
- Waung, M. (1995). The effects of self-regulatory coping orientation on newcomer adjustment and job survival. *Personnel Psychology*, 48, 633–650.

NOMOLOGICAL NETWORKS

The *nomological network* is a tool for construct validation (i.e., gathering evidence about the meaning) of

psychological measures. For example, construct validation of job performance ratings by supervisors should indicate what the ratings really mean, or how accurately they reflect actual performance levels. The goal is to link observable measurements to unobservable theoretical constructs.

In 1955, L. J. Cronbach and P. E. Meehl described the nomological network as a system of intertwined laws that make up a theory and stated that the laws in the network should generate testable predictions. Laws could relate measurements to each other (e.g., linking job performance ratings to scores on ability or personality measures), theoretical constructs to observed measurements (e.g., linking a rating of some aspect of job performance, such as effort, to the construct of effort), or constructs to other constructs (e.g., linking the construct of job effort to the personality construct of conscientiousness). Building a nomological network involves thinking about what construct is (or should be) measured by an instrument, what other constructs should be related to that construct, and what other measures should be related to the instrument of interest.

Psychological constructs are generally not directly observable, so it is not usually possible to directly determine how well a measure reflects the intended construct. Research based on a nomological network can provide indirect evidence of validity by demonstrating how well the measure correlates with other measures it should theoretically relate to. Confirmation of relationships predicted by the network supports the construct validity of a measure, whereas failure to confirm predictions leads to doubt about construct validity. (Note: A complication with failures of confirmation is that they could result from poor validity of the measure or from incorrect theory in the nomological network, or both.)

An example of a nomological network involves job performance. In recent years, industrial/organizational psychologists have theorized and researched a distinction between performance on required, job-specific tasks (task performance) and performance of behaviors that are less likely to be required and not specific to particular jobs (e.g., helping coworkers; doing things that need to be done but are not assigned to particular workers); this latter type of behavior has been referred to as *organizational citizenship*. If supervisors are asked to evaluate workers on both their task performance and citizenship, we might ask whether the ratings really adequately distinguish between the two performance constructs (i.e., we might question

the ratings' construct validity); alternatively, ratings might be subject to a *halo effect*, in which a general impression of a worker forms the basis for each (supposedly) separate evaluation.

Testing predictions based on a nomological network could help determine the construct validity of the job performance ratings. The research question concerns a link between observed measures of performance and their constructs. This question can be addressed indirectly by examining links between the performance measures and measures of theoretically related constructs. It has been theorized that the task performance construct should relate more strongly to ability constructs, and the citizenship construct should relate more to personality (e.g., conscientiousness) and job satisfaction. There exist measures of ability, personality, and job satisfaction that have been linked to their theoretical constructs. These measures can be used to test predictions from the nomological network. Research has provided some but not overwhelming support for these links, which raises questions about the validity of the performance ratings and/or the theory. For examples of how nomological networks can be applied to personnel selection measures, see the sources in the Further Reading section, which follows, by G. V. Barrett and J. F. Binning.

—Jim Conway

See also Construct; Criterion Theory; Job Performance Models; Validation Strategies

FURTHER READING

- Barrett, G. V. (1992). Clarifying construct validity: Definitions, processes, and models. *Human Performance*, 5, 13–58.
- Binning, J. F., & Barrett, G. V. (1989). Validity of personnel decisions: A conceptual analysis of the inferential and evidential bases. *Journal of Applied Psychology*, 74, 476–494.
- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52, 281–302.

NONEXPERIMENTAL DESIGNS

The most frequently used experimental design type for research in industrial and organizational psychology and a number of allied fields is the *nonexperiment*.

This design type differs from that of both the randomized experiment and the quasi-experiment in several important respects. Prior to describing the nonexperimental design type, we note that the entry on experimental designs in this volume considers basic issues associated with (a) the validity of inferences stemming from empirical research and (b) the settings within which research takes place. Thus, the same set of issues is not addressed in this entry.

ATTRIBUTES OF NONEXPERIMENTAL DESIGNS

Nonexperimental designs differ from both quasi-experimental designs and randomized experimental designs in several important respects. Overall, these differences lead research using nonexperimental designs to be far weaker than that using alternative designs, in terms of internal validity and several other criteria.

Measurement of Assumed Causes

In nonexperimental research, variables that are assumed causes are measured, as opposed to being manipulated. For example, a researcher interested in testing the relation between organizational commitment (an assumed cause) and worker productivity (an assumed effect) would have to measure the levels of these variables. Because of the fact that commitment levels were measured, the study would have little if any internal validity. Note, moreover, that the internal validity of such research would not be at all improved by a host of data analytic strategies (e.g., path analysis, structural equation modeling) that purport to allow for inferences about causal connections between and among variables (Stone-Romero, 2002; Stone-Romero & Rosopa, 2004).

Nonrandom Assignment of Participants and Absence of Conditions

In nonexperiments, there are typically no explicitly defined research conditions. For example, a researcher interested in assessing the relation between job satisfaction (an assumed cause) and organizational commitment (an assumed effect) would simply measure the level of both such variables. Because participants were not randomly assigned to conditions in which the level of job satisfaction was manipulated,

the researcher would be left in the uncomfortable position of not having information about the many variables that were confounded with job satisfaction. Thus, the internal validity of the study would be a major concern. Moreover, even if the study involved the comparison of scores on one or more dependent variables across existing conditions over which the researcher had no control, the researcher would have no control over the assignment of participants to the conditions. For example, a researcher investigating the assumed effects of incentive systems on firm productivity in several manufacturing firms would have no control over the attributes of such systems. Again, this would serve to greatly diminish the internal validity of the study.

Measurement of Assumed Dependent Variables

In nonexperimental research, assumed dependent variables are measured. Note that the same is true of both randomized experiments and quasi-experiments. However, there are very important differences among the three experimental design types that warrant attention. More specifically, in the case of well-conducted randomized experiments, the researcher can be highly confident that the scores on the dependent variable(s) were a function of the study's manipulations. Moreover, in quasi-experiments with appropriate design features, the investigator can be fairly confident that the study's manipulations were responsible for observed differences on the dependent variable(s). However, in nonexperimental studies, the researcher is placed in the uncomfortable position of having to assume that what he or she views as dependent variables are indeed effects. Regrettably, in virtually all nonexperimental research, this assumption rests on a very shaky foundation. Thus, for example, in a study of the assumed effect of job satisfaction on intentions to quit a job, what the researcher assumes to be the effect may in fact be the cause. That is, individuals who have decided to quit for reasons that were not based on job satisfaction could, in the interest of cognitive consistency, view their jobs as not being satisfying.

Control Over Extraneous or Confounding Variables

Because of the fact that nonexperimental research does not benefit from the controls (e.g., random

assignment to conditions) that are common to studies using randomized experimental designs, there is relatively little potential to control extraneous variables. As a result, the results of nonexperimental research tend to have little, if any, internal validity. For instance, assume that a researcher did a nonexperimental study of the assumed causal relation between negative affectivity and job-related strain and found these variables to be positively related. It would be inappropriate to conclude that these variables were causally related. At least one important reason for this is that the measures of these constructs have common items. Thus, any detected relation between them could well be spurious, as noted by Eugene F. Stone-Romero in 2005.

In hopes of bolstering causal inference, researchers who do nonexperimental studies often measure variables that are assumed to be confounds and then use such procedures as hierarchical multiple regression, path analysis, and structural equation modeling to control them. Regrettably, such procedures have little potential to control confounds. There are at least four reasons for this. First, researchers are seldom aware of all of the relevant confounds. Second, even if all of them were known, it is seldom possible to measure more than a few of them in any given study and use them as controls. Third, to the degree that the measures of confounds are unreliable, procedures such as multiple regression will fail to fully control for the effects of measured confounds. Fourth, and finally, because a large number of causal models may be consistent with a given set of covariances among a set of variables, statistical procedures are incapable of providing compelling evidence about the superiority of any given model over alternative models.

—Eugene F. Stone-Romero

See also Experimental Designs; Quasi-experimental Designs

FURTHER READING

- Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for field settings*. Boston: Houghton Mifflin.
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton Mifflin.
- Stone-Romero, E. F. (2002). The relative validity and usefulness of various empirical research designs. In

S. G. Rogelberg (Ed.), *Handbook of research methods in industrial and organizational psychology* (pp. 77–98). Malden, MA: Blackwell.

- Stone-Romero, E. F. (2005). Personality-based stigmas and unfair discrimination in work organizations. In R. L. Dipboye & A. Colella (Eds.), *Discrimination at work: The psychological and organizational bases* (pp. 255–280). Mahwah, NJ: Lawrence Erlbaum.
- Stone-Romero, E. F., & Rosopa, P. (2004). Inference problems with hierarchical multiple regression-based tests of mediating effects. *Research in Personnel and Human Resources Management*, 23, 249–290.

NORMATIVE MODELS OF DECISION MAKING AND LEADERSHIP

Psychologists who have advanced normative theories of management have typically advocated highly participative processes for making decisions. The principal basis for such prescriptions is the motivational benefit that results from a leader involving group members in decision making. In spite of this advocacy, reviews of the literature suggest a much more mixed picture of the consequences of participation.

One way of reconciling the inconsistent evidence is to attempt to identify the moderating variables that regulate these different effects. Such moderating variables could then be incorporated into a contingency theory to guide managers in selecting the degree of participation appropriate to each situation. In the early 1970s, Victor Vroom, working with a graduate student, Philip Yetton, formulated a normative model of leadership style that had that objective. Expressed as a decision tree, the model distinguished five degrees of participation and eight situational factors believed to interact with participation in determining its effectiveness. The Vroom–Yetton model inspired many studies aimed at determining its validity as well as its usefulness in leadership training. The validity data, summarized 15 years later by Vroom and Jago, showed that the incidence of successful decisions was about twice as high when the decision process used was consistent with the model as when it was inconsistent. Clearly the model had promise, but the research suggested that there was much room for improvement.

In the three decades since its original publication, the Vroom–Yetton model has been substantially revised, first by Vroom and Arthur Jago in 1988 and

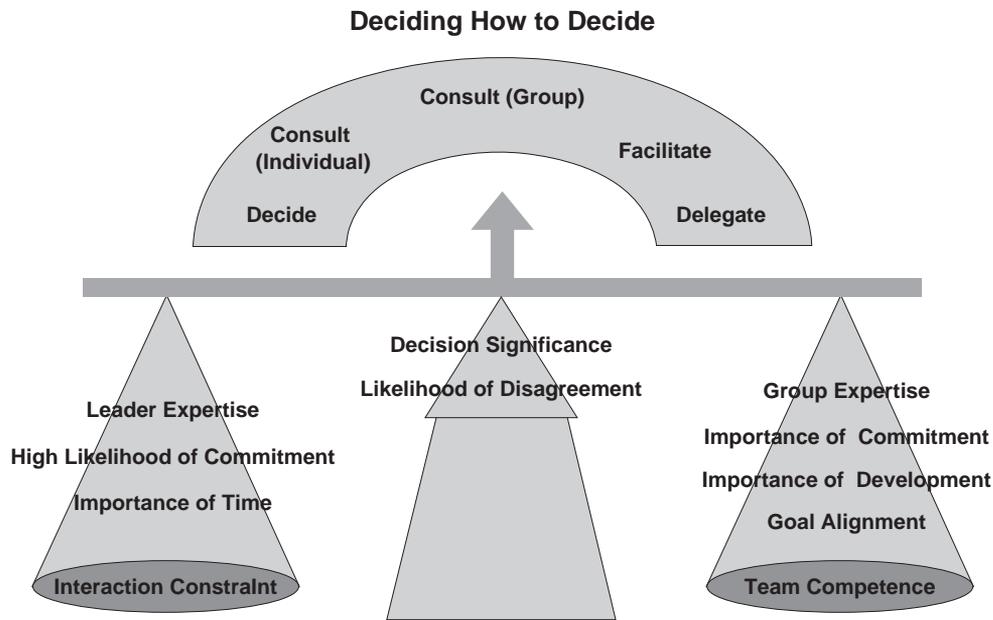


Figure 1 Scale Diagram

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in 2000 by Vroom. Its current structure is shown as a balance scale in Figure 1.

The five decision processes have undergone significant modification from the Vroom–Yetton model, as have the eight situational factors, which have been expanded to 11. The factors at the left-hand side drive the recommended process toward the more autocratic end of the spectrum, whereas those at the right favor a more participative approach. Finally, the two in the center, *decision significance* and *likelihood of disagreement*, interact with those at the left or right to determine the sensitivity of the scale. For example, when a highly significant decision is combined with factors at the left, the recommended process is shifted further toward autocratic methods. When it is combined with factors at the right, it will shift further toward participation.

Of course, the scale is only a metaphor for the actual model, which is driven by a set of equations. To use the model, a manager, faced with a specific problem to solve or decision to make, is asked for judgments (typically on a five-point scale) concerning each of the 11 factors. These judgments are entered into four equations that estimate the effects of each of the five processes on the quality of the decision, its likely implementation, the time consumed in making it, and the developmental benefits resulting from the

process. Finally these four consequences (quality, implementation, time, and development) receive differential weights corresponding to the manager's judgments of their importance in that problem.

Using the model sounds complicated but can be accomplished in less than one minute using a computer program called Expert System. Once the judgments are entered, the manager sees not a single recommended process (as in the Vroom–Yetton model) but a bar graph showing the relative estimated effectiveness of each of the five processes.

SCIENTIFIC IMPLICATIONS

It has been said that a theory should be evaluated not only in terms of its validity but also in terms of the questions it raises and the quality of research it stimulates. Jago has recently compiled a list of more than 100 studies in scientific journals and more than 40 doctoral dissertations dealing directly with the Vroom–Yetton–Jago models. The models have also stimulated the development of a novel measure of leadership style that has proven useful both in research and in leadership development. The measure uses a set of 30 real or realistic cases, each depicting a manager faced with a decision to make that would affect his or her team. For each case, the manager

chooses from the five alternative decision processes the one that he or she would select. The cases are not selected randomly, but rather on the basis of a multi-factorial experimental design in which eight principal situational factors are varied independently of one another. This property makes it possible to systematically determine how managers change their intended behavior as elements of the situation are changed.

With the advent of the Internet, it is now possible for a manager to view and respond to the cases online in one of several available languages. As an inducement to enter their choices, managers can choose two groups from a list, varying in organizational level, nationality, and industry, with whom they would like to be compared. Finally, the manager downloads a 12-page individualized report comparing his or her style with the model and with the chosen comparison groups.

The data obtained from this measure has taught us a lot about the correlates of leadership style including the influence of nationality, gender, functional specialty, and hierarchical position. Managers do vary their behavior over situations in a manner not unlike that shown in the previous figure. However, they differ from one another in two respects. The most obvious is a preference for one side of the scale or another. This is similar to what is meant by describing managers as *autocratic* or *participative*. But it should not be thought of as a general trait, because it accounts for only 10% of the total variance in behavior. Using the metaphor of the balance scale, it can be thought of as an extra weight added to one side of the scale or the other.

The other respect in which managers differ is the specific situational factors that govern their choices among the five styles. Although the pattern shown in the figure is a reasonable approximation of that of a manager choosing the modal response on each of the 30 cases, each individual manager displays a different pattern, ignoring factors or sometimes responding to them in a manner opposite to that prescribed by the normative model.

PRACTICAL IMPLICATIONS

Apart from the impact that the Vroom–Yetton–Jago models and derivative tools have had in the science of leadership, it is safe to say that it has had an even greater impact on the practice of leadership. About 200,000 managers around the world have now been

trained in the models. Invariably, such training has included feedback on responses to sets of cases showing managers how they compare with their peers, with occupants of positions to which they aspire, and with the model. In effect, managers can compare their model of decision making and leadership with those of other groups and with the normative model.

—Victor H. Vroom

See also Judgment and Decision-Making Process; Leadership and Supervision

FURTHER READING

- Vroom, V. H. (2000). Decision making and the leadership process. *Organizational Dynamics*, 28(4), 82–94.
- Vroom, V. H. (2003). Educating managers in decision making and leadership. *Management Decision*, 41(10), 968–978.
- Vroom, V. H., & Jago, A. (1988). *The new leadership: Managing participation in organizations*. Englewood Cliffs, NJ: Prentice Hall.
- Vroom, V. H., & Yetton, P. W. (1973). *Leadership and decision making*. Pittsburgh, PA: University of Pittsburgh Press.

NORMATIVE VERSUS IPSATIVE MEASUREMENT

Normative and *ipsative* measurements are different rating scales usually used in personality or attitudinal questionnaires. Normative measures provide inter-individual differences assessment, whereas ipsative measures provide intraindividual differences assessment. Normative measurement is very popular and prominent in the United States, and ipsative measurement is getting wider use in Europe and Asia.

NORMATIVE MEASUREMENT

Normative measurement usually presents one statement at a time and allows respondents using a five-point Likert-type scale to indicate the level of agreement they feel with that statement. Here is an example:

“I keep my spirits up despite setbacks.”				
1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

Such a rating scale allows quantification of individuals' feelings and perceptions on certain topics. Scoring of normative scales is fairly straightforward. Positively phrased items get a 5 when marked as *Strongly agree*, and negatively phrased items need to be recoded accordingly and get a 5 when marked as *Strongly disagree*. Despite occasional debates on the ordinal versus interval nature of such normative scales, scores of similar items are usually combined into a scale score and used to calculate means and standard deviations, so norms can be established to facilitate interpersonal comparisons. The normative scores can be submitted to most statistical procedures without violating the assumptions assuming the normative scores are accepted as interval-level measurements.

IPSATIVE MEASUREMENT

Ipsative measurement presents an alternative format that has been in use since the 1950s. Ipsative measures are also referred to as *forced-choice* techniques. An ipsative measurement presents respondents with options of equal desirability; thus, the responses are less likely to be confounded by social desirability. Respondents are forced to choose one option that is "most true" of them and choose another one that is "least true" of them. A major underlying assumption is that when respondents are forced to choose among four equally desirable options, the one option that is most true of them will tend to be perceived as more positive. Similarly, when forced to choose one that is least true of them, those to whom one of the options is less applicable will tend to perceive it as less positive. For example, consider the following:

"I am the sort of person who . . ."

- a. prefers to keep active at work.
- b. establishes good compromises.
- c. appreciates literature.
- d. keeps my spirits up despite setbacks.

The scoring of an ipsative scale is not as intuitive as a normative scale. There are four options in each item. Each option belongs to a specific scale (i.e., independence, social confidence, introversion, or optimism). Each option chosen as *most true* earns two points for the scale to which it belongs; *least true*, zero points; and the two unchosen ones each receive

one point. High scores reflect relative preferences/strengths within the person among different scales; therefore, scores reflect intrapersonal comparisons.

In an ipsative questionnaire, the sum of the total scores from each respondent across all scales adds to a constant. This creates a measurement dependency problem. For example, if there are 100 items in an ipsative questionnaire with four options for each item, the total score for each participant always adds up to be 400. Because the sum adds to a constant, the degree of freedom for a set of m scales is $(m - 1)$, where m is the number of scales in the questionnaire. As long as the scores on $m - 1$ scales are known, the score on the m th scale can be determined. The measurement dependency violates one of the basic assumptions of classical test theory—*independence of error variance*—which has implications for the statistical analysis of ipsative scores, as well as for their interpretation.

The problem with having the total ipsative scores add to a constant could be solved by avoiding use of total scores. The measurement dependency problem is valid when the number of scales in the questionnaire is small. However, the problem becomes less severe as the number of scales increases.

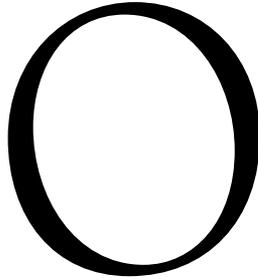
Readers who are interested in the reliability, validity, and comparability of normative versus ipsative measurements might study the works listed in the Further Reading section, which follows.

—Chieh-Chen Bowen

See also Individual Differences; Integrity Testing; Measurement Scales; Personality Assessment

FURTHER READING

- Baron, H. (1996). Strengths and limitations of ipsative measurement. *Journal of Occupational and Organizational Psychology*, 69, 49–56.
- Bowen, C.-C., Martin, B. A., & Hunt, S. T. (2002). A comparison of ipsative and normative approaches for ability to control faking in personality questionnaires. *The International Journal of Organizational Analysis*, 10, 240–259.
- Gordon, L. V. (1951). Validities of the forced-choice and questionnaire methods of personality measurement. *Journal of Applied Psychology*, 35, 407–412.
- Hicks, L. E. (1970). Some properties of ipsative, normative and forced-choice normative measures. *Psychological Bulletin*, 74, 167–184.



OCCUPATIONAL HEALTH PSYCHOLOGY

According to the National Safety Council, more than 5,500 workplace fatalities and 4.3 million injuries occurred in the United States in 2003. Estimates from the World Health Organization (WHO) show occupational injuries are a concern throughout the world. The WHO reports that there are approximately 268 million nonfatal workplace accidents each year causing more than three days of lost work, and roughly 160 million new cases of work-related illness. These occupational illnesses include but are not limited to musculoskeletal, respiratory, and circulatory diseases. In addition to occupational illness and injuries, occupational stress has been and still is a major concern throughout the world. This concern was evident when the 1970 Occupational Safety and Health Act (OSHA) specifically voiced the need to research occupational safety and health (OSH), including the study of psychological factors and job stresses on potential for illness, disease, or loss of functional capacity in aging adults. According to the Bureau of Labor Statistics, in 2003 the concern about stress remained justified; the OSHA *recordable* stress-related cases involving days away from work reached 5,639 in 2001. Compared with the total nonfatal injury and illness cases in 2001, stress-related cases showed higher percentages of long-term work loss (approximately 42.1% of stress-related cases involved 31 or more days away from work). The median number of days away from work was 25 for stress-related cases, which is substantially greater than that of other nonfatal injuries and illnesses.

Since 1990 concerns of human and financial losses associated with the aforementioned health issues have driven the development of a new discipline, occupational health psychology (OHP). Although the development of OHP may seem fairly recent, its roots can be traced back to the development of industrial/organizational (I/O) psychology. This common history will be reviewed in sections that follow. It should be noted that OHP and I/O psychology share a common history. Even today, the Society of Industrial and Organizational Psychology (SIOP) notes that quality of work life is a major concern encountered by I/O psychologists in their professional work.

In his presidential address to SIOP in 1988, D. R. Ilgen voiced the aforementioned concern and reminded I/O psychologists that occupational health is a timeless concern for obvious humanitarian and utilitarian reasons. Workers' health, either physical or psychological, has an immense impact on their families, colleagues, organizations, communities, and society as a whole. The challenges associated with occupational health can provide I/O psychologists with invaluable opportunities and internal rewards while investigating the etiology of illness, injuries, behavioral maladjustment or deficiency, burnouts, or psychological disorders occurring at work. Ilgen (1990) also raised a second concern from an economic perspective. He argued that an unhealthy workforce can lead to decreases in organizational productivity and individual performance, as well as an increase in health care costs. In a recent five-year prospective study, D. C. Ganster, M. L. Fox, and D. J. Dwyer (2001) lent credence to Ilgen's statement. Their study provided convincing evidence that changing job design in an effort to improve worker health predicts decreases in health care costs five years later.

HISTORICAL ROOTS OF OCCUPATIONAL HEALTH PSYCHOLOGY

The term *occupational health psychology* was first mentioned by J. S. Raymond, D. W. Wood, and W. K. Patrick in *American Psychologist* in 1990. Although OHP has been embedded within other disciplines, psychologists such as R. L. Kahn, Arthur Konhauser, Joseph Tiffin, and Morris Viteles have taken an active role in promoting workers' psychological and physical well-being for almost a century. The beginnings of this can be traced to events in the early 1900s in the fields of I/O and human factors psychology. For example, Hugo Munsterberg (1898 president of the American Psychological Association [APA] as well as one of the "fathers" of I/O psychology) studied accident prevention and safety promotion as early as 1913. Henry Elkind applied the concept of *preventive management* in 1931 to workers in organizations in an effort to help workers improve their mental health.

Although the previously mentioned cases suggest a long history of psychologists' concern for workers' well-being, most psychologists have primarily focused on healthy lifestyles and health promotion in the general population, not the working population specifically. Given that people spend a large portion of their lives at work, and that work often has a tremendous impact on their personal as well as family lives, it seems obvious and logical for psychologists in general and I/O psychologists in particular to use their unique strengths to assist workers and management to build healthy workplaces in which people employ their talents toward maximum performance and satisfaction, as pointed out by J. C. Quick.

WHAT IS OCCUPATIONAL HEALTH PSYCHOLOGY?

According to the Society for Occupational Health Psychology, OHP is an interdisciplinary specialty that blends psychology and occupational health sciences, such as public health or preventive medicine. The ultimate goal for occupational health psychologists in this new frontier is to improve the quality of work life by developing an array of primary, secondary, and tertiary prevention programs and strategies to reduce work stress and strain; promote safe and healthy work behavior; prevent accidents, illnesses, and injuries; and enhance work and family life.

The aims of primary prevention are to identify and eliminate individual and organizational health risks.

For example, organizations can redesign jobs to eliminate unsafe practices, individuals can learn how to manage time to reduce feelings of time pressure, and organizations can provide day care or eldercare for their employees so that workers experience less family-work conflict. When primary interventions fail, secondary interventions can be used, such as establishing social support networks at work, altering organizational structures, providing organizational and individual stress management, or developing family policies. Although primary and secondary interventions are preferred and tend to fall into the realm of I/O psychologists' specialties, tertiary preventions might also be needed to help employees cope with psychological or physical distress resulting from negative feedback from an assessment, layoff, job loss, or injury.

Although emerging from a blend of behavioral and social sciences and occupational health disciplines, the domains falling within OHP are not yet agreed on by researchers and practitioners. Regardless of what these domains might be in the future, OHP is intended to be inclusive and interdisciplinary in nature. OHP applies knowledge and methodology from areas such as occupational and environmental health, organizational behavior, human factors, sociology, industrial engineering, ergonomics, and economics. Possible OHP domains or topics can be reviewed in the *Handbook of Occupational Health Psychology*, the *Handbook of Work Stress, Counterproductive Work Behavior*, *The Psychology of Workplace Safety*, and *Health and Safety in Organizations*.

SURVEY OF RESEARCH AND PRACTICES IN OHP

There has been progressive advancement in OHP literature involving the investigation of plausible antecedents and determinants of occupational health and its consequences. These investigations have focused on one or more of the following:

- Dispositional factors, such as Type A, negative affectivity, and optimism;
- Societal and environmental factors, including workers' compensation and public health policies;
- Organizational factors, such as job design, organizational structure and climate, work arrangement, and compensation systems;
- Management factors, including leadership and communication;

- Family issues, such as variables associated with the interface between work and family; or
- Interactions among these variables.

This trend has encouraged psychologists to take a proactive role in preventing occupational illness and injury and workplace aggression, reducing work stress, strengthening the work–family relationship, and improving physical as well as psychological well-being.

Many of the issues in OHP are considered to be *soft* issues, such as work–family conflict, stress, or health, which might be viewed as less important in organizations, compared with bottom-line issues, including productivity and turnover. Since soft criteria, although they occur often at work, are bound to be de-emphasized because they lack the clear financial implications of *hard* criteria like productivity and turnover, it is important for I/O psychologists to develop empirically supported applications to promote healthy workplaces and demonstrate that these soft applications affect organizations' bottom lines. A few exemplary applications have been documented and will be briefly presented in the following text.

J. A. Adkins (1999) described the promising economic gains, such as workers' compensation costs, health care utilization rates, and mortality rates, of an organizational health center in the United States Air Force. The ultimate goal of the program was to develop a healthy workplace through promoting physical, behavioral, and organizational health so that organizational productivity could be maximized and workers' potentials could be optimized. Quick also documented the culture of Chaparral Steel Company that valued workers as resources rather than costs, and management made efforts to engage the minds and spirits of their workers. The economic gains in productivity—man-hours per ton of steel, sales, accidents, and turnover—were phenomenal.

OHP TRAINING PROGRAMS IN NORTH AMERICA AND EUROPE

An Institute of Medicine report in 2000, *Safe Work in the 21st Century*, voiced the urgency in training qualified OSH professionals while facing the challenges of a rapidly changing workforce in the 21st century. The report further pointed out the core disciplines in which OSH professionals should be trained. These core disciplines include occupational safety, industrial hygiene, occupational medicine, ergonomics, employee

assistance, and occupational health psychology. Compared with the more established disciplines mentioned earlier, OHP has been relatively less developed.

Beginning in the 1990s, several universities in North America and Europe have developed training in OHP. As the result of a needs assessment survey from human resources management programs and schools of public health, the APA and National Institute for Occupational Safety and Health (NIOSH) conducted a pilot program for postdoctoral training between 1994 and 1998 at three universities. The main objective was to broaden the knowledge and skills of postdoctoral professionals in a range of OHP-related disciplines. Similar to the nature of the aforementioned pilot programs, postgraduate OHP programs were also developed in Sweden and the Netherlands. In addition to postdoctoral and graduate studies programs, several universities in the United States and England have developed graduate-level OHP training programs. It should be noted that most of the graduate training programs in the United States have received funding from NIOSH and have been sponsored by the APA.

Although the previously mentioned programs have different emphases on OHP training, they all share at least one common characteristic: interdisciplinary training. More specifically, it is evident when looking at these programs that diverse faculty from psychology (e.g., I/O psychology, clinical and counseling psychology, health psychology, social psychology, human factors) and other disciplines (e.g., communications, epidemiology, ergonomics, industrial engineering, management, medicine, labor relations) play important roles in OHP training. The interdisciplinary training model is critical because discipline-specific training models as well as subdiscipline-specific training models tend to employ a myopic approach that fails to capture the complexity and multilevel nature of occupational health issues. For example, fatal or nonfatal work accidents are multilevel, complex, and dynamic phenomena, which can likely be attributed to a combination of cultural, societal, environmental, economic, organizational, ergonomic, management, psychological, and family factors.

FUTURE CHALLENGES IN OHP

Similar to any new specialty, the development of OHP is dependent on continuous advancement in research and practice. The inherent nature of OHP complicates the developmental process and makes for a number of

future challenges for the field. Foremost, traditional training in psychology tends to be discipline specific; OHP, however, is a blend of psychology and other occupational health sciences. Hence, I/O psychologists must step outside their comfort zones to incorporate findings and best practices from a variety of disciplines and diverse topics, such as integration of ergonomic principles, organizational support, and attitude change to promote healthy behaviors among office workers. Second, many criteria within the OHP realm present problems for research and practices. For example, if accidents, injuries, and illnesses are of interest to I/O psychologists, we must advance methodology to address issues such as low base rate, problems associated with reporting these incidents, and the delayed onset of many occupationally related illnesses. Third, it is important to point out that occupational health is more than merely the absence of injuries and illnesses at work. Hence, the traditional disease or management models (i.e., fixing symptoms or problems) would not be the best models to follow when I/O psychologists attempt to develop a healthy workplace. A new model must be created, which incorporates a more complete definition of health and can be accepted by stakeholders including governments, society, organizations, management, and workers. Finally, among the many goals to be achieved by organizations, occupational health is likely a long-term goal. This presents a problem for gaining access to organizations, which is particularly critical for advancing OHP research and practice. Given the intense competition in the business world, short-term goals will likely capture management's immediate attention; and occupational health might not be considered their first priority. As a result, I/O psychologists who are trying to gain access to organizations must seriously consider the short-term gains of occupational health interventions and, specifically, consider such things as the economic gains associated with these interventions to gain attention.

—Peter Y. Chen, Sarah DeArmond, and
Yueng-hsiang Huang

See also Quality of Work Life

FURTHER READING

Adkins, J. A. (1999). Promoting organizational health: The evolving practice of occupational health psychology. *Professional Psychology: Research & Practice, 30*, 129–137.

- Elkind, H. B. (Ed.). (1931). *Preventive management: Mental hygiene in industry*. New York: B. C. Forbes.
- Ganster, D. C., Fox, M. L., & Dwyer, D. J. (2001). Explaining employees' health care costs: A prospective examination of stressful job demands, personal control, and physiological reactivity. *Journal of Applied Psychology, 86*, 954–964.
- Ilggen, D. R. (1990). Health issues at work: Opportunity for industrial/organizational psychology. *American Psychologist, 45*, 273–283.
- Institute of Medicine. (2000). *Safe work in the 21st century: Education and training needs for the next decade's occupational safety and health personnel*. Washington, DC: National Academy Press.
- National Safety Council. (2004). *Injury facts 2004 edition*. Itasca, IL: Author.
- Occupational Safety and Health Act of 1970. (1970). Pub. L. No. 91-596, 84 Stat. 1590.
- Quick, J. C. (1999). The convergence of health and clinical psychology with public health and preventive medicine in an organizational context. *Professional Psychology, 30*(2), 123–128.
- Raymond, J. S., Wood, D. W., & Patrick, W. K. (1990). Psychology doctoral training in work and health. *American Psychologist, 45*, 1159–1161.
- Society for Industrial and Organizational Psychology. (2005). *Brief description of the specialty*. Retrieved August 12, 2005, from <http://www.siop.org/history/crsppp.htm>
- Society for Occupational Health Psychology. (2005). *What Is Occupational Health Psychology?* Retrieved July 15, 2005, from <http://www.sohp-online.org>
- Viteles, M. S. (1932). *Industrial psychology*. New York: W. W. Norton.

OCCUPATIONAL INFORMATION NETWORK (O*NET)

The Occupational Information Network (O*NET) refers to the database of worker and occupational attributes that succeeds the U.S. Department of Labor's (DOL) *Dictionary of Occupational Titles* (DOT) as the primary source of information for occupations in the U.S. economy. Although the DOT had held this title for many years, numerous events—including the explosion of new occupations that accompanied the Internet and technology age, the decline in blue-collar industrial/manufacturing occupations, the dynamic nature of many of today's jobs, and theoretical and methodological advances in our

understanding of work and job analysis—necessitated a new system for collecting and disseminating occupational information. The DOL responded by sponsoring the development of a computerized repository of occupational information that would permit rapid revision of the data, as well as easy access by the many individuals who wished to use the data therein.

With a strong theoretical framework, a procedure for updating content on a regular basis, an online viewer, associated career exploration tools, and links to current labor market data, O*NET offers current, diverse data on key occupations in the U.S. economy. Although no occupational information or classification system can be optimal for every purpose, O*NET provides many users with many ways of exploring the world of work.

O*NET CONTENT

Occupations

The occupational taxonomy included in O*NET products and tools differs from that used in the DOT so as to reflect the changing world of work. First, job analysts aggregated the more than 12,000 DOT occupations into a more manageable number of occupational units (OUs). The initial aggregation yielded 1,172 OUs, which have been further refined to the approximately 950 occupations that now constitute the Standard Occupational Classification System (SOC). Some DOT occupations were not aggregated and stand as SOC occupations today, whereas other SOC occupations comprise hundreds of DOT occupations. Consistent with the dynamic nature of today's world of work, new occupations continue to be added, whereas others are removed. Also contained by O*NET are crosswalks of SOC occupations to other classification systems such as the DOT and the Military Occupational Classification.

Descriptors

Second, O*NET describes occupations using an expansive set of variables drawn from a *content model*. The content model is a theoretical framework that specifies 21 types of occupational descriptors:

1. Training
2. Experience
3. Licensing

4. Generalized Work Activities
5. Work Context
6. Organizational Context
7. Occupational Knowledges
8. Occupational Skills
9. Tasks
10. Machines/Tools/Equipment
11. Labor Market Information
12. Occupational Outlook
13. Wages
14. Abilities
15. Interests
16. Work Values
17. Work Styles
18. Basic Skills
19. Cross-Functional Skills
20. General Knowledge
21. Education

These 21 classes of occupational information, in turn, can be placed into one of six broad categories:

1. Worker characteristics such as abilities and interests
2. Worker requirements including basic skills and education
3. Experience requirements such as training and licensing
4. Occupational characteristics including occupational outlook and wages
5. Occupational requirements such as work context and generalized work activities
6. Occupation-specific information including tasks and machines/tools/equipment

The variables of the content model can also be categorized according to whether they are *worker-oriented* or *job-oriented* and whether they apply to a specific occupation (*within-occupation*) or many occupations (*cross-occupation*). Worker-oriented variables that cross occupations include skills, abilities, and interests; those applicable within occupations include occupational skills and knowledge. Job-oriented

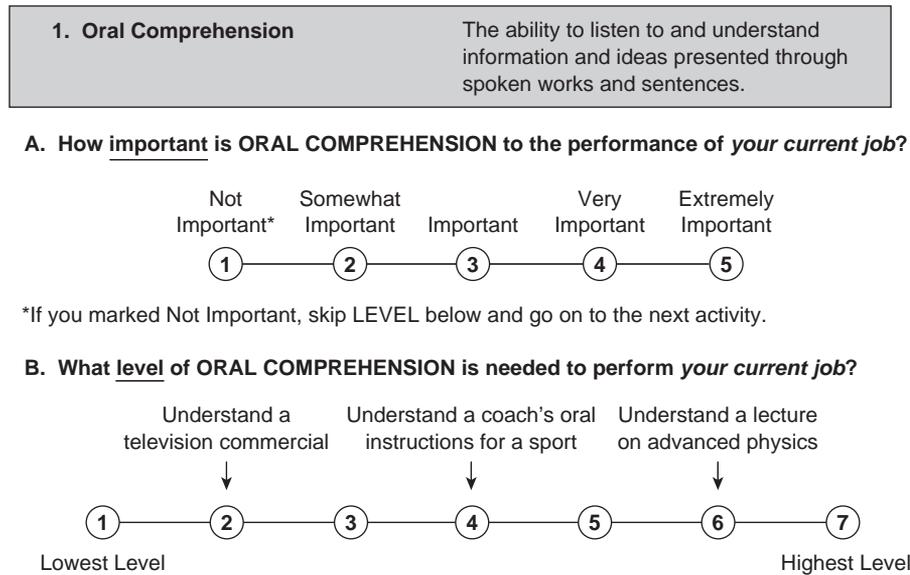


Figure 1 Sample Ability Rating Scale

variables that cross occupations include generalized work activities and organizational context; those applicable within occupations include tasks and machines/tools/equipment.

Each of the 21 classes of occupational descriptors defined by the content model comprises multiple variables on which each occupation receives ratings on appropriate scales such as importance, level, and frequency or extent. In all, the O*NET database describes each occupation using more than 275 variables. For example, there are 52 abilities that span the cognitive (oral comprehension, number facility), physical (gross body equilibrium, stamina), psychomotor (finger dexterity, speed of limb movement), and sensory (far vision, speech recognition) domains. Similarly, the 35 skills span six domains, including basic skills (mathematics, writing), social skills (negotiation, instructing), and systems skills (systems analysis, judgment and decision making).

Each occupation receives ratings of importance, level, and frequency or extent on each of these variables. A sample ability rating scale is given in Figure 1.

Initially, trained job analysts provided ratings of each O*NET occupation, but the National Center for O*NET Development is leading an effort to augment the O*NET database with ratings from job incumbents. Occupational experts are also used for occupations having few incumbents or for which incumbents are difficult to locate, and job analysts continue to

provide abilities ratings for all occupations. Incumbent data currently are added for approximately 200 occupations annually. Collectively, these data provide a rich, common language that can be used to describe occupations in the U.S. labor force.

THE O*NET SYSTEM

The O*NET database is part of the O*NET System, which also includes the O*NET OnLine viewer and O*NET career exploration tools.

O*NET OnLine

O*NET OnLine is a viewer that is available on the Internet. Hosted by the National Center for O*NET Development, the viewer affords O*NET users several options for using information provided in the O*NET database. For example, the viewer permits individuals to search for occupations via keywords or occupational codes, explore various job families, find occupations that match their skill profiles, or cross-walk occupations from other job classification systems to their counterpart SOC occupations.

Career Exploration Tools

DOL offers several vocational assessment tools that can be linked to the occupational information in

the O*NET database. With an eye toward whole-person assessment, the O*NET career exploration tools (provided in both paper-and-pencil and computerized versions) allow individuals to determine their standing on abilities (Ability Profiler), vocational interests (Interest Profiler), and work values (computerized Work Importance Profiler, paper-and-pencil Work Importance Locator).

—Rodney A. McCloy

See also *Dictionary of Occupational Titles*; Job Analysis; Person–Vocation Fit; Work Values

FURTHER READING

- Donsbach, J., Tsacoumis, S., Sager, C., & Updegraff, J. (2003). *O*NET analyst occupational abilities ratings: Procedures* (FR-03-22). Alexandria, VA: Human Resources Research Organization.
- Levine, J., Nottingham, J., Paige, B., & Lewis, P. (2000). *Transitioning O*NET to the Standard Occupational Classification*. Raleigh, NC: National Center for O*NET Development.
- McCloy, R., Campbell, J., Oswald, F., Lewis, P., & Rivkin, D. (1999). *Linking client assessment profiles to O*NET occupational profiles*. Raleigh, NC: National Center for O*NET Development.
- Peterson, N., Mumford, M., Borman, W., Jeanneret, P., & Fleishman, E. (1999). *An occupational information system for the 21st century: The development of O*NET*. Washington, DC: American Psychological Association.
- U.S. Department of Labor. (1991). *Dictionary of occupational titles* (Rev. 4th ed.). Washington, DC: Government Printing Office.

OLDER WORKER ISSUES

Older workers compose a growing segment of the workforce who must contend with a variety of distinctive concerns as they navigate their careers. Special concerns include physical, cognitive, and emotional changes that accompany the aging process, sources of work stress for older workers, the specter of age discrimination in employment opportunities, late career and skill maintenance concerns, and ultimately, decisions about when and how to retire from active employment. Evidence indicates that older adults are capable of maintaining high performance levels and positive attitudes toward work late into their lives.

Industrial/organizational (I/O) psychologists can use information about challenges that confront older workers to develop recruitment and retention strategies and work designs that allow older workers to maintain their performance effectiveness and to see work as a satisfying and rewarding experience.

AGE AND WORKFORCE DEMOGRAPHICS

The point at which the term *older worker* is applied in studies of workforce demographics may be as early as 40 years of age or as late as 65 years of age. Nonetheless, studies of workforce demographics all come to similar conclusions: The proportion of older adults who continue to engage in paid employment well into their 60s and 70s is growing and the proportion of our workforce that can be classified as *older* will continue to expand throughout the next decade.

Labor force participation rates generally tend to drop off beginning at about age 55 years, due primarily to early and *normal* retirements. However, labor force participation rates among those who are age 55 years and older are on the rise, with a projected labor force participation rate of 37% among those 55 and older by the year 2010. Among those ages 55 to 64 years, participation rates are expected to exceed 60%, and participation rates among those aged 65 to 74 are expected to exceed 22%. In fact, it is projected that *over 55* workers will compose approximately 17% of the total civilian labor force in the United States by the year 2010. The growth of this segment of the workforce represents the convergence of several forces, including increased health and life span, economic policies that encourage prolonged working (e.g., increases in the *standard* retirement age that qualifies an individual for full Social Security benefits), and elimination of mandatory retirement policies from most civilian occupations in the United States.

CHANGES THAT ACCOMPANY AGING

Several aspects of physical work capacity, such as aerobic capacity, strength and endurance, tolerance for heat and cold, and ability to adapt to shifts in waking and sleeping cycles, systematically decline with age. Sensory skills such as visual acuity and auditory sensitivity, and some psychomotor abilities including manual dexterity and finger dexterity, begin to decline once workers move into their 40s and beyond. Of course, the extent to which such decrements are likely to be

associated with performance problems depends substantially on the nature of physical job requirements.

The most consistent finding in studies of cognitive abilities across the life span is a general slowing of response to information processing demands as adults age, particularly as they move into their 60s and beyond. In addition, recall and working memory both decline with age. Also, the manner in which learners prefer to acquire new skills differs between younger and older learners, with older learners preferring more active, experiential learning approaches and preferring to learn at a somewhat slower pace. Certain aspects of cognition are more affected by aging than others, and the rate of decline is slowed when cognitive skills are used regularly—*use it or lose it* seems to be an apt phrase in this case. Furthermore, some aspects of intellectual development—notably, those aspects of cognitive functioning that rely on expert knowledge (or *wisdom*)—continue to increase or remain stable well into the 70s.

Most personality traits are quite stable throughout the life course, but a general dampening of emotional responsiveness accompanies the aging process. There are also age-related shifts in the kinds of coping strategies that adults use to manage stressful experiences and increased skill in using such strategies.

Normal aging is also accompanied by increased frequency and severity of health concerns. Many older workers function with a variety of chronic health conditions, such as arthritis and chronic back pain, which also prompts them to carry out work duties while coping with some degree of pain or mobility impairment. All these factors have implications for physical stamina and the ability to sustain physically and mentally demanding work.

With all these changes in mind, it is important to point out two other sets of findings regarding age-related changes and characteristics. First, from life span studies, we know that the rate and extent of age-related change differs considerably among adults. This is a recurring theme of findings regarding cognitive and physical abilities, health status, and most other characteristics relevant to work functioning. Thus generalities regarding characteristics of older workers will frequently be incorrect for a particular individual worker.

Second, it is a common misconception that the changes accompanying aging will inevitably be associated with systematic declines in motivation, work attitudes, and job performance. Although it is

certainly true that changes in physical and cognitive functioning that accompany the aging process provide the *potential* for reduced performance in some kinds of jobs, evidence of performance declines with aging tends to be the exception rather than the rule. There is little evidence that levels of motivation differ as a function of worker age, and studies of the relationship between age and work performance show no systematic relationship between the two. Absenteeism rates are generally low among older workers, and the frequency of accidents is actually lower among older workers than among younger workers. Furthermore, attitudes such as job satisfaction are somewhat more positive among older workers than among younger workers.

SOURCES OF WORK STRESS

Workers experience occupational stress when there is a mismatch between the demands of the job and the capabilities and resources of the worker. The changes that accompany aging provide some guidance regarding the conditions under which older workers are most likely to experience stress and the strains that accompany prolonged stress, such as performance decrements, injuries, negative work attitudes, and mental and physical health symptoms.

For example, jobs that require heavy lifting and tasks that involve external pacing and substantial time pressure produce chronic demands that may be of particular significance to older workers. Likewise, hot and cold work environments may be physically more taxing to older workers than they are to younger workers; and work schedules that require night work will be more demanding for older workers than for younger workers.

Other features of job design, such as the widespread incorporation of technology in the workplace, may produce both threats and opportunities for older workers. On the one hand, technological innovations (e.g., adjustable illumination and font sizes on computer displays and ergonomically designed chairs and workstations) can be used as a way of redesigning work to accommodate needs of older workers, thus reducing some sources of work-related stress. On the other hand, new technologies often require skill sets that many older workers have not developed. The threat of obsolescence that this raises can serve as a stressor that is particularly salient to older workers.

Older workers are also at risk from organizational sources of stress associated with their work roles. For example, time pressures and work *overload* have become a way of life on many jobs. The long-term nature of their exposure to the constant pressure of too much to do and insufficient time to accomplish it increases the likelihood that older workers will experience negative consequences, including *burnout* and reduced health and well-being.

Distinct from work design, the social environment in which work takes place exerts a variety of pressures on older workers that may be experienced as stressful, or that may reduce their ability to cope effectively with work demands. These include subtle or overt forms of age discrimination, hints about what older workers *can* and *should* do, and organizational cultures that devalue experience and *wisdom*.

AGE DISCRIMINATION

Although evidence regarding the relationship between worker age and work performance suggests that worker age is a singularly *poor* predictor of work performance, older workers encounter a variety of barriers to employment opportunities that reflect discrimination on the basis of age. Studies have documented age discrimination in many occupations with respect to hiring, promotions, salaries, and access to development opportunities. Sometimes the discrimination is fairly blatant, but at other times it represents more subtle (and often unintentional) differences in the way older workers and younger workers are treated at work.

One of the most common explanations for age discrimination is that managers and other decision makers are influenced by stereotypes that depict older workers as less capable, less energetic, less creative, more rigid, and less willing to learn than younger workers. This has the potential to put older job candidates at an unfair disadvantage when competing against younger applicants for jobs, promotions, and development opportunities. An additional unfortunate consequence of age discrimination is that it creates an environment in which older workers sometimes feel threats to their job security and, quite reasonably, experience anxiety about becoming re-employed should they lose their jobs.

To combat age discrimination in the United States, legal protections are afforded to older workers by the Age Discrimination in Employment Act. This

legislation protects employees 40 years of age and older from discrimination on the basis of age in hiring, promotion, discharge, wages, and conditions of employment.

CAREER AND WORK-LIFE ISSUES

Workplace norms and expectations about appropriate career trajectories, such as the sense that an individual is *stalled* with respect to career advancement, cause considerable distress and distraction for many older workers. As organizational structures continue to *flatten*, the problem of career plateaus has become more widespread because there are fewer opportunities to continue upward movement.

Training and retraining are an important means of ensuring that older workers can continue to perform their jobs effectively and that they can move into new jobs and career paths later in their careers. Unrestricted opportunities for new skill development, support for participation in training, and training program design that incorporates the learning styles and preferences of older workers are all important to ensuring that late-career workers can continue to be effective in their work.

Among their work-life concerns, many older workers are likely to have significant responsibilities for the care of elderly adults, financial responsibility for college students, and concerns about coordinating their own plans for retirement or continued work with those of a spouse or partner. To be responsive to the work-life needs of older workers, employers need to take these kinds of concerns into account when they develop programs aimed at providing workers with options for balancing their work and personal lives.

RETIREMENT DECISIONS

As they move into their 50s and 60s, most workers devote considerable time and energy to wrestling with decisions about if and when to retire. Retirement decision making is a complex process that includes consideration of the *timing* of retirement (retire at age 55? 65? 75? Never?); the *completeness* of retirement, such as complete permanent withdrawal from the paid workforce versus alternative work arrangements such as part-time work or so-called *bridge* employment; and the *voluntariness* of retirement including feeling *pushed* out of a job or retiring for health reasons versus retiring to spend more time with family and other personal pursuits.

Personal preferences, health, and economic and social pressures to continue working or discontinue working as one nears *normal* retirement age all play important roles in this process. For example, early retirement packages offered by many organizations as a way of reducing their workforces provide opportunities for some workers to leave the workforce early or shift to new careers. Chronic health problems may speed retirement; or they may lead to the decision to delay retirement to maintain access to health care benefits. In addition, personal preferences for continued work and the financial pressures of eldercare and family education lead many older workers to continue some form of paid employment well past the age of 65 years, but it may not be in the form of traditional full-time employment. As a result, the reality of retirement is that many workers will move into and out of the workforce several times during their later years, and organizations can make best use of the talents of these workers if they design flexible work arrangements that can accommodate this kind of movement.

—Janet L. Barnes-Farrell

See also Age Discrimination in Employment Act; Careers; Retirement; Stereotyping; Stress, Consequences

FURTHER READING

- Adams, G. A., & Beehr, T. A. (Eds.). (2003). *Retirement: Reasons, processes and results*. New York: Springer.
- Barnes-Farrell, J. L. (2004). Older workers. In J. Barling, K. Kelloway, & M. Frone (Eds.), *Handbook of work stress* (pp. 431–454). Thousand Oaks, CA: Sage.
- Farr, J., & Ringseis, E. (2002). The older worker in organizational context: Beyond the individual. In C. Cooper & I. Robertson (Eds.), *International review of industrial and organizational psychology, 2002 Vol. 17* (pp. 31–75). New York: Wiley.
- Fullerton, H. N., & Toossi, M. (2001). Labor force projections to 2010: Steady growth and changing composition. *Monthly Labor Review, 124*(11), 21–38.
- Hansson, R. O., DeKoekkoek, P. D., Neece, W. M., & Patterson, D. W. (1997). Successful aging at work: Annual review, 1992–1996: The older worker and transitions to retirement. *Journal of Vocational Behavior, 51*, 202–233.
- McEvoy, G., & Cascio, W. (1989). Cumulative evidence of the relationship between employee age and job performance. *Journal of Applied Psychology, 74*, 11–17.
- Sterns, H., & Huyck, M. H. (2001). The role of work in midlife. In M. Lachman (Ed.), *Handbook of midlife development* (pp. 447–486). New York: Wiley.

OPEN-ENDED DATA COLLECTION APPROACHES

See CONTENT CODING

OPTIMISM AND PESSIMISM

The terms *optimism* and *pessimism* refer to the tendencies of people to expect that good things will happen and to expect that bad things will happen, respectively. Persons who believe that their goals can be achieved despite the difficulties they might encounter are said to hold an optimistic view. They are predisposed to think that whatever problems may come their way, they will be able to manage and resolve them. Pessimism is the general tendency to expect negative outcomes. These individuals tend to view future experiences negatively. They are predisposed to think about the potential negative outcomes of whatever problems, setbacks, challenges, or difficulties are placed in their way.

In recent years optimistic and pessimistic expectations have been found to predict who will succeed. Regardless of job or level in the organization, individuals encounter many *curve balls*: changes, obstacles, difficulties, or adversities on the job. Whether it is dealing with a sudden change in procedures; an irate customer, coworker, or boss; or an accidentally deleted important e-mail, it is estimated that the average employee can face up to 23 adversities in just one day. How well employees handle these job challenges can affect how productive they are as well as their ability to learn, adapt, overcome future obstacles, meet goals, and even lead others. In sum, how successfully employees deal with adverse situations affects their success as well as the organization's success. Thus optimism and pessimism can have important ramifications for an organization in the selection, training, motivation, and work life of its employees and leaders.

BACKGROUND AND KEY ISSUES

It has only been within the past 35 or so years that we have seen a renewed interest among psychologists in understanding the constructs of optimism and pessimism and their effects on individuals' lives. Michael Scheier and Charles Carver were the pioneers of this

research stream based on their studies examining generalized outcome expectancies. Martin Seligman's work on learned helplessness and more recently, positive psychology, has also provided a strong influence for sparking additional research. Today we see an explosion of studies examining the effects of optimism and pessimism on our health, physical and mental well-being, and psychological adjustment. It has generally been found that those who tend toward an optimistic perspective experience fewer physical symptoms of stress, cope more effectively with stressful events, and adjust better to important life transitions. The positive effects for optimism tend to be explained by the type of coping strategies typically embraced by those with an optimistic perspective. Optimism is related to an individual's use of adaptive, engaging coping strategies, which include rational problem solving, cognitive restructuring, expressing emotions, and seeking social support during stressful times. Conversely, pessimism is related to an individual's use of maladaptive, disengaging coping strategies, which include avoiding problems, impulsive and careless problem solving, being self-critical, and socially withdrawing from stressful situations.

Despite the potential value of optimism and pessimism, few studies have examined these important notions of optimism and pessimism in an organizational context. More research is needed. Before reviewing what we know about the role of optimism and pessimism in the workplace, a key issue in the literature centers on the measurement of optimism and pessimism and the dimensionality of these constructs.

MEASUREMENT OF OPTIMISM AND PESSIMISM

A number of different instruments have been developed to assess optimism and pessimism. The distinctions among the instruments stem mainly from the different theoretical perspectives held by the researchers. As a consequence it can be a challenge to compare and contrast the findings across studies, which have used different measures of optimism and pessimism. Therefore, it is crucial to become familiar with the measures to understand the research.

The Life Orientation Test (LOT) is probably the most popular measure used to assess optimism and pessimism. It is based on the notion that optimism and pessimism are generalized outcome expectancies; for example, "Rarely do I expect good things to happen." The

LOT was revised, resulting in the Revised Life Orientation Test (RLOT).

One debated issue in the literature deals with the dimensionality of optimism and pessimism (discussed in more detail in the following text). In short, the LOT and RLOT were developed as unidimensional measures of dispositional optimism, but there is now evidence suggesting the LOT is bidimensional. The Extended Life Orientation Test (ELOT) has added to this evidence by demonstrating that a two-factor model provided the best fit, resulting in separate scores for optimism and pessimism. Regardless, the LOT, RLOT, and ELOT tend to provide the most direct assessment of optimism and pessimism.

The attributional style questionnaire (ASQ) is also a popular measure that assesses the constructs based on an individual's tendency to explain or make attributions for positive and negative events. As a more indirect measure, respondents are given a negative or positive event and asked to indicate one major cause for the event and rate the internality, stability, and globality. Those who are labeled as having a pessimistic explanatory style believe bad things happen to them because it has something to do with them (internal) and happens frequently (stable) and across all situations (global). Individuals with an optimistic explanatory style believe positive things happen to them because of internal, stable, and global factors. The expanded attributional style questionnaire (EASQ), a revision to the ASQ, is composed of 24 negative events only. Another technique to assess explanatory style, the content analysis of verbatim explanations (CAVE), has also been developed.

Other measures of optimism and pessimism include the optimism-pessimism instrument, the defensive pessimism questionnaire (DPQ), and the Hope Scale.

DIMENSIONALITY OF OPTIMISM AND PESSIMISM

Optimism and pessimism have traditionally been considered polar opposites on a continuum. From this perspective, a person is either optimistic or pessimistic but cannot hold optimistic and pessimistic perspectives concurrently. This singular way of thinking is limiting because it could be argued that overly optimistic beliefs are not always advantageous. Consider, for example, the disastrous outcome for an individual who decides to spend forthcoming

winnings after buying a lottery ticket because the person felt so optimistic about winning and thus neglected to think about the dismal odds. Consequently, more recent thinking along with supportive evidence has shown that we can hold some of both aspects and therefore, optimism and pessimism are believed to represent two independent or partially independent constructs. Notably, when treating optimism and pessimism as separate constructs, distinct results have been obtained. Interestingly, specific terms have also been coined to reflect this separate-ness notion such as *flexible optimism*, *defensive pessimism*, *cautious optimists*, or *strategic optimists*.

OPTIMISM AND PESSIMISM IN THE WORK SETTING

Optimism and pessimism have been examined with regard to academic performance among college freshmen and career planning and exploration in high school students. In addition, their effects on stress, coping, and effort at work have been topics of study. In general, optimism buffered against the occupational and life stress of university teachers and burnout for information technology professionals, and it led to increased effort intentions of salespeople.

Only a handful of studies have examined the effects of optimism and pessimism on job performance. Interestingly, each study used a different measure of optimism, pessimism, and job performance and also used employees in different types of jobs. In a study that used the ASQ, life insurance agents with an optimistic explanatory style sold more life insurance and reported a lower likelihood of quitting their jobs than did agents with a pessimistic style. In another study using a single overall LOT score, pessimistic call center employees reported higher levels of self-reported performance, more satisfaction, and lower turnover intent than optimists. Optimists, however, perceived lower levels of job stress and work and nonwork conflict than the pessimists. Finally, in a third study, the effects of separate measures of optimism and pessimism using the ELOT found both optimism and pessimism to be related to supervisory-rated ratings of overall job performance for production employees in a manufacturing plant. Pessimism, however, was found to remain a significant predictor after controlling for variance accounted for by selection measures such as a personality test and work skills inventory. These findings demonstrate the importance of assessing optimism and pessimism separately.

These three studies, which examined the effects of optimism and pessimism on job performance, vividly demonstrate the challenge of comparing across results in which different measures of optimism and pessimism have been used. Therefore, this area could benefit greatly from more systematic research that clearly addresses the measurement and dimensionality of optimism and pessimism.

Given the power of optimism and pessimism on our lives in general and the role of such positive and negative thinking in work situations, a number of important questions about optimism and pessimism await further research. There is relatively little work on the selection, training, and job performance of individuals in work settings. It will also be interesting to explore what those who now hold optimistic and pessimistic perspectives do when they encounter threatening, challenging, and novel situations. Although research has not tended to find gender difference with regard to optimistic and pessimistic perspectives, some cultural differences have been noted between Asian Americans and Caucasian Americans and should be further explored. From an optimistic perspective, the opportunities are endless for research; but from a pessimistic perspective, the construct issues of measurement and dimensionality of optimism and pessimism must be faced so that research in this area can advance.

—Therese Macan

See also Positive Psychology Applied to Work

FURTHER READING

- Chang, E. C. (Ed.). (2002). *Optimism & pessimism: Implications for theory, research and practices*. Washington, DC: APA.
- Macan, T. H., Heft, L., & Roberts, L. (2005). *Optimism and pessimism: Predictors of success in the workplace?* Paper presented at the 20th Annual SIOP conference, Los Angeles, CA.
- Seligman, M. E., & Schulman, P. (1986). Explanatory style as a predictor of productivity and quitting among life insurance agents. *Journal of Personality and Social Psychology*, *50*, 832–838.
- Stolz, P. G. (2000). *The adversity quotient @ work*. New York: Morrow.
- Tuten, T. L., & Neidermeyer, P. E. (2004). Performance, satisfaction, and turnover in call centers: The effects of stress and optimism. *Journal of Business Research*, *57*, 26–34.

ORGANIZATIONAL BEHAVIOR

Organizational behavior (OB) can be defined as the study of human behavior in the workplace. More specifically, investigators employ the principles of the scientific method to help them understand, predict, and manage employee behavior. The knowledge that follows rigorous, systematic study is used to enhance the productivity of organizations and the quality of work life for its employees.

HISTORY

The field of organizational behavior can trace its roots back to the late 19th and early 20th centuries when many industrial efficiency experts were attempting to discover how to get people to do more work in less time. These investigations in the workplace, conducted by management forerunners such as Frederick Taylor, Frank and Lillian Gilbreth, Henri Fayol, and Max Weber, to name a few, focused mainly on the hierarchical structure of the organization, division of labor, and the management functions of planning and controlling. Then in 1924 Elton Mayo led the human relations movement by focusing on the importance of human social processes in work settings. He and his colleagues helped conduct the landmark Hawthorne Studies at the Western Electric's Hawthorne Works just outside of Chicago. The Hawthorne Studies investigated such issues as the effects of illumination, length of workday, rest breaks, method of payment, and group dynamics on employee behavior. Despite methodological flaws present in the Hawthorne Studies, an important implication of these studies followed. That is, paying special attention to the human component of an organization can affect employee behavior. Because of this focus on the social side of human behavior in the organization (i.e., rather than just investigating the physical side as was seen in the earlier efficiency studies mentioned), it is generally recognized that the Hawthorne Studies served as the catalyst to propel OB as a modern field of study.

THE SUBFIELDS OF ORGANIZATIONAL BEHAVIOR

The investigation of human behavior can occur at three levels of analysis within the organization: the

individual, groups and teams of individuals, and the organization itself as a whole. As a result, there have been a plethora of diverse contributors to the academic discipline of OB. The original goal of researchers in this newly created field was to construct a uniform comprehensive body of organizational research. However, because of the different perspectives held by the contributors from the various areas of the social sciences (e.g., psychology, economics, sociology, political science, communication, and anthropology), the result was three somewhat distinct subfields of OB. These subfields mirrored the three levels of analysis of human behavior. Micro-OB mainly concerns itself with investigating the behavior of individuals within the organization. Meso-OB focuses on the behavior of groups and teams in the workplace. Finally, researchers in Macro-OB conduct investigations at the organizational level of analysis.

CURRENT TOPICS OF INTEREST IN OB

Some research topics of interest within the Micro-OB subfield deal with selecting and training employees, employee motivation, evaluating performance of individual employees, decision making, and employee satisfaction and stress. Areas of investigation within Meso-OB include group dynamics, team effectiveness, job design, and leadership, to name a few. Some main areas of investigation at the Macro-OB level are organizational culture and climate, organizational change and development, employee socialization, power and politics within the organization, conflict management and negotiation, and the interaction of the organization with its environment.

—Robert D. Yonker

See also Human Resource Management; Organizational Development

FURTHER READING

- Fayol, H. (1949). *General and industrial management*. London: Pittman.
- Mayo, E. (1933). *The human problems of an industrial civilization*. London: Macmillan.
- Taylor, F. W. (1947). *Scientific management*. New York: Harper & Row.
- Weber, M. (1921). *Theory of social and economic organization* (A. M. Henderson & T. Parsons, Trans.). London: Oxford University Press.

ORGANIZATIONAL BEHAVIOR MANAGEMENT

Organizational behavior management (OBM) combines the principles of B. F. Skinner's reinforcement theory with applications in work settings. It espouses the same basic tenet as reinforcement theory: Behavior is shaped and maintained by its consequences. What occurs *after* rather than before the behavior of interest is the focus, as exemplified in the principles of reinforcement and punishment. These principles, particularly positive reinforcement, are applied in the public and private sectors to motivate the members of these organizations.

OBM EMBODIES THE SCIENTIST-PRACTITIONER MODEL

Embracing reinforcement or behavior analysis principles that are used to solve problems in work settings, OBM embodies the scientist-practitioner model recommended for the study of psychology. A behavior analyst acts in the role of a practitioner, who provides professional services to the members of organizations, as well as that of a scientist, who seeks to improve the plan used to promote performance. To determine whether a given plan or intervention is effective, no number of testimonials or expert opinions substitute for the collection of data that a given result actually occurred. So strong is this belief in empirical evidence that the primary journal, the *Journal of Organizational Behavior Management (JOBM)*, was started in 1977 not by academics but by members of a consulting firm, Behavioral Systems, Inc., spearheaded by former quarterback Fran Tarkenton and led by clinical psychologist Aubrey Daniels.

Exchanges between academics and nonacademics continue to be plentiful. At the Association for Behavior Analysis conference, professors and students give papers side by side with colleagues in organizations such as Chevron and JPMorgan Chase. In the OBM network, 58% of the members are academics and 42% are nonacademics, and in *JOBM*, 31% of the articles are contributed by professionals in human service settings as well as members of behaviorally oriented consulting firms. In contrast, in the *Journal of Applied Psychology*, the affiliation of authors outside of universities is 13%.

Proactive Stance Plays a Key Role in the Direction of OBM

The aim of making the world a better place is distinctive in psychology to OBM in particular and reinforcement theory in general. Fueled by Skinner, who wrote about his vision of a utopian community in *Walden Two*, the use of reinforcement for prosocial purposes took root in the 1960s. During that era in the United States, dramatic societal changes were occurring: the passage of landmark civil rights legislation and the ending of the Vietnam War. At the same time, reports heralded the first successful applications of reinforcement theory. Children who had been diagnosed as autistic and were destined to spend the remainder of their lives within the drab walls of institutions began to communicate and help themselves when they were reinforced for successive approximations to desired behaviors. Teachers using a combination of positive reinforcement and extinction helped first graders in a disadvantaged neighborhood learn skills critical to their further achievement. At Emery Air Freight and American Airlines, as Skinner described, positive reinforcement programs were being implemented. The evening news touted the results of a token economy program in the army at Fort Ord, California. In 1968, in the first issue of the *Journal of Applied Behavior Analysis*, the field's pioneers Donald Baer, Montrose Wolf, and Todd Risley predicted that researching mental retardation, crime, mental illness, and education, to name a few, would make for a better society. Hence it was not surprising when behavior analysts went to work sites where they too actively sought to make improvements.

This desire to make a difference has made a difference. Behavior analysts do not restrict themselves to traditional areas such as productivity and absenteeism. Instead, they have tackled such subtle and elusive issues as the quality of client care, even though the definitions and measures of what staff should do to bring about the changes in their clients is a challenge. Similarly, when company presidents wanted to reduce employees' injuries, behavior analysts went beyond the conventional counts of accidents to develop new ways of appraising what workers need to do to avoid having accidents.

The kinds of performance addressed range widely. They include, among others, the following:

- Production and production-related, such as conducting building code inspections, processing student applications, and sorting and loading packages

- Attendance and punctuality necessitated by needing to have a minimum number of qualified personnel in human service settings, hospitals, and unionized manufacturing and distribution centers
- Safety and health, which includes safe and unsafe acts, such as properly lifting patients and wearing ear plugs, as well as other indexes, including housekeeping and the reduction of hazards, all of which are designed to lessen the chance of causing a disabling injury
- Care given to patients, clients, and students in community mental health centers, schools, and institutions, as well as service delivered to customers in banks, restaurants, and department stores

Productivity accounts for approximately one fifth of the studies. The second highest is attendance. Next, with 10% to 15% of the studies, are safety and service.

A BEHAVIORAL APPROACH TO APPRAISING AND MOTIVATING MEMBERS OF ORGANIZATIONS

Five Integral Steps

In the most prevalent intervention, that of positive reinforcement, behavior analysts use five steps.

1. They analyze the situation to determine what conditions might be responsible for maintaining the problem. Instead of dwelling on the characteristics of individuals such as their poor work attitudes, problematic personalities, or lower educational and experience levels, none of which can be readily changed, they examine the consequences of employees' performance, including the evaluation, compensation, and promotion practices of companies. Then, if warranted, they attempt to change not the people per se, but these personnel practices.
2. They specify desired performance, defining work practices, such as smiling at a customer or clearing walkways of spills, until the definitions meet the test of interrater reliability, in which two raters independently collect data, check for agreements, and obtain agreement scores of 90% or better.
3. They measure desired performance, going regularly to the site, recording the level or rate of performance, and conducting interrater reliability checks.
4. They provide frequent, contingent, positive consequences, such as posting scores on a graph to permit

workers to see how their scores compare with their previous record.

5. Finally, they evaluate the effectiveness of the program by using a research design (often the within-group reversal or multiple baseline), permitting the drawing of conclusions about causality with confidence, to see if the program caused the changes.

HIGHLIGHTING THE INTEGRAL STEPS OF SPECIFYING AND MEASURING PERFORMANCE

Steps two and three are critical to positively reinforce workers for jobs well done. Hence behavior analysts expend considerable time and effort ensuring the quality of *how* the information is gathered. However, *what* is measured is as important as how the data are obtained. Judith L. Komaki has identified five criteria. Given as the mnemonic SURF & C, the criteria stand for the following:

S: The target or dependent variable is sampled (S) directly rather than using a filtered or secondary source, for example, workers or the products of their work are observed firsthand instead of relying on their own or someone else's reports.

U: The target is primarily under (U) the workers' control, responsive to their efforts, and minimally affected by extraneous factors.

R: Interrater reliability (R) scores of 90% or better are obtained during the formal data collection period. Observers or raters go independently to sample workers' performance or behaviors, terms used interchangeably, rating use of the same scoring system and checking to see if they agree. They continue practicing and, in some cases, revamping the coding system until they can obtain scores of 90% or better.

F: The target is assessed frequently (F)—often and regularly—at least 20 and ideally 30 times during the intervention period. And

C: Evidence is provided showing that the target is indeed *critical* (C) to the desired result, otherwise referred to as *valid*. The evidence can be a significant correlation between the measure, such as a newly developed checklist for service, and the ultimate criterion including customer satisfaction.

The criteria of U and C are concerned with *what* is measured; the criteria of S, R, and F are concerned with *how* the information is collected.

A Nontraditional Approach to Reducing Injuries: Measuring Safety Performance

Consider an example: Lack of control is an issue with the readily available injury statistics. Workers can perform safely yet still be injured; at the same time, workers can be unsafe and still not have an accident. Hence to avoid relying on a measure over which workers cannot readily exert much control, behavior analysts have devised new measures of safety performance, such as looking at whether workers lift properly, actions that are for the most part under (U) their control. To ensure that the newly developed measure is valid, Robert A. Reber and Jerry A. Wallin (1983) collected data in different departments in a factory on injuries and the new measure of safety practices and then conducted a correlational analysis. Finding the higher the practices, the lower the injuries per department indicated that the measure was critical (C). At the same time, data are typically collected so that the S, R, and F criteria are met. Trained observers go to the site and directly sample (S) work practices. They collect information frequently (F), often at least weekly. Last, interrater reliability (R) checks are done in which two observers independently record and identify agreements between raters and calculate a percentage agreement score (number of agreements/number of agreements and disagreements). Checklist revisions continue until agreement is reached on the scoring of checklist items almost all the time. When this criterion is achieved, then and only then are the terms considered to be acceptably defined. Reliability checks are also used in training; trainees are not considered trained until they can pass the interrater reliability test. Raters are then regularly checked to see if they are becoming stricter or more lenient during the formal data collection. These measures of safety enable the providing of positive consequences, which have the long-term impact of reducing costly and tragic injuries.

Going Beyond the Student to Assess the Behavior of the Teacher

Behaviorally based interventions have become the most prevalent approach for the treatment of children and adults with autism and developmental disabilities. Among its special features are the ways teachers are assessed. The ultimate outcome—improving client skills—is clear. To achieve this result, however, it is

insufficient to focus on only the client. Instead, it is important to identify what staff members should do to enable improvements in their clients. Among the enabling practices Dennis R. Reid and his colleagues specified for teachers of the developmentally disabled were giving instructions, often verbal; guiding the student physically through the steps; and delivering rewards that are timely and contingent. To see whether these behaviors were valid, they looked to see if there was a relationship between the behaviors of students and teachers. Their analysis showed that as the appropriate use of teaching techniques increased, so did the skills of the students, indicating that the practices were critical (C). As in the preceding example, the S, R, and F criteria were met. Reid and his colleagues directly sampled (S) the teachers' implementation of the techniques, collecting data frequently (F), at least daily. The observers conducted interrater reliability (R) checks on one fifth of the observations; scores ranged between 74% and 97%.

The specification and measurement of performance enable frequent, contingent, positive consequences for desired performance. Although these steps are deceptively simple, they have resulted in far-reaching and meaningful differences at work on a variety of challenging tasks.

—Judith L. Komaki and Alicia M. Alvero

See also Reinforcement Theory of Work Motivation

FURTHER READING

- Austin, J., & Carr, J. E. (Eds.). (2000). *Handbook of applied behavior analysis*. Reno, NV: Context Press.
- Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*, 91–97.
- Daniels, A. C. (1994). *Bringing out the best in people*. New York: McGraw-Hill.
- Komaki, J. L. (1998). When performance improvement is the goal: A new set of criteria for criteria. *Journal of Applied Behavior Analysis, 31*, 263–280.
- Komaki, J. L. (2003). Reinforcement theory at work: Enhancing and explaining what employees do. In L. W. Porter, G. A. Bigley, & R. M. Steers (Eds.), *Motivation and work behavior* (7th ed., pp. 95–112). New York: McGraw-Hill.
- Reber, R. A., & Wallin, J. A. (1983). Validation of a behavioral measure of occupational safety. *Journal of Organizational Behavior Management, 5*(2), 69–77.
- Skinner, B. F. (1983). *A matter of consequences: Part 3 of an autobiography*. New York: Random House.

ORGANIZATIONAL CHANGE

Change has been considered the most reliable constant within organizations. Yet, although the phenomenon has been recognized as important for years, organizational change is one of the least understood aspects of organization life, evidenced by numerous failed initiatives. In spite of the books and articles written about managing change, perhaps the paradox between prevalence and failure lies in the difficulty organizations have in getting a handle on change itself.

Simply put, change is the process by which an organism goes from relative stability through a period of relative instability and then back to relative stability. This is commonly represented by Kurt Lewin's three-stage model of change. The first stage is *unfreezing*. This initial stage includes the willingness of individuals to abandon the old and adopt the new and is best understood through the study of motivation. The second stage is the *change* itself where the new is put into place. This stage is associated with new routines requiring knowledge and skill acquisition. The third stage is called *refreezing*, which focuses on normalizing the new or moving from compliance to commitment. Although attention is generally placed on the second and third stages, many believe that most changes fail because the *unfreeze* stage is ineffective.

Because organizational change is fundamental to many important topics, it has not received dedicated attention sufficient to provide adequate understanding and practice. That is, change is endemic to innovation (implementing new and novel ideas); transformational leadership (taking people from point A to point B); Total Quality Management (continuous improvement); organizational development (preparing employees to identify and implement change); and, according to Peter Drucker, the basic purpose of the business enterprise itself (constantly changing to meet customers' demands).

Addressing three aspects of organizational change should prove helpful to improve understanding of this complex organizational phenomenon. First is the emerging issue of levels of analysis. Second are the major themes typically associated with organizational change. Third is explicating new ways change can be viewed.

LEVELS OF ANALYSIS

Although organizational change has typically been viewed nominally (e.g., mergers, policy change, new

technology), there is an emerging view of change as cascading events beginning with the organization's external environment, down through the organizational level, to the work group level, and finally to the individual level. As such, change is characterized by different dimensions changing at different levels.

The environment consists of changes in the market, in government regulations, or in prevailing economic conditions. Organizational level change generally deals with modifications to some combination of strategy, culture, or structure. Although work groups also have structure and culture, generally focus is on goals, leadership, and work processes. Finally, individual level change typically involves the job and proximal working conditions. Therefore, understanding organizational change involves understanding how dimensions at each level affect performance at the corresponding level, and then how these dimensions affect change and performance at subsequent lower levels.

Additionally, an overlooked insight about change is that different work groups and different individuals within work groups do not experience a given organizational change in the same way. This is illustrated in the case of a jewelry company that expanded its product line to include high-end jewelry, causing a reorganization of its sales staff, a renovation of the showroom, and new skills for some employees. Thus a typical comment of employees participating in a change is "in the broad scheme of things, these were just minor adjustments to the company, but to those of us in the department, the changes were significant." Failure to recognize change in this comprehensive way results in the oversimplification of important nuances or fragmented conclusions lacking broad application.

THE THEMES OF ORGANIZATIONAL CHANGE

A review of studies of organizational change conducted in the 1990s revealed four major themes. These were content (the *what* of change), context (the *what else* of change), process (the *how* of change), and outcome (the *so what* of change).

The content of change includes variables of change such as dimensions at levels of analysis (mentioned earlier), as well as the *sign* and magnitude of change. For example, the full description of a specific *reorganization* may be expressed as an entirely new (magnitude) structure (dimension) of top management (level), which will create more opportunity for growth

(favorable). Thus two different *reorganizations* should be considered different organizational changes when one or more of these four characteristics of *what changed* vary.

The context of change includes variables associated with *what else* is going on relative to the change that is outside the change itself but influences its outcome. One aspect of context deals with forces or factors that contribute to the reason for change or create significant barriers to change. Generally, these are external events of environmental influences on the organization, such as competition, government regulation, economic shifts, or geopolitical events. Another aspect of context deals with internal variables that may moderate how change is handled or experienced in the organization. This would include organizational characteristics such as climate for change, leadership style, and cultural barriers to change. A third aspect of context is the characteristics of individuals affected by organizational change. These characteristics range from distal traits, such as personality and age, to midrange states, such as general change efficacy or commitment to the organization, to change-specific individual differences in readiness for change and coping resources.

The process of change has typically been the major focus of organizational change. That is, how something is done is ultimately more important than what is done. Traditionally, *change management* has involved stage models or the proper steps to successful implementation. However, more recently change process has been viewed qualitatively. In this case, the *how* is usually characterized by the notion of procedural justice. That is, when change agents of an organization include the change participants in the process; give advanced notice and provide adequate explanations of changes; and offer an acceptable rationale for the change, those affected by the change respond more positively to the change. The process can also be characterized by the support management gives to the change. Support comes in the form of top management commitment to the change and a desire to provide adequate resources necessary for successful implementation of the change.

Finally, the outcomes of change are essentially attitudes, behavior, and performance assessed at various levels. When outcome is evaluated at the organizational or group level, typically the interest is in how the normal performance measures were affected (e.g., sales, profit, productivity). However, when individuals are the focus, there is a broad array of outcomes

of interest. These outcomes could be either directly associated with the change itself, such as attitude toward the change, or a residual effect on the individual, such as stress, change in person–environment fit, job satisfaction, or organizational commitment.

Attitude toward the change has been one individual outcome of interest. It is important to note that recent research on attitude toward change has explored its multidimensional nature and the differences between it and other related constructs. Sandy Piderit posited that attitude toward the change is composed of three components: cognition, affect, and behavioral intent, none of which move in concert regarding a particular change. That is, behavioral intent to support the change would typically be more positive than beliefs about the change and emotional response to the change. This is evidenced by employees affected by a change who say, “Complaining is at an all-time high, yet work continues to be put out at an amazing pace.” Distinction has also been made between acceptance and resistance. These are considered two different constructs rather than opposite ends of one continuum. That is, low acceptance is the absence of support and high resistance is the presence of negatively directed effort.

THE NATURE OF ORGANIZATIONAL CHANGE

In many areas of organizational behavior study, there are two different ways to approach a topic. One approach is to simply name a change phenomenon and build a body of knowledge around it. However, as mentioned earlier, this fragments understanding and restricts generalization. The other approach is to describe the phenomenon along one or more dimensions. That is, instead of studying *reorganizations* or *entering new markets* separately, it is possible to investigate amount of change in culture or structure occurring in either nominal change.

Pace, sequence, and linearity of change is another way to view an organizational change. Pace deals with whether there is early rapid change to overcome inertia or late rapid change following periods of *softening up* the organization, or whether change is gradual, building trust as change progresses. Sequence deals with order of importance or what needs to be changed before what else can be changed. Linearity recognizes that change may be nonlinear because of oscillations and delays caused by uncertainty and resistance.

Another issue regarding the nature of change has to do with whether change is episodic. Traditionally, change is viewed as a break in the status quo. This idea treats change as if it is a *single* disruption in an otherwise stable setting. A contrarian perspective views change more as simultaneous and cumulative, sometimes referred to as *turbulence*. This perspective posits that change does not occur in isolation of other changes, and in fact, organizations are basically in a state of flux where change is a natural state and managing change is a continual process. The success an organization ultimately has with managing change may depend on which of these two views of change applies.

Finally, an aspect that shapes how organizations view and approach change is the notion of the asymmetry of change. This involves the assumption that the motivation for and benefit of change is greater for the organization than for the individual. Although it is important for change to be a win-win experience, management cannot forget that the reality of rationale and valence of change is skewed to the organization.

—Steven D. Caldwell

See also Organizational Change, Resistance to

FURTHER READING

- Amis, J., Slack, T., & Hinings, C. R. (2004). The pace, sequence, and linearity of radical change. *Academy of Management Journal*, 47, 15–39.
- Armenakis, A. A., & Bedian, A. G. (1999). Organizational change: A review of theory and research in the 1990s. *Journal of Management*, 25, 293–315.
- Burke, W. (2002). *Organization change: Theory and practice*. Thousand Oaks, CA: Sage.
- McKinley, W., & Scherer, A. G. (2000). Some unanticipated consequences of organizational restructuring. *Academy of Management Review*, 25, 735–752.

ORGANIZATIONAL CHANGE, RESISTANCE TO

It has been broadly reported that change is happening at an accelerated rate in organizations. As a result, employees are constantly required to understand the changes, cope with the challenges, and ultimately adapt. In this environment, a typical employee response is to resist the change. A recent review of empirical research on reactions to change found cognitive, emotional, and

behavioral aspects of resistance. The shock, anger, resistance, acceptance (SARA) model of organizational change is a pragmatic way of looking at the different stages of reactions to change. Although these reactions are not universal, nor are they necessarily linear, the point remains that organizations benefit from considering that employees may need time to work through the process of dealing with organizational change before they move to acceptance. By leaping forward too quickly, organizational leadership may bring about either direct or indirect resistance to organizational change efforts.

UNDERLYING REASONS FOR RESISTANCE TO CHANGE

Organizational change can affect individuals in a number of ways. From potential job loss to increased job opportunities, the costs and benefits of organizational changes to employees are often unpredictable. To effectively address resistance to organizational change, it is important to understand the reasons. Potential reasons why employees may resist organizational change include the following:

- Employees may not understand why the changes are occurring.
- Employees do not understand what the changes entail.
- Employees do not know how they will be affected.
- Skills may become obsolete and new skills may be required.
- Organizational structures and systems are not aligned with the change (e.g., rewards and recognition).
- There is a culture of mistrust brought on by prior ineffective changes.

These are just a sample of reasons underlying potential resistance to organizational change. At a deeper level, resistance can be brought about by feelings of fear regarding what the change may bring and lack of control of the process of change.

MODELS OF REACTIONS TO CHANGE

A variety of process models describing employee reactions to change exist. Typically, these models have been developed in a pragmatic context and have not been the subject of empirical evaluation. The SARA model has been used in a variety of contexts, including reactions to loss, organizational change, and reactions to feedback. Another widely used change model that looks at the transitions individuals go through was

developed by William Bridges. This model proposes the following three stages:

Ending, Loosing, and Letting Go. During this stage, people are dealing with letting go of the way things were before the change. The general thrust is that before beginning something new, people need to let go of what had been before. The emotional reactions often resemble a grief process.

The Neutral Zone. This is the phase when the old ways have ended, but the change is not complete. The new ways of doing things are neither fully implemented nor understood. This can be a difficult time for employees because they are unsure about what is required of them and they are caught between the two, often conflicting, ways of doing things. The emotional reactions can be frustration and confusion. Guiding people through the neutral zone is a primary target of change management activities.

The New Beginning. This is the final phase of the transition process when people engage with the new ways of doing things. There is a new sense of clarity and purpose that the change has brought about. The emotional reactions often include relief and guarded excitement.

SUGGESTIONS FOR ADDRESSING RESISTANCE TO CHANGE

The management literature provides a variety of suggestions regarding how to deal with change. Whether based on theoretical models or on practical experience, several categories of suggestions are common:

Define a Communication Strategy

- Communicate why the change is occurring. The purpose of the change must be clear for employees to fully accept the change.
- Include a clear vision of the future state. This can help address fear of the unknown and inspire commitment.
- Detail the benefits to the organization and to employees. When done with regard to the future state, this can help in gaining the personal *buy in* of employees. They need to know what is in it for them.

Communicate in a Timely, Clear, and Consistent Fashion

- Inform employees as soon as possible of the change. Once it is clear what will happen, it is better that employees find out directly from management rather than from outside sources, such as public media, or from rumors building inside the organization.

- Consider the needs of the audience when communicating. Target the message at their key concerns and adapt the communication style that is used; for example, avoid jargon.
- Be consistent in the messages that are delivered. Keeping the message simple can help with consistency over time and across communications.
- Communicate honestly. Even if something is unknown about the change, it is better to share this fact directly with employees than to attempt a contrived answer.

Encourage Employee Input and Discuss Employee Reactions

- Whenever possible, involve employees in decisions that affect them. Involving employees enhances their feelings of control and reduces resistance.
- Allow opportunities for employees to share their reactions to the change, good and bad. As the SARA model suggests, employees can go through some strong emotional reactions. By allowing employees to express these feelings in an appropriate context, everyone can move on toward acceptance.
- Celebrate successes to inspire commitment to change. It is more difficult to resist a change that successfully brings about positive outcomes for the organization and employees.

Provide Training and Support for the Change

- When employees' skills may be affected, provide the necessary development support. Employees may resist changes that make their skills obsolete. Training employees to meet new job requirements reduces resistance. Some employees may see the change as an opportunity to enhance their skills.
- Ensure that reward and recognition systems are aligned to support the change. This is a common mistake and needs to be directly addressed.

—Robert A. Schmierer

See also Downsizing; Morale; Organizational Change; Organizational Climate; Organizational Culture; Organizational Cynicism; Organizational Development; Organizational Retaliatory Behavior; Survivor Syndrome

FURTHER READING

Bridges, W. (2003). *Managing transitions* (2nd ed.). Cambridge, MA: Da Capo Press.

- Lawson, E., & Price, C. (2003). The psychology of change management [Special edition]. *McKinsey Quarterly*, 2, 30–39.
- McAllaster, C. (2004). The 5 Ps of change: Leading change by effectively using leverage points within an organization. *Organizational Dynamics*, 33, 318–328.
- Piderit, S. K. (2000). Rethinking resistance and recognizing ambivalence: A multidimensional view of attitudes toward an organizational change. *Academy of Management Review*, 25, 783–794.

ORGANIZATIONAL CLIMATE

The term *organizational climate* has been used in many different ways to refer to a wide variety of constructs. In recent years some consensus about what precisely should be included in the construct—and what should not be included in the construct—has begun to emerge. Research interest in climate has remained high, despite the variety of conceptualizations of the construct, because climate is generally seen as related to a variety of important organizational outcomes, including productivity (both individual and organizational), satisfaction, and turnover. More recently, climate has come to be seen as predictive of specific organizational outcomes, depending on what aspect of climate is being assessed. Thus climate continues to be seen as organizationally important, but the specific outcomes of interest seen to be affected by climate have shifted over time.

Initially, researchers used *climate* to refer to individual employee perceptions of more immediate aspects of an employee's work environment (e.g., supervision, work group characteristics, and job or task characteristics), and the climate measures that were developed and widely used reflected this orientation. However, general measures of climate began to incorporate aspects of leadership, group interaction and cohesion, job satisfaction, and other constructs, leading to questions of the uniqueness and utility of the climate construct. To counteract this tendency, researchers strategically focused the climate construct on those particular types of climates that may emerge in each particular organization. Although a recent meta-analysis by J. Z. Carr and her colleagues highlights the more molar, or broad-brush, approach to organizational climate, a more targeted approach has become dominant in the last several years.

Benjamin Schneider has long been one of the primary researchers in the area of organizational climate, and variations of the operational definition he has used are the dominant in the literature today. Specifically, Schneider has argued that organizational climate should be defined as the policies, practices, and procedures that are rewarded, supported, and expected in an organization in regard to a specific organizational domain, such as safety, innovation, customer service, and ethics. This basic definition has come to be the most commonly used conceptualization of the climate construct in the last several years.

There are two critical implications of this definition. First, by focusing on policies, practices, and procedures that are rewarded, supported, and expected, the definition implies that organizational climate is a shared perspective among organization members, rather than an individual perception. This focus on within-unit agreement places organizational climate in the category of compositional models that David Chan (1998) would call *direct consensus models*, in that the meaning of the group-level construct is based on the agreement (or consensus) among the individual units (group members or employees). Second, by focusing on specific organizational domains, the definition implies that an organization may have multiple climates operating simultaneously and may have climates that are more active in one area of the organization than in another; for example, a climate for innovation may be most salient in an R&D (research and development) division, whereas a climate for customer service may be most salient in a sales division within a single organization.

This definition is also useful because it helps clarify what organizational climate is not. Organizational climate does not refer to the *personal values* that are held by members of an organization, or shared by organization members—in general, shared values are under the umbrella of organizational culture (see Organizational Culture). Organizational climate also does not refer to individual and idiosyncratic perceptions of life within the organization; in general, these perceptions fall under the umbrella of psychological climate.

In the remainder of this entry, we first focus briefly on three examples of specific types of climates: climate for service, climate for safety, and ethical climate. We then discuss the issue of degree of agreement about climate perceptions, which is known as *climate strength*; this leads to a discussion of when

it is possible to say that a climate does or does not exist.

CLIMATE FOR SERVICE

Research on organizational climate for service has flourished and considers both employee and customer perceptions of an organization's policies, practices, and procedures that are rewarded, supported, and expected for quality service in the organization. For employees, climate for service represents their experiences of the organization's emphasis on service quality. For customers, climate for service is the perceived amount of excellent service received from the organization. Research on climate for service has found links between these dual perceptions of employees' climate for service and customers' satisfaction and evaluations of the quality of service. This research is an example of linkage research because customer service perceptions are linked with important organizational outcomes, such as customer retention.

Climate for service research builds from the theory that employees emphasize service behavior to the degree that it is rewarded, supported, and expected by their employing organization. Customers of organizations that have a positive or high climate for service come to have higher satisfaction with the service they receive from the organization because of their contact and interaction with various employees, who provide consistently high levels of service. Research on the boundary conditions of this effect has begun, and initial findings suggest that higher frequency of contact between employees and customers is related to a stronger relationship between service climate and customer satisfaction. Another moderator of the climate for service and customer satisfaction relationship is the proximity of the organizational target, such as bank branches versus bank as a whole, to customers.

CLIMATE FOR SAFETY

Climate for safety has also received considerable research attention. This aspect of climate refers to employee perceptions of an organization's policies, practices, and procedures regarding safety that are rewarded, supported, and expected from employees. Several researchers have documented a consistent relationship between a positive safety climate and reduced injury rates. Dov Zohar (2003), a leading theorist in this area of research, has stressed the need to consider perceptions of actual safety practices as

opposed to the safety policies and practices espoused by supervisors and top management, because the behaviors that are said to be expected and rewarded are often not the behaviors that are actually expected and rewarded. Interestingly, transformational or constructive leadership is shown to relate to lower injury rate; and this relationship is moderated by safety climate, conceptualized as perceptions of actual safety practices rather than more formalized safety policies.

ETHICAL CLIMATE

Given the many well-publicized corporate scandals of the last several years, it is hardly surprising to see that there is a sizable stream of research examining organizational ethics and ethical behavior from within an organizational climate framework. From this perspective (to use Bart Victor and John Cullen's [1987] seminal definition), ethical climate can be thought of as shared perceptions among group members regarding what constitutes ethically correct behavior and how ethical issues should be handled within an organization. This definition highlights the fact that ethical climate is not focused on *what is right or wrong* but is instead focused on the things that organization members perceive the organization to see as ethical. Thus employees might agree that when confronted with an ethical issue at work, they would be rewarded and supported by the organization if they engaged in behavior that they personally believed to be unethical.

Although ethical climate is a relatively new research area, researchers have identified several antecedents of ethical climate. Among other things, ethical climate has been shown to be affected by gender, age, ethical education, personality traits, and stage of organizational career. Victor and Cullen (1987), who are largely responsible for starting the research focus in this area, hypothesized that social norms, organizational form, and various firm-specific factors would be the dominant antecedents. Marcus Dickson, D. Brent Smith, Michael Grojean, and Mark Ehrhart (2001) addressed the literature on each of these points rather extensively. To date, there is more theory than data about the degree to which a strong organizational ethical climate is associated with individual and organizational ethical behavior and decision making.

There are many other organizational climate facets that have been investigated in the literature, including climates for sexual harassment, innovation and creativity, justice, and well-being. Of course, the

climate construct could be applied to an almost unlimited range of organizational topics for which shared perceptions by group members are important.

CLIMATE STRENGTH

Recently, researchers have begun to focus on the importance of *climate strength*, which has been operationally defined as the within-group variability in member perceptions of the climate. When agreement is high, climate is strong. (Climate strength can also be conceptualized as variability in within-group perceptions, with greater variability indicating lesser strength.) Although there is not a lot of research to date that explicitly addresses climate strength, much published research has found that climate strength moderates the effects of climate itself on various outcomes of interest. For example, Jason Colquitt and colleagues (2001) found that procedural justice climate in teams predicted team effectiveness, and that the effect was greater in teams with stronger climates. Dickson and colleagues recently found that strong climates were more likely to be found in organizations with clearly distinct climates (e.g., highly mechanistic or highly organic), and that strength was typically much lower in organizations where the climate was more ambiguous. We expect to see research in this area continue to grow, because the moderating effect of climate strength will be useful in better understanding the direct effects (or lack thereof) of climate itself. Additionally, Schneider and colleagues have pointed out that there are clear implications for leadership to be found here in terms of the importance of consistent behavior in a positive direction to create maximal benefit from organizational climate.

WHEN DOES CLIMATE EXIST?

One debate in the study of organizational climate is whether there are times when there is *no climate* or whether there is always a climate, even if it is weak. This is much the same argument as that occurring in the literature on organizational culture; but given the more quantitative orientation of the climate literature over time (compared with the culture literature), the issue can become especially critical here.

Some researchers argue that unless there is some predetermined level of agreement or variability among group members, there is no climate because there is little or no evidence of a shared perspective among organizational members. This argument can be

couched in terms from Chan's (1998) framework of composition models, mentioned earlier, because climate has most typically been conceptualized as a direct consensus model. In such a model, climate is considered to be the typical, or most common, response from the members of a group, *provided that there is some level of within-group agreement to justify treating the mean as a group-level variable*. In other words, if there is insufficient agreement (assessed statistically), then there is no *sharedness* in the perceptions, and thus no climate. Researchers taking this approach have sometimes used a criterion of an r_{wg} of .70 or greater (or some other statistical cutoff point), although as Harrison Trice and Janice Beyer (1993) note regarding culture strength, there is no clear answer on how to determine whether or not a climate exists. Because there is no clear point at which climate can be said to exist, other researchers have taken the perspective that climate is always present but may in many cases be weak.

This question is of practical importance when determining how to classify the units within a data set. For example, suppose that a researcher is investigating safety climate and has data from 100 organizations, including 10 organizations with r_{wg} results on the climate measure of less than .70. From one perspective, the 10 organizations showing little agreement on the safety climate measure would be dropped from the sample as having *no climate*, and of the remaining 90 organizations, the ones with r_{wg} results close to .70 would be considered to have a *weak climate*. From the alternative perspective, all 100 organizations would remain in the sample, and those with the lowest levels of agreement would be considered to have the weakest climates. At present, consensus on this issue has yet to clearly emerge. However, the approach of limiting the sample to only those organizations with a predetermined level of within-unit agreement is the more conservative approach, because that limitation serves to restrict the range on the strength variable.

CONCLUSION

Organizations tend to have as many specific climates as strategic directions, which makes organizational climate a relevant concept for organizations to consider. As Schneider (1990) notes, once a strategic direction or focus is identified for the organization, the organizational climate regarding that strategic focus can be assessed via employees. Employees' assessment of the organization's relevant policies, practices, and

procedures that support the strategic focus in the organization may serve as a measure of alignment. The strategic focus of the organization needs to be clearly and consistently represented in the organization's policies, practices, and procedures. Should an assessment of the organizational climate reveal that a strategic direction of interest is not perceived in organizational practices, then policies, practices, and procedures in the organization may need to be redesigned to better align with the strategy of interest.

—*Marcus W. Dickson and Jacqueline K. Mitchelson*

See also Organizational Culture

FURTHER READING

- Ashkanasy, N. M., Wilderom, C. P. M., & Peterson, M. F. (Eds.). (2000). *Handbook of organizational culture and climate*. Thousand Oaks, CA: Sage.
- Carr, J. Z., Schmidt, A. M., Ford, J. K., & DeShon, R. P. (2003). Climate perceptions matter: A meta-analytic path analysis relating molar climate, cognitive and affective states, and individual level work outcomes. *Journal of Applied Psychology, 88*, 605–619.
- Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology, 83*, 234–246.
- Dickson, M. W., Smith, D. B., Grojean, M., & Ehrhart, M. (2001). An organizational climate regarding ethics: The outcome of leader values and the practices that reflect them. *Leadership Quarterly, 12*, 197–217.
- Schneider, B. (Ed.). (1990). *Organizational climate and culture*. San Francisco: Jossey-Bass.
- Victor, B., & Cullen, J. (1987). A theory and measure of ethical climate in organizations. In W. C. Frederick (Ed.), *Research in corporate social performance and policy: Empirical studies of business ethics and values* (pp. 51–71). Greenwich, CT: JAI Press.
- Zohar, D. (2003). Safety climate: Conceptual and measurement issues. In J. Campbell Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology*. Washington, DC: American Psychological Association.

ORGANIZATIONAL COMMITMENT

Industrial and organizational (I/O) psychologists are interested in understanding employees' psychological reactions to their workplaces. Not surprisingly, much of this interest focuses on employees' commitment to

the *organizations* for which they work. Among the several *work attitude* variables studied by I/O psychologists, only job satisfaction has received more attention than organizational commitment (OC).

CONCEPTUALIZING ORGANIZATIONAL COMMITMENT

Early definitions of OC varied considerably. Nonetheless, most scholars view OC as a psychological state characterizing an employee's relationship with the organization. This relationship influences the employee's intention to maintain a particular course of action, in this case, staying with the organization.

Beyond this, however, early OC researchers had varied views about the nature of OC and how it should be measured. For some early researchers, OC was an emotional attachment to the organization; for others, it was identification with the organization and what it represented. Some researchers described OC in terms of a reluctance to endure sacrifices, or incur costs, that voluntarily leaving the organization would entail. Still others described commitment in terms of a moral obligation to remain with the organization.

From these early one-dimensional views has emerged wide acceptance of OC as a multidimensional construct. Thus most current models propose that OC has at least two psychological bases, or components, each of which should be measured separately. Of these models, the three-component model (TCM) proposed in the 1990s has received the most theoretical and empirical attention, and it is from this perspective that the development and consequences of OC are described here.

The TCM proposes that OC has three distinct components, each of which develops via somewhat different processes. *Affective commitment* refers to the employee's emotional attachment to the organization, characterized by enjoyment of the organization and a desire to stay. Employees with strong affective commitment remain with the organization because they *want to do so*. *Continuance commitment* refers to the extent to which the employee perceives that leaving the organization would be costly. Employees with strong continuance commitment remain because they feel that they *have to do so*. *Normative commitment* refers to the employee's feelings of obligation to the organization and the belief that staying with it is the *right thing to do*. Employees with strong normative commitment remain because they feel that they *ought to do so*.

According to the TCM an employee's commitment is characterized not in terms of just one of the three components but as a profile made up of all three. Further, the model proposes that the components have interactive effects on employee behavior.

MEASURING ORGANIZATIONAL COMMITMENT

Researchers and practitioners usually assess OC using multiple-item questionnaires administered directly to employees. Typically, employees respond anonymously, thus increasing the candidness of responses. As with any such measures, it is critical that items reflect the construct they are intended to assess. Especially in early research, this was accomplished with varying degrees of success. Of particular note, however, is the 15-item organizational commitment questionnaire (OCQ). Developed in the 1970s to assess identification with, involvement in, and emotional attachment to the organization, the OCQ is a psychometrically sound measure of desire-based (affective) commitment. It has been used in hundreds of studies, contributing greatly to our understanding of the affective component of OC.

To evaluate the multidimensional model of OC outlined earlier, TCM researchers developed parallel measures of the three proposed OC components. Since then, the affective commitment scale, continuance commitment scale, and normative commitment scale (ACS, CCS, and NCS) have received considerable psychometric scrutiny and have been used extensively in research conducted in dozens of organizational and cultural contexts and with members of various occupations. Overall, the evidence shows that the measures are reliable, assess three distinct constructs, and correlate with other variables in general accordance with TCM propositions.

DEVELOPMENT OF ORGANIZATIONAL COMMITMENT

Although OC might be expected to develop on the basis of both *person* and *work experience* factors, the latter play the more important role. Some person variables (e.g., age, locus of control) are modestly related to OC, but it is what people experience at work that seems to have the most influence on OC development. With respect to affective commitment, quantitative review (or meta-analysis) suggests several work

experiences that seem particularly important. Affective commitment is stronger among employees who feel that they have been supported by their organizations and who have experienced procedural, distributive, and interactional justice in the workplace. Affective commitment is also stronger among employees who experience minimal role ambiguity and role conflict at work and have leaders who adopt transformational leadership styles.

The TCM proposes that normative commitment develops on the basis of both cultural and organizational experiences that highlight expectations of mutual obligation between employees and the organization and make the reciprocity norm salient to employees. These ideas have received relatively little empirical assessment. Meta-analytic results show that some of the same variables (e.g., organizational support, role ambiguity, justice) that seem to influence affective commitment are related to normative commitment, but relations are much weaker. There is also some evidence that the impact of work experiences on normative commitment depends on employees' cultural values, such as individualism versus collectivism.

Consistent with the TCM model, continuance commitment is more strongly related than are the other two components to two sets of variables: perceived alternatives and perceived investments. Specifically, continuance commitment is stronger among employees who believe that they would have few, rather than several, viable sources of employment if they left the organization. Presumably, the costs of leaving their current organization would be quite high for such employees. Continuance commitment is also stronger among employees who believe that they made significant investments developing their skills and acquiring education that would not transfer readily to other organizations. In comparison to employees who have easily transferable skills, such employees would incur greater costs if they left the organization.

CONSEQUENCES OF ORGANIZATIONAL COMMITMENT

As previously mentioned, it is most consistent with theory to examine the consequences of OC in terms of the commitment profile (or interactions between components). Some researchers have taken this approach, but most studies have involved the examination of potential OC consequences on a component-by-component, rather than profile, basis. Outcomes that

have been emphasized include employee retention, work performance, and employee well-being.

The links between OC components and employee retention are fairly straightforward. Affective, normative, and continuance commitment are all negatively related to employee intention to leave the organization voluntarily. Both affective commitment and normative commitment, but not continuance commitment, have been shown to predict actual turnover.

Just as important as retention, however, is how employees *behave* at work. Here the distinction between the three components of commitment becomes especially critical. Beyond their demonstrated link with turnover intention, affective, continuance, and normative commitment are considered, and have been shown, to have somewhat different implications for behavior.

Affective commitment is linked to several key performance indicators. Employees with stronger affective commitment are less likely to be absent from work, and this effect is stronger for absence that is under the employee's control than for involuntary absence, such as that caused by illness and emergencies. Affective commitment also predicts the job performance. Across a wide variety of jobs, both self-report ratings and supervisory ratings of required (or nondiscretionary) work performance are higher among those with stronger affective commitment. Such employees are also more likely to engage in discretionary organizational citizenship behavior (e.g., exerting extraordinary effort, helping coworkers, championing the organization) than those with weak affective commitment and, in so doing, help create a more productive and positive workplace.

Normative commitment is unrelated to employee absence. Its relations with other performance indicators, however, are positive, but effects are more modest than for affective commitment. Interestingly, meta-analytic evidence shows that relations between normative commitment and both job performance and organizational citizenship behavior are stronger in studies conducted outside North America, suggesting that cultural factors might play an important role in the behavioral expression of this component of commitment. Finally, although this has not yet been tested, it has been argued that normative commitment might influence the *tone* with which the employees carry out their work, particularly if they also have weak-to-moderate levels of affective commitment. The idea here is

that strong feelings of obligation to stay, in the absence of strong desire to stay, might create feelings of resentment, prompting such employees to carry out their duties in a competent, but more grudging, manner.

Continuance commitment is unrelated to employee absence. In contrast to affective and normative commitment, however, it is also unrelated to organizational citizenship behavior; those with strong continuance commitment are neither more nor less likely to go the extra mile. Of particular note, however, is the strong negative relation, found in meta-analytic research, between continuance commitment and required aspects of job performance. The fact that employees with strong (versus weak) continuance commitment perform more poorly has critical implications for those organizations that develop retention strategies around what employees will lose if they resign. Such organizations might well increase retention but do so at the cost of employee performance. This will be especially so if employees are given little reason to develop affective commitment to the organization and, as a consequence, feel *trapped* within it.

Finally, researchers are beginning to examine whether OC has implications for employee well-being. Presumably, most people prefer workplaces about which they feel positively. It has been argued, however, that strong affective OC might reduce well-being by causing employees to focus too much attention on their work. Thus far there is little evidence of this latter view. Instead, meta-analytic research suggests that strong affective commitment is related to reduced stress and exhaustion and greater quality of life. In contrast, however, continuance commitment is related to poorer quality of life and greater stress levels.

FURTHER RESEARCH DIRECTIONS

Despite extensive OC research, there remain many challenging issues. One such issue incorporates the idea that employees feel multidimensional commitment to numerous work-related domains or foci. These include foci both within the organization (e.g., department, supervisor, team) and beyond it (e.g., occupation, union). Although complex, a comprehensive understanding of commitment in the workplace will only come through considering, in concert, the multiple components of commitment that employees feel toward these various interconnected aspects of their workplace.

Other challenges are presented by the changing workplace. For example, researchers are just beginning to examine the effects that alternate work arrangements, such as part-time employment, temporary and contract-based work, and outsourcing, have on the development and consequences of OC. Within many workplaces, greater emphasis is being placed on the interplay (or *balance*) between work and nonwork or family; it will be important to examine how policies and practices associated with this issue will influence the development of OC. Finally, likely driven by the increasing cultural diversity in the workforce, the challenges of globalization, and the growing international researcher base, more attention is focused on the role that cultural factors may play in shaping the structure, development, and consequences of organizational commitment.

—Natalie J. Allen

See also Job Satisfaction; Organizational Justice; Withdrawal Behaviors, Turnover

FURTHER READING

- Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance, and normative commitment to the organization. *Journal of Occupational Psychology*, *63*, 1–18.
- Allen, N. J., & Meyer, J. P. (2000). Construct validation in organizational behavior research: The case of organizational commitment. In R. D. Goffin & E. Helmes (Eds.), *Problems and solutions in human assessment* (pp. 285–314). Norwell, MA: Kluwer Academic Publishers.
- Becker, T. E., & Kernan, M. C. (2003). Matching commitment to supervisors and organizations to in-role and extra-role performance. *Human Performance*, *16*, 327–348.
- Meyer, J. P., & Allen, N. J. (1997). *Commitment in the workplace: Theory, research, and application*. Thousand Oaks, CA: Sage.
- Meyer, J. P., & Herscovitch, L. (2001). Commitment in the workplace: Toward a general model. *Human Resource Management Review*, *11*, 299–326.
- Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior*, *61*, 20–52.
- Wasti, S. A. (2003). The influence of cultural values on antecedents of organisational commitment: An individual-level analysis. *Applied Psychology: An International Review*, *52*, 533–554.

ORGANIZATIONAL COMMUNICATION, FORMAL

Formal organizational communication is not an easily defined term. Organizational communication is a complicated phenomenon that has no clear boundaries. Several definitions attempt to conceptualize the abstract nature of organizational communication. The study of organizational communication involves the intersection of two complex and dynamic concepts: organizations and communications. An organization has three primary characteristics:

1. Social collectivity (a group of people)
2. Coordinated activities (structure)
3. Goal-oriented activities (both individual and collective)

In defining communication, most scholars agree that communication is a process that is transactional (involving two or more people interacting in context) and symbolic (placing meaning and abstractions on *things*). To formalize organizational communication means to understand how the context of the organization influences communication processes and how the symbolic nature of communication differentiates it from other forms of organizational behavior.

STUDYING FORMAL ORGANIZATIONAL COMMUNICATION

Eric Eisenberg and Harold Goodall (2004) offer a broad but usable definition of organizational communication. They suggest that there are four ways to conceptualize and study formal organizational communication:

1. Communication as information transfer
2. Communication as transactional process
3. Communication as strategic control
4. Communication as balancing creativity and constraint

Communication as Information Transfer

The traditional approach to study communication has followed the linear model of communication, also

known as the *transmission model*, the *information engineering approach*, or the *model of information transfer*. The information transfer approach views communication as a tool that people use to accomplish goals and objectives. Clear, one-way communication is emphasized as a means of impressing and influencing others. The information transfer or linear model suggests that communication flows one way or linearly from the sender of the message to the receiver of the message. This model suggests that communication is a process whereby messages are transmitted and distributed in space for the control of distance and people.

Some scholars have suggested that communication operates in a predictable fashion; hence the information engineering approach. The information engineering approach advanced the SMCR model. This model posits that communication occurs when a sender (S) transmits a message (M) through a channel (C) to a receiver (R). The sender *encodes* an intended meaning into words and the receiver *decodes* the message when it is received. The communication as information transfer model is similar to both the linear model of communication and the information engineering approach in that communication is framed metaphorically as a pipeline through which information is transferred from one person to another. Within the organizational context, managers transfer information or directives to subordinates and subordinates do the same in their peer and superordinate interactions.

Communication theories in the information transfer approach are based on the following assumptions of transmission:

- Language transfers thoughts and feelings from one person to another person
- Speakers and writers put thoughts and feelings into words
- Words contain those thoughts and feelings
- Listeners or readers extract those thoughts and feelings from the words

There are several problems associated with the information transfer method as an approach to the study of formal organizational communication. *Information overload* is when the receiver of the message becomes inundated with information that needs to be processed. Information overload is made up of the amount of information, the rate at which the information is received, and the complexity of the information.

Another problem with the information transfer model is with communication distortion. Distortion is the processing noise that distracts the receiver from fully processing information. Communication distortion can be semantic (different meanings for sender and receiver), physical (sound distractions), or contextual (sender and receiver have different positions or perspectives that lead to miscommunication).

Ambiguity offers the third problem with the information transfer model. Ambiguity occurs when multiple interpretations of a message distort or misdirect the sender's intended meaning. Differing meanings and interpretations, based on one's worldviews, backgrounds, context of communication, and experiences, along with abstract language, may lead to ambiguity.

Communication as a Transactional Process

A second approach in the study of formal organizational communication is communication as a transactional process. Communication as transactional process asserts that in actual communication situations, clear distinctions are not made between senders and receivers of messages. This assumption contrasts with the information transfer model. Instead, in the transactional process, both communicators play both roles of encoding and decoding messages simultaneously. This model emphasizes the importance of *feedback* in communication. This model also highlights the importance of nonverbal communication, which is missing in the information transfer approach. Organizational communication as a transactional process suggests that nonverbal feedback may accompany or substitute for verbal messages. Finally, the transactional process model suggests that meanings are in people, not words, as the information transfer model assumes. How an individual receives a message and how the receiver constructs the meaning of that message is the focus of the transactional process model.

The transactional process influences contemporary leadership studies. Effective and successful leaders using this approach are better able to mobilize the meanings that followers have for what leaders say or do. This creates a transactional and fluid process between leaders and followers in organizations.

The approach of studying formal organizational communication through the transactional process approach may be problematic in its emphasis on creating shared meaning through communication. By

focusing on shared meaning by means of clarity, openness, and understanding, communication as a transactional process minimizes the complexities of the human condition whereas ambiguity, vagueness, and instrumental objectives are central in some forms of formal communication in organizations.

Communication as Strategic Control

Communication as strategic control views communication as a tool for controlling the organizational environment. This approach acknowledges that clarity, openness, and understanding are not always the primary goals in interpersonal and organizational interactions caused by personal, relational, social, and political factors. Communication as strategic control assumes communicators have multiple goals or agendas in organizational situations. These agendas play out in performance evaluations, delivering or accepting bad news, asking for a promotion or raise, or in various other situations where the individual or organizational interests are at stake.

The strategic control approach to formal organizational communication suggests that individuals should not be expected to communicate in a rational or objective manner. Communication rules, clarity, and honesty may be broken or compromised when it is in the communicators' best interests to do so. Generally, strategic communicators are competent communicators. Communication competence refers to the appropriateness and effectiveness of a message. The communicating party must be *rhetorically sensitive* in that he or she must be able to recognize the constraints of the situation and adapt to the multiple goals of all parties simultaneously.

Strategic ambiguity is a common form of strategic control. Strategic ambiguity describes the ways people deliberately communicate ambiguously to accomplish their goals.

Strategic ambiguity seeks to accomplish specific goals. First, strategic ambiguity promotes unified diversity by taking advantage of the multiple meanings different people may give the same message. For example, if a supervisor directs employees to *work more as a family*, there are multiple interpretations on how this should occur.

Second, strategic ambiguity is deniable because the words may seem to mean one thing, yet under pressure, these same words can seem to mean something else. For example, if an organization has announced

a merger, organizational leaders are careful when discussing job loss because of duplication of processes, so that when job loss occurs later, their words at that time appear more abstract and less definitive.

Finally, strategic ambiguity facilitates organizational change by allowing people the interpretive room to change their activities while appearing to keep those activities consistent.

The strategic control model of formal organizational communication opposes the idea of shared meaning. The primary goal of communication in this approach is organized action. Organized action minimizes the importance of understanding and clarity and highlights working and acting in mutually satisfying ways to fulfill each party's self-interest.

Many scholars have criticized the strategic control approach for several reasons. First, this approach minimizes the importance of ethics. Although strategic ambiguity is widespread in organizations, it may be used to elude the truth and escape blame.

It is also problematic because it places all responsibility on individuals without much thought about the community implications. This model implicitly suggests that individuals are only concerned with accomplishing their individual goals, often at the expense of the organizational community or the community at large.

ADDITIONAL APPROACHES TO FORMAL ORGANIZATIONAL COMMUNICATION

There are other approaches to studying formal organizational communication. These approaches include the functional approach and the meaning-centered approach.

Functional Approach

The functional approach is a way of understanding organizational communication by describing what messages do and *how these messages move* through organizations. The functional approach conceptualizes communication as a complex organizational process that serves *messaging, organizing, relationship, and change functions*. This approach posits that communication transmits rules, regulations, and information throughout the organization.

Message Function. In formalizing organizational communication, it is important to recognize how communication contributes to the overall function of

the organization. Messages act as a communication function for production, maintenance, adaptation, management communication, regulative, integrative, innovative, informative, task, persuasion, command, and instruction.

Organizing Function. The organizing function of formal organizational communication guides, directs, and controls organizational activity. Communication functions to organize rules and regulate the environment. These regulative and organizing functions are found in employee handbooks, policy manuals, training, newsletters, memos, and so on. The organizing function establishes what is expected at work and how individuals are required to accomplish these expectations.

Relationship Function. The relationship function of organizational communication focuses on how human interaction makes organizational functioning possible. The relationship function helps individuals define their roles and measure the compatibility of individual, group, and organizational goals. This function is particularly important because it contributes to employee morale, role in the organization, and organizational self-esteem. The relationship function establishes relationships with peers, superiors, subordinates, and customers; and it further clarifies these roles.

The relationship function is accomplished by verbal and nonverbal communication. Scholars have suggested that the informal organization, often characterized by the relational function, is more powerful than the formal organization. Relational communication ranges from the informal conversations in a break room to one's job title, office space, or cubicle to how an individual is greeted on meeting.

Change Function. The final function of formal organizational communication is its change function. The change function helps an organization adapt what they do and how they do it. This adaptation occurs in decision making, internal and external changes in the environment, organizational repositioning, and other change functions. The effectiveness of the change function of organizational communication is associated with the survival of the organization and its ability to adapt to the changing environment. Change communication is necessary for innovation and adaptation and is the process through which organizations obtain existing and new information, and how they process this information in light of the current situation and emerging trends.

Meaning-Centered Approach

The meaning-centered approach is a way of understanding organizational communication by understanding how organizational reality is constructed through human interaction. This approach describes organizational communication as a process of organizing, decision making, sense making, influence, and culture. Pamela Shockley-Zalabak (2002) offers key assumptions of the meaning-centered approach.

- *All ongoing human interaction is communication in one form or another.* A major theme in the communication discipline is that an individual “cannot not communicate.” This is due in part to verbal and non-verbal cues.
- *Organizations exist through human interaction; structures and technologies result from the information to which individuals react.* This idea suggests that organizations cannot exist separate from human activity. An organization relies solely on individuals’ enactment of organizing and structuring. Karl Weick (1979) offered insight to these ideas by suggesting that organizations do not exist per se but are a culmination of the ongoing human interaction surrounding events that are continually created and shaped by these interactions. The meaning-centered approach to formal organizational communication describes communicating and organizing as a parallel process.
- *Organizing and decision making are essentially communication.* This is the process of choosing from among numerous alternatives to direct behaviors and resources toward organizational goals.
- *Identification, socialization, communication rules, and power all are communication processes that reflect how organizational influence occurs.* The meaning-centered approach proposes that influence is a necessary process for creating and changing organizational events. Influence plays a role in understanding how individuals identify with their organizations, how organizations attempt to socialize members, how communication rules direct behavior, and how individuals use communication to exert power.
- *Organizing, decision-making, and influence processes describe the cultures of organizations by describing how organizations do things and how they talk about how they do things.* Organizational culture reflects the shared realities and practices in organizations and how shared realities create and shape organizational events. The culture varies from organization to organization depending on the individuals’ engagement with each other and the organization’s goals. Culture describes the unique

sense of the organization, its practices, and how the organization describes itself.

—Shawn D. Long

See also Organizational Communication, Informal

FURTHER READING

- Eisenberg, E. (1984). Ambiguity as strategy in organizational communication. *Communication Monographs*, 51, 227–242.
- Eisenberg, E. M., & Goodall, H. L., Jr. (2004). *Organizational communication: Balancing creativity and constraint* (4th ed.). Boston: Bedford/St. Martin's.
- Jablin, F. M. (2001). Organizational entry, assimilation, and disengagement/exit. In F. M. Jablin & L. L. Putnam (Eds.), *The new handbook of organizational communication: Advances in theory, research, and methods* (pp. 732–818). Thousand Oaks, CA: Sage.
- Redding, W. C. (1972). *Communication within the organization*. New York: Industrial Communication Council.
- Shockley-Zalabak, P. (2002). *Fundamentals of organizational communication: Knowledge, sensitivity, skills, values* (5th ed.). Boston: Allyn & Bacon.
- Weick, K. (1979). *The social psychology of organizing* (2nd ed.). Reading, MA: Addison-Wesley.

ORGANIZATIONAL COMMUNICATION, INFORMAL

Some scholars argue that the informal organization is more powerful than the formal organization. Scholars also suggest that a great deal of communication in organizations is informal communication. Elton Mayo and his famous Hawthorne studies found that informal communication influenced the development and reinforcement of performance standards, member expectations, and values at the work group level. Informal organizational communication consists of episodes of interaction that do not reflect formally designated channels of communication. P. H. Tompkins wrote that informal organizational communication is not *rationally specified*. An organization may be formally structured with specific communication rules and patterns, such as chain of command; however, that does not mean that all activities and interactions strictly conform to the original formalized organization. A great deal of time and effort is devoted to creating an

organization driven by control and predictability through formal means such as employee handbooks, rules, regulations, and procedures and standard means of practices. However, an elaborate setup of organizational mechanisms and contingencies cannot fully predict and control the dynamic and complex nature of human beings and their interactions with other individuals and the environment.

Scholars posit that in every formal organization emerges an informal organization, primarily through communication. Various groups develop their own values, norms, and practices in relation to their peers, subordinates, and supervisors. These practices construct context-specific ways of working beyond the scope of the formal organization. Rules are important in formal organizations, particularly in organizations highly characterized by hierarchy and bureaucracy. Max Weber suggested that the functioning of formal organizations is made possible by five primary characteristics.

1. There is the principle of fixed and official jurisdictional areas, which are generally ordered by rules, laws, or administrative regulations.
2. The principles of organizational hierarchy and of levels of graded authority mean a firmly ordered system of superordination and subordination in which there is a supervision of the lower offices by the higher ones.
3. The management of the formal organization is based on written documents, which are preserved in their original form.
4. When the organization is fully formalized, official activity demands the full working capacity and attention of management.
5. Management follows general rules, which are more or less stable, are more or less exhaustive, and can be learned.

The last characteristic suggests that rules should be general to have enough scope to cover a multitude of situations or contingencies. However, not all contingencies can be imagined and prepared for, and informal communication provides a solution to this problem.

FORMAL VERSUS INFORMAL ORGANIZATIONAL COMMUNICATION

The distinction between formal and informal organizational communication is unclear. Historically, scholars have made interesting theoretical and empirical

distinctions between formal and informal communication. Scholars link formal communication with the organizational chart and formalized messages. Researchers also link informal organizational communication with the grapevine (addressed later) and communications not considered on the formal organizational chart. Scholars have attempted to distinguish formal and informal communication, but the lines are not clearly drawn. Conceptually, however, formal communication is viewed as *expected* communication patterns that are written, centralized, vertical, planned, imposed, and mandated. Formal communication is viewed as legitimate communication given authority by the organization. However, informal communication is viewed as *actual* communication patterns that are oral, decentralized, horizontal, unplanned and not imposed, and not mandated.

There have been several attempts to link formal organizational structure to organizational behavior. However, these attempts have produced inconclusive findings. Because of this lack of evidence, scholars have suggested that studying informal communication will contribute to our understanding of organizational behavior.

WHY STUDY INFORMAL COMMUNICATION?

Informal communication in organizations is an important area of inquiry in organizational theory and behavior. It is particularly useful when studying the role of informal communication in decision making, productivity, and organizational change.

There are three primary reasons informal organizational communication continues to thrive. First, decision making does not operate in a vacuum, and many times decisions must be made that fall outside the purview of the formal organizational design. Reacting in the moment allows immediate and flexible solutions that may not wait on a formalized process that may take a considerable amount of time to implement.

Second, unofficial norms may develop to regulate performance and productivity. For example, systematic soldering resulted from rate busting in the early industrial revolution era when a group of workers would pressure each other to keep productivity at a steady pace by not working too hard and fast or too slowly, to keep the rate of piecework pay the same. This pressure was placed on all workers by their peers through informal policing of productivity.

Finally, as the complex nature of social relations and informal status structures emerge, organizational

change provides an important backdrop for promoting informal organizational communication. Informal organizational communication develops in response to opportunities and problems posed by the environment, whereas formal organizational communication is a response to the immediate environment of the groups within it.

Organizations are influenced by factors other than the traditional organizational chart. Informal factors such as background, demographic characteristics, workers' abilities, their willingness to help others, and their degree of conformity to group norms all shape informal organizational communication.

TRADITIONAL FORMAL COMMUNICATION

Traditional scholars of organizational communication made no allowances for the role of informal communication in organizational functions and its influence on the organization. This was in part because of a reliance on the idea that all organizational messages should always exhibit the two characteristics of intelligibility and persuasion. Intelligible messages mean that the message should be clear and concise. Persuasive messages indicate that the average human needs coaxing to perform tasks in the interests of the organization. To better motivate and control the worker in the interest of the organization, the task goals should be communicated in such a way that it appears to serve the interest of the worker.

INFORMAL COMMUNICATION PERSPECTIVES

There are two predominant views on informal communication. Some scholars argue that informal communication arises when information transmitted through the formal organization is either insufficient or ambiguous. In this sense, informal communication is used for clarity. Other scholars suggest that informal communication is much more than a surrogate from an incomplete formal system. Instead, informal communication is an inherent and even necessary aspect of organizational life. Most organizational communication researchers agree that some informal communication is inevitable in organizational life, regardless of the form the organization may take.

GRAPEVINE COMMUNICATION

A great deal of the research on informal organizational communication centers on the study of

grapevine communication. Grapevine communication is a metaphor for a communication system that began in the 1860s during the Civil War in America as a description for telegraph lines that were strung through trees, resembling grapevines. This early system was neither stable nor reliable, so the term was coined for any form of communication outside the purview of formalized organizational communication.

The flow of information in grapevine communication can be complex. Some organizational members who participate in the grapevine act only as receivers of the message. These participants do not relay information to other organizational members. However, there are certain organizational members who serve as both senders and receivers of a message to other organizational members.

There are five areas of study of grapevine communication:

1. *The function and extent of grapevine communication:* The grapevine emerges from the social and personal interests of employees rather than from formalized organizational communication. This approach is more *people oriented* than *task oriented*.
2. *Participants in grapevine communication:* This studies the participants and their roles in grapevine communication. Secretaries and liaisons play critical roles in grapevine communication. Managers and other organizational members play a role in informal communication.
3. *Patterns and media of grapevine communication:* Grapevine communication is generally oral and presented in interpersonal and group contexts. The communication may begin, flow, and end anywhere in the organization.
4. *Volume, speed, and reliability of information:* The diffusion of grapevine information is rapid and the information is more accurate than inaccurate. However, most grapevine communication is incomplete.
5. *Role in rumor transmission:* Three types of rumors are spread through the grapevine: anxiety rumors (associated with perceived negative change such as layoffs), wish-fulfillment rumors (associated with salary increase or promotions), and wedge-driving rumors (once a rumor is assigned credibility, events are altered to fit in with and support the rumor).

Research on grapevine communication suggests that a great deal of organizational communication occurs through the grapevine. The grapevine serves as

a rumor mill; however, only a small portion of the communication consists of rumors. There are no demographic (male vs. female) or status (managers vs. employees) differences among grapevine participants.

CURRENT RESEARCH IN INFORMAL ORGANIZATIONAL COMMUNICATION

Research in the area of informal organizational communication has splintered from the traditional views of informal communication of examining grapevine communication to situating informal communication in various organizational structures. For example, the increased use of computer-mediated technology and communication systems has created research lines that compare the traditional organizational structure driven by formal communication with informal or emergent communication created by mediated communication. J. D. Eveland and Tora Bikson (1987) found that electronic mail served to augment, and in some cases complement, formal structures. Other scholars have shown that informal organizational communication that naturally emerges from communication technology in a sense is becoming more formalized as organizations attempt to extend control beyond time and spatial constraints characteristic of formal organizational communication.

Other streams of research include Pamela Hinds and Sara Kiesler's (1995) work that found that communication technologies were used as a tool for lateral communication across formal organizational boundaries. In another study, R. E. Rice (1994) found that electronic communication structures closely resembled formal organizational structures initially, but these similarities diminished over time. In sum, the current literature focuses on the advantages of informal communication to individuals and organizations.

—Shawn D. Long

See also Organizational Communication, Formal

FURTHER READING

- Daniels, T. D., Spiker, B. K., & Papa, M. J. (1997). *Perspectives on organizational communication* (4th ed.). Boston: McGraw-Hill.
- Eveland, J. D., & Bikson, T. K. (1987). Evolving electronic communication networks: An empirical assessment. *Office: Technology and People*, 3, 103–128.
- Hinds, P., & Kiesler, S. (1995). Communication across boundaries: Work, structure, and use of communication

- technologies in a large organization. *Organization Science*, 6, 373–393.
- Jablin, F. M., & Putnam, L. L. (Eds.). (2001). *The new handbook of organizational communication: Advances in theory, research, and methods*. Thousand Oaks, CA: Sage.
- Miller, K. (1999). *Organizational communication: Approaches and processes* (2nd ed.). Belmont, CA: Wadsworth.
- Monge, P. R., & Contractor, N. S. (2001). Emergence of communication networks. In F. L. Jablin & L. L. Putnam (Eds.), *The new handbook of organizational communication: Advances in theory, research, and methods* (pp. 440–502). Thousand Oaks, CA: Sage.
- Rice, R. E. (1994). Relating electronic mail use and network structure to R&D work networks and performance. *Journal of Management Information Systems*, 11(1), 9–20.
- Tompkins, P. H. (1967). Organizational communication: A state of the art review. In G. Richetto (Ed.), *Conference on organizational communication*. Huntsville, AL: NASA, George C. Marshall Space Flight Center.
- Weber, M. (1947). *Max Weber: The theory of social and economic organization* (T. Parsons & A. M. Henderson, Eds. & Trans.). New York: Free Press.

ORGANIZATIONAL CULTURE

Although there is no universally accepted definition of organizational culture, researchers generally agree that organizational culture refers to the shared meaning, interpretations, and understanding of various organizational events among organizational members. Organizational culture serves as a guide to members to behave in ways shown to be effective over time; adds a sense of predictability and order to uncertainties in the environment; and provides a general understanding of how, when, and why members behave in certain ways.

Researchers generally agree that organizational culture is best represented as different layers along a continuum of accessibility. Denise Rousseau's description of culture suggests that the most observable layer of organizational culture is the material artifacts, such as organizational logos and office layout, found in the organization. The next layer is the behavioral patterns in which members engage. These are the routinized activities that members perform, which build coordination among members. The third layer is formed by the behavioral norms that provide

predictability among members and identify acceptable and unacceptable behavior. The fourth, and less readily accessible, layer is made up of the values and beliefs of the organizational members. These values and beliefs represent preferences for various outcomes or behaviors and are generally conscious or espoused by organizational members. The deepest, and therefore least accessible, layer of culture is the basic, fundamental assumptions shared by organizational members. These assumptions exist outside of conscious awareness and as such, members are typically unaware of their content or influence.

Edgar Schein's (1992) highly influential definition of culture focused primarily on the deeper levels of culture, in that he defined organizational culture as a pattern of basic, largely unconscious assumptions that organizational members share. These basic assumptions are learned over time as those behaviors effective at solving organizational issues with adapting to the external environment or with resolving internal conflicts that have come to be internalized as the *right way to do things here*. Because these behaviors were effective in the past, new organizational members are socialized to these behavioral responses as the correct way to perceive, think, and feel in regard to external and internal issues. Ben Schneider's (1990) arguments about attraction, selection, and attrition leading to a homogeneous workforce suggest that because similar types of people enter the organization in the first place, it is often relatively easy for organization members to internalize the basic assumptions that form the organization's culture.

According to Schein's (1992) definition, organizational culture exists primarily at the level of these basic assumptions. Meanwhile, not included in his definition of organizational culture are *artifacts*, the visible structures, norms, and processes of an organization; and *espoused values*, the cognitively available and articulated strategies, goals, and philosophies of an organization. Instead, they are considered manifestations of the true, deeper culture. Other culture researchers (like Rousseau, described previously) view all these layers as various aspects of organizational culture.

MEASUREMENT OF ORGANIZATIONAL CULTURE

Generally speaking, there are two distinct ways to measure organizational culture, each with advantages

and disadvantages. One approach is more anthropological in nature and emphasizes the investigators' immersion into the organizational culture. When embedded in the organization, the investigator can better interpret the basic assumptions made by the organizational members. The second approach uses more quantitative methods to assess organizational culture. Through surveys of organizational members, investigators can quantify an organization's culture, which provides a means to compare organizations or branches of an organization on predetermined cultural factors.

The more qualitative approach to the assessment of organizational culture is advocated strongly by Schein, and by the organizational anthropological community. Schein (1992) argues that the more efficient and accurate way to truly understand an organization's culture is to plunge into the organization. This vantage point provides an opportunity, with the help of motivated insiders, to better decipher the organizational members' basic assumptions and truly understand the culture. Specific methods used thus far in the literature include ethnographic techniques such as observation; interviews; structured focus groups; and large group meetings with organizational members designed to examine artifacts, espoused values, and basic assumptions. Schein even goes so far as to argue that a quantitative assessment of organizational culture is unethical, in that it fails to describe the unique ways in which various beliefs and assumptions are manifested in a given organization.

The qualitative assessment of culture depends on an iterative clinical approach, or a continual revising of cultural assessment as new information is made available. With this method, the investigator enters the organization and directly experiences the organizational culture. This entails both active and systematic observation as well as passively encountering situations that are different from what the investigator expected and attempting to understand these observations and encounters. An important step in this approach is to find a motivated insider that can help decipher the investigator's observations and interpretations. This motivated insider has to have the mental capacity to think analytically to be helpful in this important process, as well as have a vested interest in understanding the cultural issue that has initiated the organizational culture study.

With the help of the motivated insider, the investigator attempts to identify the underlying shared

assumptions and continually recalibrates these assumptions to further understand the true organizational culture. The end product in a qualitative investigation of culture is a formal description of the organization's culture. This description is in no way static; but it is a perpetual work in progress, because organizational culture is dynamic and new information may reveal more basic assumptions or revisions to the prior basic assumptions.

The ability to converse with insiders of the organization is essential to fully understand the culture for two reasons. First, the investigator can easily misinterpret events and observations and needs the insider to help correct these misinterpretations. Second, the insider is usually unaware of the basic assumptions in the organization, because these assumptions have dropped from conscious awareness and are taken for granted. It is the goal of the investigator to help bring these basic assumptions to a conscious level.

These qualitative methods, although thorough and comprehensive, have many disadvantages. In some situations, it is not financially feasible to conduct one or two large group meetings at numerous organizations in many different countries. The time burden of this endeavor would cause too much time to pass for an equal comparison across organizations or countries. Further, the results of this type of research do not allow for necessary comparisons, because statistical analysis of qualitative data would be difficult, if not impossible.

Using Rousseau's five-level typology of culture as a framework, quantitative measures of culture vary from the more behavioral level to values and beliefs. Because quantitative measures of culture are limited to the more observable and measurable aspects of organizational culture, these self-report measures are necessarily limited to the shallower levels of the typology. However, it has been argued that when the organizational culture is strong, the material artifacts, behavioral patterns and norms, espoused values, and basic assumptions may all be in alignment. When this is the case, a quantitative measure of culture may effectively tap the deeper levels of organizational culture.

The quantitative approach to assessing organizational culture is through self-report surveys. A number of survey measures have been created and are classified by Neal Ashkanasy as either typing or profile surveys. Typing surveys classify organizations into mutually exclusive taxonomies or types. Once an

organization is classified into a particular type, a description of behaviors and values typical of the type is provided. Through these types, organizations can be compared and organizational culture change can be monitored over time. Profile surveys assess an organization on predetermined cultural dimensions. High or low scores on the various dimensions of norms, behaviors, values, and beliefs provide a profile of the culture of an organization. These profiles can also be compared with those of other organizations, and changes can be tracked over time.

Assessing organizational culture using a quantitative measure provides a standardized means of understanding an organization's culture. This standardization of measurement is more conducive to comparing cultures of different organizations as well as different branches of the same organization. The ability to use statistical techniques is also a benefit of standardized, quantitative measures of organizational culture. Another advantage is that organizational members may be more likely to take part in later organizational change efforts because they were included in the cultural assessment. This commitment to the process could prove valuable later on.

There are a number of disadvantages to using the quantitative approach to cultural assessment. Self-report measures of organizational culture assume the respondent is aware of and can report the various aspects of an organization's culture. This approach assumes everyone surveyed is motivated and mentally capable of reporting on the behaviors, values, and beliefs of the organization as a whole. Further, quantitative measures are incapable of assessing all dimensions of culture identified to date. Using quantitative measures alone could miss those dimensions that are idiosyncratic, yet vitally important, to the functioning of a specific organization.

Quantitative measures are useful in assessing the more shallow layers of culture and may approach the deeper levels when the culture is strong. Although using qualitative measures may aid in the understanding of basic assumptions, quantitative measures provide information that is replicable and generalizable and that can reap the many benefits of statistical analysis. Because of the various advantages and disadvantages presented here, whether to use quantitative and qualitative measures should be considered carefully. A multimethod approach is recommended whenever feasible to avoid missing any vital level of information about organizational culture. In general, quantitative measures can be an efficient and valid measure of the

more shallow levels of culture, and the use of qualitative measures can be considered for deeper layers of culture such as basic assumptions.

ROLE OF LEADERSHIP IN ORGANIZATIONAL CULTURE

The general assumption that is inherent in much organizational research on the relationship between leadership and culture is that *leaders create cultures*. This seems intuitive, in that organizational founders are seen as the people who create the initial culture of the organization, and in many organizations the founder's impact continues to be felt for years or decades after the founder has left the organization, or died. Schein (1992) in particular emphasizes the importance of the founder in shaping the organization's culture. Early research (e.g., Kurt Lewin, Ronald Lippitt, and Ralph White's 1939 study) and writing (e.g., Douglas McGregor's classic, *The Human Side of Enterprise*) in this area focused largely on how managerial beliefs about employees affect the behavior of those employees. Research has demonstrated that the personality traits of the CEO may be related to certain aspects of the organization's structure; and recently, Tomas Giberson and colleagues have shown congruence between CEO personality and values and the personalities and values of subordinates within the organization. Clearly, leadership plays a role in the creation of organizational culture.

However, other perspectives emphasize the role that culture plays in allowing (or preventing) people from emerging as leaders. For example, Robert Lord and colleagues focus on an information-processing approach to culture and suggest that the shared values and shared ways of conceptualizing and solving problems within an organization lead to evaluations of organizational members as being good or bad leaders, when a more accurate appraisal might be that a person is *consistent with the type of person who has been successful as a leader in the past here*. They thus argue that leadership itself may simply be an artifact of culture. The punctuated equilibrium model leads to similar conclusions: During times of calm, the people who rise to leadership positions tend to be those who do things in the same ways as the people who came before. They are likely to share the same values and perspectives, and it is only during times of crisis—when the shared values of an organization may be threatened or crumbling—that people with different leadership styles may come to be seen as leaders.

In short, leaders create cultures, and cultures yield leaders. The dynamics of this reciprocal process vary from organization to organization, from industry to industry, and from society to society. To believe the causal arrow points in only one direction, however, is to be too simplistic in our conceptualization of organizational functioning.

ROLE OF SOCIETAL CULTURE IN ORGANIZATIONAL CULTURE

Although it seems intuitively obvious that the culture of the society in which an organization emerges would affect the culture of the organization itself, until recently there has been little data available with which to assess this question. The Global Leadership and Organizational Behavior Effectiveness (GLOBE) project's analyses on this question have provided evidence suggesting that there is in fact some degree of congruence between aspects of a societal culture and of the culture of the average organization within that society. Speculating about the mechanisms by which this impact occurs, GLOBE researchers propose several possible avenues, including normative isomorphic pressures (e.g., organizations that structure themselves in certain ways and value certain things are seen as *good* within a given societal context) and cultural immersion (e.g., when an organization's founders have lived in an uncertainty-avoiding society, they are likely to have internalized that value, and would thus be more likely to create organizations that manifest uncertainty avoidance).

What remains unknown to date is whether the organizations in a society that are most effective are those that most closely represent the dominant values of the society, or those that diverge from those values in some distinct way. Additionally, the role of the industry here is unknown. For example, it seems plausible that in a conservative, risk-averse society, a bank with a culture of risk aversion could be seen as trustworthy and good, whereas a pharmaceutical or high-tech firm with a strong risk aversion could be seen as less appropriate. Research on these issues will be critical for better understanding the origins and effects of organizational culture in different societies and industries.

ORGANIZATIONAL CULTURE VERSUS ORGANIZATIONAL CLIMATE

Elsewhere in this volume, we describe the construct of *organizational climate*. Although the climate and culture constructs are clearly related, they have

evolved in different ways and have come to be seen as representing different aspects of organizational functioning. Arnon Reichers and Schneider, in Schneider's *Organizational Climate and Culture* (1990), provide an extensive description of the historical evolution of the two constructs, showing how the current conceptualization of organizational climate has followed almost a direct linear path from the early work of Kurt Lewin, with his focus on the practicality of good theory, whereas the organizational culture construct has evolved more from a history rooted in anthropology. Reichers and Schneider point out the research emphasis on climate as a predictor of organizational effectiveness in some domain (which links cleanly to Lewinian practical theory), and the emphasis in culture research on descriptive, rather than prescriptive, approaches to organizational culture assessment (which links cleanly to a more anthropological, value-neutral, descriptive approach); but clearly there has been increased emphasis in recent years on the value of certain types of organizational cultures over others.

In the *Handbook of Organizational Culture and Climate* (Ashkanasy, Wilderom, & Peterson, 2000), both Schneider and Schein weigh in with their perspectives on climate and culture. Schneider argues that climate is the shared perception of the setting in which people work, *the way things are around here*, and that culture is the attributions made about why the setting is the way it is. Schein emphasizes the importance of attending to an organization's culture both as something that is a static property and as something that is a natural, constant process of building collective meaning. Both authors note the overlap between climate and culture, emphasize the separateness of the two constructs, and emphasize the value for researchers and practitioners of attending to both.

CONCLUSION

Several recent books, both popular and academic, have focused on the importance of organizational culture. For example, the best-selling books *Good to Great* (Jim Collins, 2001) and *Built to Last: Successful Habits of Visionary Companies* (Collins and Jerry Porras, 1994) both focus on aspects of organizational culture that help explain why certain organizations over time excel within their industry and relative to their competitors. Others have noted the importance of culture match in mergers and acquisitions and joint ventures (e.g., Yaakov Weber's work) and about the difficult but critical issue of organizational culture change when faced

with an organizational crisis. Clearly, culture matters—it matters for the organization in its quest for effectiveness, and it matters for shareholders who want to see resources put to good use and not diverted by *people problems*, and it matters for employees who live within a system of shared values that affects their day-to-day functioning. We hope that consideration of the issues described in this entry illustrate both the utility and the complexity of organizational culture.

—Marcus W. Dickson and Jacqueline K. Mitchelson

See also Attraction–Selection–Attrition Model; Global Leadership and Organizational Behavior Effectiveness Project; Organizational Climate

FURTHER READING

- Ashkanasy, N. M., Wilderom, C. P. M., & Peterson, M. F. (Eds.). (2000). *Handbook of organizational culture and climate*. Thousand Oaks, CA: Sage.
- Deal, T. E., & Kennedy, A. A. (1982). *Corporate cultures: The rites and rituals of corporate life*. Reading, MA: Addison-Wesley.
- Denison, D. R. (1990). *Corporate culture and organizational effectiveness*. Ann Arbor, MI: Aviat.
- Schein, E. (1992). *Organizational culture and leadership* (2nd ed.). San Francisco: Jossey-Bass.
- Schneider, B. (Ed.). (1990). *Organizational climate and culture*. San Francisco: Jossey-Bass.
- Trice, H. M., & Beyer, J. M. (1993). *The cultures of work organizations*. Englewood Cliffs, NJ: Prentice Hall.

ORGANIZATIONAL CYNICISM

At some point in our working lives, most of us feel that things at work would be fine if only we were in charge. Some people feel that way most of the time. They believe that the problems they and their coworkers encounter at work could be avoided or surmounted if someone competent were in control. This tendency to find fault with the management of the workplace and criticize the efforts of others who strive for excellence, while doubting their motives, is called *organizational cynicism* by psychologists.

ORIGINS AND DEFINITIONS

The term *cynicism* originally referred to the beliefs of the Cynics, a small but influential school of ancient

Greek philosophers who stressed self-control and individualism as the path to virtue. In their pursuit of virtue, the Cynics believed that rejection of social mores was preferable to material wealth and social acceptance because antisocial behaviors such as incivility, rude manners, and criticizing others freed one from society's bonds and restrictions. Rejection of social norms compels the individual to be self-reliant, and through self-reliance the individual attains a state of virtuous righteousness. In pursuing this ideal, the Cynics often took to scornful faultfinding in others. It is this sense of the word *cynic* that has come down to present-day use.

The idea that cynics direct their negativity toward past, present, and future events neatly captures the approach that many modern-day researchers bring to the study of organizational cynicism. An *organizational cynic* may be defined as someone who believes that workplace problems are solvable and improvements are possible but that change and improvement efforts are futile because of the failings of others and the inherent incompetence of the system.

As the pace at which companies reinvented themselves quickened during the later years of the 20th century, their employees became increasingly skeptical of yet another *flavor-of-the-month* change initiative. This is an ongoing theme of the popular *Dilbert* cartoon strip. Organizational researchers recognize that many of these initiatives (including quality circles, continuous quality improvement, six sigma, process reengineering, customer focus, etc.) require acceptance and support from employees to succeed. Indeed, employee resistance to change could doom these initiatives to failure; the belief that failure is inevitable becomes a self-fulfilling prophecy that gives smug cynics a perverse *I told you so* satisfaction.

RESEARCH ON CYNICISM

Researchers adopt a number of conceptually distinct approaches to the study of cynicism. One school of study regards cynicism as a personality trait. Usually labeled *cynical hostility*, in this view cynicism is dysfunctional primarily in the realm of interpersonal relations. Studies indicate that cynics tend to be especially sensitive to social stress and, because of this, are likely to keep their cynical views to themselves. Even their spouses may not realize how cynical they are. Cynics have more job dissatisfaction, more job stress, and greater difficulties with the social and interpersonal environment at work than their noncynical coworkers.

Perhaps the best known treatment of cynicism as a dispositional characteristic is that of Donald Kanter and Philip Mirvis (1989). They conducted a national survey of cynicism among American adults. In their view cynicism develops from three key ingredients:

1. Unrealistically high expectations of self or others
2. Disappointment and frustration with outcomes and accomplishments
3. Disillusionment and a sense of having been let down, deceived, or betrayed by others

They classified cynics into types, such as *command cynics*, *squeezed cynics*, and *hard-bitten cynics*, with each type having implications for how someone expresses a personal cynical worldview. In addition to negative evaluations of attempts by others to make improvements, cynicism breeds suspicion of the motives of change agents and antipathy toward those efforts. Their findings indicated that cynicism is related to distrust of management and coworkers, job dissatisfaction, and dissatisfaction with the employer. Other researchers who used the Kanter and Mirvis (1989) survey instrument found that cynics tend to have low self-esteem, but cynicism is unrelated to other personality traits such as introversion and extraversion as well as anxiety.

Some researchers approach the study of cynicism from a perspective of work and occupations. Arthur Niederhoffer (1967) pioneered the study of occupational cynicism by looking specifically at cynicism among police officers. In his view cynicism is an adaptive reaction for officers who must maintain an adversarial role toward the public they serve. Cynicism is thus a coping mechanism for dealing with frustration, which is learned through direct experience with duplicitous criminals and reinforced by a culture of cynical coworkers and supervisors.

Other researchers who followed the work of Niederhoffer identified specific targets of police cynicism, including the following:

- *Organizational cynicism*: problems will not be solved because of the bureaucratic way decisions are made
- *Work cynicism*: problems cannot be solved because of the nature of things; for example, human nature will always produce criminals
- *Cynicism toward management*: incompetent superiors
- *Cynicism about rules and regulations*: bureaucracy stymies effective action

- *Cynicism about the legal system*: criminals go free on legal technicalities
- *Cynicism about fellow citizens*: people try to get away with whatever they can

Findings showed that cynicism about specific targets relates differently to aspects of work performance, including relations with coworkers, encounters with citizens, and number of arrests made. Implications of this work are that a person can be more cynical with respect to some targets than others, and that social influences (peers, coworkers) identify acceptable targets of blame, which can vary across situations.

In this era (from the 1980s to the early 21st century) of mergers, acquisitions, downsizing, restructuring, and bankruptcies, management assurances about the future of the company fall by the wayside with the next episode of corporate drama, leaving workers with ever greater levels of distress, uncertainty, betrayal, and cynicism. Announcements of massive corporate layoffs regularly make headlines in today's American economy, usually accompanied by stories of multi-million-dollar severance packages for the executives who engineered such *success*. Another approach to the study of organizational cynicism uses a contract violation framework to argue that cynicism develops from frustration and disappointment when management breaks implicit and explicit promises to employees. Unmet expectations are the culprit, particularly when these expectations are encouraged by executives and managers who tout each flavor-of-the-month change initiative as the new best path to success.

WHAT IS ORGANIZATIONAL CYNICISM?

These various approaches to the study of cynicism contribute essential insights into its role in the psychology of the individual and as a dimension of social processes at work.

- There is a dispositional aspect to cynicism. Some people are generally more pessimistic than others, their general negative affectivity giving them a tendency to see the glass as half empty rather than half full. When they encounter frustration and duplicity, they are more likely than optimists to become cynical, expecting more of the same. It is probably negative affect that contributes to cynics' difficulties in interpersonal relations.
- Although pessimists are likely to become cynical about a broader range of issues than optimists, cynicism

nevertheless requires specific targets. If people are cynical, they have to be cynical about something. Pessimists may have many more targets of their cynicism than optimists, but given particular circumstances everyone is capable of becoming cynical about something.

- Cynicism serves a purpose. It is a psychological defense against disappointment and frustration that follows from naive credulity. Not only are cynics not as disappointed when promised benefits fail to appear, they are righteously reassured to know that their doubts were well founded.
- Cynicism is learned through direct experience and through group socialization. It is fair to say that most people begin their working lives eager to put skills acquired at school to use, learn new skills, earn a living, establish an identity, make new friends, and so on. From the outset their more experienced coworkers may try to convince newcomers that management cannot be trusted (*Listen to us if you want to know how things really work around here*), particularly in cases where the work group itself is highly cynical. However, it probably takes at least a few personal encounters with broken promises and misplaced priorities before eager anticipation turns to dejected cynicism. With experience comes wisdom and also, for many, cynicism.
- Cynicism implies behavior or, perhaps, lack of behavior. If you expect that the latest improvement program at work will fail, just like its predecessors, why bother to get involved? (Better to keep your head down until it passes.) There is some evidence, however, that cynics will become proactive if they believe their efforts can really make a difference. Cynics have been found to write more comments on employee opinion surveys than noncynics, and although the comments they wrote were negative in tone, they were also more specific about problem areas and more likely to suggest solutions than comments provided by noncynics.

ORGANIZATIONAL CHANGE AND CYNICISM

If you find yourself rolling your eyes in exasperation every time your employer announces another improvement initiative, you may be an organizational cynic. And you may be right. Research has not addressed the question of whether or not cynicism about workplace conditions is justified. We *do* know, however, that successfully implementing new processes and systems within large organizations is difficult. Most change initiatives require support and cooperation of employees to succeed. Too often, these

efforts fail to live up to expectations. Sometimes they fail entirely, wasting resources and ultimately doing the company more harm than good. When they succeed, it can take years for the benefits of new approaches to become apparent.

Executives preparing to launch the next quality improvement or process reengineering program should not be surprised if they seem to be the only ones who are truly excited about it. To them, the need for change is obvious. Their company's rapidly changing external environment forces the issue (via changing markets, technologies, resource costs, customer demands and expectations, etc.). Only through constant change can their company remain competitive.

To most people, however, change is unsettling and stressful. The known is comfortable, the unknown is threatening. Change is therefore resisted, and promises of benefits of change are met with cynicism. In reality, of course, change occurs continually. The challenge for organizational researchers is to increase their understanding of organizational cynicism and to develop change management strategies that are both effective and acceptable to those who make them succeed or fail.

—Robert J. Vance

See also Organizational Change; Organizational Change, Resistance to

FURTHER READING

- Dean, J. W., Jr., Brandes, P., & Dharwadkar, R. (1998). Organizational cynicism. *Academy of Management Review*, 23, 341–352.
- Kanter, D. L., & Mirvis, P. H. (1989). *The cynical Americans: Living and working in an age of discontent and disillusion*. San Francisco: Jossey-Bass.
- Niederhoffer, A. (1967). *Behind the shield: The police in urban society*. Garden City, NY: Doubleday.

ORGANIZATIONAL DEVELOPMENT

Organizational development (OD) is a field of professional practice focused on facilitating organizational change and improvement. The theory and practice of OD is grounded in both the social and behavioral sciences. The field originated in the 1960s and has

been evolving ever since. This evolution has been influenced by a wide range of disciplines including social psychology, group dynamics, industrial/organizational (I/O) psychology, participative management theory, organization behavior, the sociology of organizations, and even clinical psychology.

As a result, the application of OD tools and methodologies (of which there are many) are carried out by a wide range of professionals. For example, although some I/O psychologists also consider themselves OD practitioners, there are many others practicing OD with for-profit and nonprofit client organizations with educational backgrounds as diverse as education, philosophy, training, the military, and human resources. In part, this level of diversity of backgrounds is because of an initial lack of agreement and formal training regarding the nature and boundaries of the field. Today, however, formal training in the field does exist, in doctoral and master's-level programs as well as professional development curricula, including professional certification groups and training firms. In any case the value of the field of OD to continually embrace new perspectives, practitioners, and approaches is one of its defining characteristics; however, it is also a source of discussion among those currently practicing in and writing about the field.

Although there has been some debate over the last few decades as to what is and is not included under the definition of OD, many practitioners agree that the following definition captures the essence of the field: *Organizational development is a planned process for driving humanistically oriented, system-based change in organizations through the use of social science theory and behaviorally based data collection and feedback techniques.* This definition clearly reflects a number of specific assumptions. These include the importance of data and feedback to OD efforts, the notion of having a social systems perspective, and the humanistically oriented values-based nature of the field. Each assumption is described in more detail in the following text.

DATA DRIVEN

First, it is important to understand that OD is fundamentally a data-driven approach to organizational change. Although the source of that data can be quantitative or qualitative in nature, the information gathered and fed back to clients is an integral part of the OD consulting process. Unlike other types of consulting

models, the OD approach is generally not prescriptive. In other words, there is no single model, technique, or solution that is consistently provided by OD practitioners. Rather, OD consulting projects are based on a participative approach. This approach is known as *action research*.

Conceptualized by Kurt Lewin, a social psychologist who specialized in studying group dynamics in the 1940s and 1950s, action research consists of the following stages:

- Systematically gathering data (of whatever form and using any number of tools and techniques) on the nature of an organizational problem or situation
- Analyzing that information to find key themes, patterns, and insights that tell a compelling story about the problem or situation in question
- Feeding back that analysis in a summary form of the results while engaging with the client to ensure ownership of the diagnosis of the problem
- Determining the appropriate intervention together based on a shared understanding of the issues
- Taking action to drive positive change in the organization or social system

Given this framework it is easy to understand how OD practitioners can use many different types of diagnostic tools and interventions to produce helpful insights and feedback. Many of these methods are also used by other types of social scientists and practitioners. The key difference when using these methodologies in an OD context is that the interpretation of the results and the determination of the intervention required is a shared process between practitioner and client, and the emphasis is on organizational improvement. Regardless of the methodology, the basic notion of using data-based feedback to move clients from their comfort zone and create a need for change is common to most OD efforts.

SYSTEMS PERSPECTIVE

The second major assumption inherent in the definition of OD is that the field is firmly grounded in social systems theory. From this perspective, each organization is conceptualized as a system of interdependent subsystems and components (e.g., people and systems related) that both influence each other and are influenced by the external environment in which they exist. This means that OD interventions are designed and implemented with a thorough understanding of the

interplay between different factors in the organization that can either help or hinder the success of the change effort.

Although there are a number of different OD models reflecting systems theory, the Burke-Litwin model of organizational performance and change is one of the more comprehensive. Reflecting a systems thinking perspective, it outlines 12 distinct factors of organizations that need to be considered when designing and implementing any large-scale change effort. These factors reflect both transformational and transactional areas.

Transformational factors are those that are likely to be influenced by the external environment. When these factors are the focus of an OD-related change effort, new thinking and behaviors are typically required on the part of the individuals in that social system. These factors include the external environment, the mission and strategy of the organization, the senior leadership and what they represent, and the nature of the organizational culture. Changes in these factors (or a lack of alignment and integration among any of these during a change effort) tend to be more strategic and long term in nature and eventually create a ripple effect that drives change in other parts of the organization.

Transactional factors, in comparison, are those that are more day-to-day and short-term focused. These include elements such as the behaviors of middle management, the formal structure reflecting how managers and employees are organized, the systems and processes that reinforce the right types of behaviors (e.g., the performance appraisal process), work group climate, level of motivation, needs and values of employees, and finally the fit between employees and the jobs they are in.

All these factors and their interaction with one another ultimately influence both individual and organizational performance. As with most systems models, performance also has a subsequent impact on the external environment of that organization (e.g., competitors, industry regulations, economic trends, technology trends), which in turn affects the organization itself. In other words the systems approach to OD work reflects a constant feedback loop.

In sum, the systems approach is a unique aspect of OD that helps differentiate it from some of the more narrowly focused theory and practice areas of I/O psychology, human resource management, and organizational behavior. It also reflects a broader perspective for facilitating organizational change than many

management consulting approaches, such as those of firms that focus only on structure or technology.

VALUES BASED

The third defining characteristic of the field of OD, which is shared with I/O psychology, is the notion of a normative view to working with people and organizations. This means that the field and practice of OD is values-based in nature. Organizational development practitioners evaluate their efforts, including the choices of the clients they work with and the interventions they engage in, against a normative filter. In short, they ask this question of themselves: Will this effort result in a positive outcome for the organization and its employees?

Unlike some types of organizational consulting approaches that can be financially driven or very senior management focused, such as downsizing efforts or mergers and acquisitions, OD practitioners are particularly focused on the human relations component of their work. This means that for many, if the nature of the project will result in negative outcomes for a given set of employees, the OD practitioner is likely to turn down the project. Although counterintuitive from a business model perspective, this is one of the hallmarks of the OD profession and one of the key reasons why OD work is appealing to some people.

This emphasis on positivistic change is evident in areas such as the International OD Code of Ethics, sponsored by the Organization Development Institute, as well as described in many articles and books in the field. Although an area of debate for some, research has consistently shown that the majority of practitioners would endorse such OD values as improving the state of human dignity, democracy, honesty, integrity, and empowerment in organizations.

Overall, this normative filter helps OD practitioners balance the need for increasing organizational productivity and effectiveness (which is one of the most common reasons why an external or internal consultant would be engaged in the first place) with a humanistic values focus on helping improve the satisfaction and development of individuals in an organization.

OD CONSULTING APPROACH

Although it is important to understand the underpinnings of the field from a philosophical perspective, it is equally important to have a firm grasp of the tactical side of the OD profession. One of the best ways to do

this is to understand the OD consulting model. There are seven phases to the OD consulting approach, which consist of

1. entry,
2. contracting,
3. data collection,
4. data analysis,
5. data feedback,
6. intervention, and
7. evaluation.

This seven-phase model is particularly relevant for OD because it

- reinforces the centrality of data or information as a key component for driving change,
- shows where and when data should be used to inform decision making, and
- reflects a systems approach to thinking about issues and interventions.

Each of these phases of the OD consulting approach are described in the following text.

Entry

Entry represents the first meeting between the OD practitioner and the client. If an external consulting engagement, this is usually the first exposure to the overall social system, and as a result, represents an important first step in the consulting relationship. During this phase the OD practitioner and client determine their ability to work together collaboratively, and get a shared understanding of the issues or problems at hand. The quality of the relationship established during entry will determine whether or not the OD effort will occur.

Contracting

Contracting is the phase where roles, expectations, and anticipated outcomes are agreed on between the OD practitioner and his or her client. Typically, this is where individual capabilities are reviewed and difficult questions are tested. For example, most OD consultants will discuss with their clients the difference between a symptom, such as the problem at hand that resulted in their being contacted, and a root cause including the real reason and best place for an intervention to occur.

Data Collection

Once entry and contracting are done, the OD practitioner next needs to determine a data-gathering strategy. The focus here is determining the best method, tool, or technique for gaining new insights into the issue or problem at hand. The collected data can be either quantitative or qualitative in nature, or some combination of both. Some of the most common OD-related methodologies include the following:

- Multisource or 360-degree feedback
- Organizational surveys
- Personality assessments
- Individual observations
- Interviews with key individuals
- Focus groups
- Process consultation during meetings
- Large-group interventions
- Appreciative inquiry

Data Analysis

Once the data is collected, it needs to be analyzed. The nature of the analysis and the techniques applied will depend on

- the type of data collected,
- the analysis skills and experience of the OD practitioner, and
- the receptivity and sophistication of the client.

Analysis techniques can range from reporting simple averages or content code summaries of comments or observations; to sophisticated statistical modeling of relationships among key predictors, such as leadership behaviors and employee engagement; and outcome variables including regional sales, plant safety incidents, and executive turnover. Whatever the approach used, the outcome is the same. Organizational development practitioners are focused on determining the best analysis method to produce the most useful and actionable insights to share with their clients.

Data Feedback

The next phase in the process is delivering the insights gleaned from the data collection and analysis with the client. From an OD perspective, it is important to work with the client during the feedback stage to help gain a shared understanding of the diagnosis rather than simply delivering the answer. As a result,

one of the critical skills needed to be successful in the field of OD is the ability to tell a meaningful story with data. Although not delivering the answer per se, the OD practitioner does need to be able to convey the key findings from the data in a manner that brings the client along. This represents one of the unique aspects of the OD approach compared with other consulting models where the answer is clearly recommended during the feedback process. Organizational development practitioners are much more likely to suggest ideas and work together with their clients through the issues as a part of the feedback process. The focus here is delivering a compelling story that creates a need for change and a direction for that change. The discussion during the feedback stage is what leads to the selection of the appropriate intervention.

Intervention

The intervention phase involves determining together the appropriate solution based on the data fed back and a shared understanding of its implications. The important point to remember here is that regardless of what intervention is chosen, the determination should be based on the issues identified in the data, and what the practitioner and client think will result in the most impact. This shared approach drives client ownership and commitment, which is critical to ensuring success of the OD change effort.

Evaluation

The last stage of an OD effort is a formal evaluation process. Although often overlooked by many consultants, it is a crucial step for both the client and the practitioner. From the client's perspective, it is helpful toward quantifying the successful outcome of the effort. From the OD practitioner's perspective, it represents both a measure of success and a key source of learning and development.

SUMMARY

In sum, the theory and practice of OD represents a data-driven, systemic thinking, and values-based approach to helping improve organizations and the people that work in them. Fundamentally, the OD consulting model is collaborative in nature and grounded in data-based information.

—Allan Church

See also Human Resource Management; Organizational Behavior

FURTHER READING

- Burke, W. W. (1994). *Organization development: A process of learning and changing* (2nd ed.). Reading, MA: Addison-Wesley.
- Cummings, T., & Worley, C. (1997). *Organization development and change* (6th ed.). St. Paul, MN: West.
- French, W. L., & Bell, C. H., Jr. (1998). *Organization development: Behavioral science interventions for organization improvement* (5th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Waclawski, J., & Church, A. H. (Eds.). (2002). *Organization development: A data-driven approach to organizational change*. San Francisco: Jossey-Bass.

ORGANIZATIONAL IMAGE

Organizational image refers to people's global impressions of an organization; it is defined as people's loose structures of knowledge and beliefs about an organization. Organizational image represents the net cognitive reactions and associations of customers, investors, employees, and applicants to an organization's name. Accordingly, it serves as a template to categorize, store, and recall organization-related information.

It should be noted that there is no such thing as *the* organization's image because an organization typically has multiple images. These multiple images result from various groups (also known as stakeholders or corporate audiences) holding different images of the same organization. At least, one might distinguish among the following organizational images. First, investors and executives hold an image of an organization as an economic performer. These investors typically rely on factual economic figures as a basis of their beliefs about the organization. Second, there is the image of an organization as a social performer in the general society (also known as corporate social performance). Third, customers or clients hold an image of an organization as a provider of goods and services. Fourth, each organization has an image as an employer among current employees and (potential) applicants (also known as company employment image or employer image). This is the image that is assessed in rankings such as *Fortune* magazine's "The

100 Best Companies to Work For.” These multiple organizational images might not always coincide. For example, the firm’s image as an employer as held by either employees or job seekers might be different from its image as a provider of goods and services in the minds of customers or clients.

Organizational images typically develop over longer periods of time. They result from, among other things, media coverage, individual or group sensemaking, and communication on the part of the organization (as reflected in an organization’s advertising, sponsorships, and publicity). However, it should be clear that organizational images are not static. Specifically, organizations often audit their images. In these image audits, the aim is to carefully determine which factors make up the image among various stakeholders. Next, organizations aim to strategically modify the image held by these stakeholders. For example, this might be done by increasing an organization’s exposure or by highlighting specific attributes in advertising campaigns.

COMPONENTS OF IMAGE

Generally, two components can be distinguished in an organization’s image. First, people typically associate some objective attributes with an organization. These attributes might vary from factual or historical aspects of organizations to organizational procedures and policies. For example, in terms of a company’s image as an employer, research has confirmed that applicants might have some knowledge about the attributes of the organization and the job that they might consider applying for. Examples include size, location, level of centralization, pay, benefits, type of work to be performed, advancement opportunities, and career programs.

A second part of people’s general impressions of an organization refers to trait-related inferences. Trait inferences about organizations are different from the aforementioned objective company-related information for two reasons. First, trait inferences describe the organization in terms of subjective, abstract, and intangible attributes. Second, they convey symbolic company information in the form of imagery that people assign to organizations. For example, in terms of a company’s image as an employer, research has discovered that applicants reliably and meaningfully ascribe traits to organizations. They refer to some employing organizations as trendy, whereas other employing organizations are seen as prestigious.

Similar results have been found in research on consumers’ image of the organization as a provider of products and services.

CONSEQUENCES OF ORGANIZATIONAL IMAGE

An organization’s image plays a central role because what various stakeholders know about an organization considerably influences how they respond to the organization. In fact, an organization’s image might have various potentially favorable consequences for the organization and its main stakeholders.

First, there might be effects on investment decisions. Specifically, firms with a good image might have a competitive leverage in terms of attracting and keeping new investors. Second, it has been found that an organization’s image exerts effects on consumers’ product choices. In this context, an organization’s image might serve as a signal of product quality and might enable an organization to distinguish itself from its main competitors. Third, an organization’s image seems to affect people’s attraction to an organization as a place to work. This is especially the case in early recruitment stages as potential applicants have only a rudimentary knowledge of the key job and organizational attributes. Hence, potential applicants mainly rely on their general impressions of the firm (i.e., image) when deciding to apply for a job. The general effect is that employer image influences the quantity and quality of the applicant pool of an organization in that organizations with a good image are able to attract more and better applicants. Apart from these general effects on applicant quantity and quality, applicants’ view of the image of an employer also has long-lasting effects on other recruitment stages. Specifically, impressions of an organization as an employer measured in early recruitment stages are strong predictors of applicants’ attraction measured in later recruitment stages, such as after a campus interview, which in turn is related to applicants’ final job acceptance decisions. A fourth group of studies have examined the consequences of organizational image on employees’ attitudes and behaviors toward their organization. For example, employees also uses an organization’s image as a mirror of how others are judging them. Moreover, an organization’s image has been found to be important to employees’ sense of self. If an employee holds the company in low regard, the person has lower job satisfaction and a higher

probability of leaving the organization. Conversely, if the company is held in high regard by the employee and others, job satisfaction is higher and turnover intention is lower. In this case an employee also wants to be associated with the positive image of the organization and feels proud to belong to that organization. Finally, there is evidence that firms on the best 100 list enjoy organizational performance advantages over the broad market and a matched sample of firms. In other words, organizational image seems to enhance the competitive ability of the firm.

RELATED CONSTRUCTS

Organizational image is closely related to other constructs such as organizational reputation and organizational identity. However, there are also some differences. In particular, organizational reputation refers to people's beliefs about the general public's affective evaluation of the organization. Organizational reputation differs from organizational image in that reputation entails an affective component (a loose set of feelings associated with an organization), whereas image is mainly cognitively oriented (a loose set of knowledge and beliefs about an organization). Another difference is that reputation refers to people's assessment of how others (the general public) feel about the organization, whereas image deals with a person's own beliefs.

Another related construct is an organization's perceived identity. The key difference between an organization's identity and its image is that an organization's identity is what insiders in the organization (employees) perceive to be the organization's central, enduring, and distinctive characteristics. Conversely, image and reputation deal with outsiders' (applicants, customers) views and feelings.

—*Filip Lievens*

See also Person–Organization Fit; Self-Concept Theory of Work Motivation

FURTHER READING

Arnold, J., Coombs, C. R., Wilkinson, A. J., Loan-Clarke, J., Park, J. R., & Prest, D. (2003). Corporate images of the United Kingdom National Health Service: Implications for the recruitment and retention of nursing and allied health profession staff. *Corporate Reputation Review*, *6*, 223–238.

Cable, D. M., & Turban, D. B. (2001). Establishing the dimensions, sources and value of job seekers' employer knowledge during recruitment. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (pp. 115–163). New York: Elsevier Science.

Collins, C. J., & Han, J. (2004). Exploring applicant pool quantity and quality: The effects of early recruitment practices, corporate advertising, and firm reputation. *Personnel Psychology*, *57*, 685–717.

Fulmer, I. S., Gerhart, B., & Scott, K. S. (2003). Are the 100 best better? An empirical investigation of the relationship between being a "great place to work" and firm performance. *Personnel Psychology*, *56*, 965–993.

Lievens, F., & Highhouse, S. (2003). The relation of instrumental and symbolic attributes to a company's attractiveness as an employer. *Personnel Psychology*, *56*, 75–102.

ORGANIZATIONAL JUSTICE

Organizational justice refers to individual or collective judgments of fairness or ethical propriety. Investigations of organizational justice tend to take a descriptive approach. As such, an event is treated as *fair* or *unfair* to the extent that one believes it to be so. In other words, justice research is concerned with identifying the antecedents that influence fairness judgments, as well as the consequences once such an evaluation has been made. Notice that this descriptive approach does not tell organizations what really is fair, only what people believe to be just. This empirical perspective complements the normative frameworks beneficially employed by philosophers whose prescriptive approach typically attempts to ascertain what is objectively right or wrong by using reasoned analysis.

The sense of justice has a strong impact on workers' behavior and attitudes. For example, perceived fairness promotes such benefits as organizational commitment, effective job performance, and increased organizational citizenship behavior. Justice also helps alleviate many of the ill effects of dysfunctional work environments. For example, perceived fairness reduces workplace stress, vindictive retaliation, employee withdrawal, and sabotage.

DIFFERENT TYPES OF JUSTICE

Generally speaking, judgments of fairness can be said to have three targets:

1. Outcomes: distributive justice
2. Allocation processes: procedural justice
3. Interpersonal treatment: interactional justice

Distributive Justice

Research suggests that distributive justice is distinct from outcome favorability. Although these two variables are correlated, the latter is an appraisal of personal benefit, whereas the former concerns moral appropriateness. Individuals decide whether a given allocation decision is fair by examining the actual result in light of some idealized standard. Three standards or allocation rules have been most widely discussed: equity (allocations based on contributions or performance), equality (equivalent allocations for all), and need (allocations based on demonstrable hardship). Each of these rules may engender a sense of distributive justice for some people under some circumstances. For example, an equity allocation rule is more likely to be seen as appropriate when the participants are North Americans, when the goal is to maximize performance, and when the divided benefit is economic. An equality allocation rule, however, is more likely seen as appropriate when the participants are East Asian, when the goal is to maximize group harmony, and when the benefit that is being divided is socioemotional.

An interesting line of research suggests that equity and equality allocation rules can engender distinct organizational climates. For example, when resources are divided based on individual performance, there is a greater disparity between the top and bottom income brackets and a relative lack of cooperation. When resources are divided based on equality, there is obviously less income disparity; along with this comes greater social harmony and more intergroup cooperation.

To employ each allocation rule, an individual needs to evaluate the relative gains (or losses) of at least two individuals. These cognitive operations are facilitated by the existence of a *referent other* that can serve as a sort of baseline standard. For example, someone seeking equality can expect uniform earnings among everyone in a group. This correspondence can best be ascertained with knowledge of others' profits. Equity is even more cognitively complex, so it is necessary to calculate earnings relative to contributions and to compare this ratio to the ratio of the referent. The intriguing result of these cognitive operations is that

distributive justice may not be absolute. If a referent changes, a person's distributive fairness judgments may also change, even when the actual allocation remains constant. For example, when female workers are underpaid relative to their male counterparts, they will see this as distributively unfair when the more highly paid men are their referent. However, if they use other underpaid women as their referent, they sometimes perceive less injustice.

Procedural Justice

Especially important to the study of organizational fairness is work on procedural justice. Procedural justice researchers agree that workers are interested in the outcomes they receive (that is, in distributive justice). However, they add that employees also attend to the process by which these outcomes are assigned. Procedural justice is an especially strong predictor of such outcomes as organizational citizenship behavior, organizational commitment, trust, and so on. Generally speaking, processes are likely to be judged as fair if they have some combination of the following attributes: They are accurate, consistently applied, free from bias, representative of all concerned, correctable when mistakes are made, and consistent with prevailing ethical standards. Other research suggests that fair procedures should provide advance notice and not violate privacy concerns.

A large body of research has investigated the design of human resource systems in light of procedural justice considerations. This work has examined personnel procedures pertaining to performance evaluation, affirmative action programs, workplace drug testing, staffing, family-leave procedures, layoff policies, compensation decisions, conflict resolution procedures, and so on. Generally speaking, this work suggests that fair procedures can bring benefits to organizations, in the form of more effective job behaviors and more positive work attitudes.

Interactional Justice

In addition to an outcome and a formal process, scholars have also found that the interpersonal treatment that an individual receives is an important part of his or her justice perceptions. This notion of interactional justice was identified more recently than distributive or procedural justice, but it now has been well established as an important workplace variable in its

own right. Researchers have divided interactional justice into two parts: informational justice and interpersonal justice. Informational justice is based on the presence or absence of explanations and social accounts. A transparent promotion decision would likely be seen as informationally fair. Interpersonal justice is concerned with the dignity that people receive. Interpersonally fair treatment is respectful, honest, and considerate of others' feelings. A racist remark during a job interview would likely be seen as interpersonally unfair.

Interactional justice is an important predictor of such variables as supervisory commitment, citizenship behavior, and job performance ratings. In addition, individuals are much more accepting of misfortunes such as downsizing when the process is implemented in an interactionally fair fashion. Given this practical value, attempts have been made to train decision makers to show more interactional justice. Such efforts have shown some success, and evidence suggests that training in interpersonal fairness can create a more effective work unit.

To date there remains less than complete consensus as to the structure of interactional justice. Because the informational and interpersonal components are correlated, some scholars treat them as manifestations of a single construct. More recently, others have separated interactional justice into these constituent parts, treating informational and interpersonal fairness as separate constructs. This new model has four factors: distributive, procedural, informational, and interpersonal. This model is promising, but the empirical evidence is as yet limited.

STUDYING JUSTICE: MAIN EFFECTS AND INTERACTIONS

The three manifestations of justice can be studied in terms of either their main effects or their interactions. Main effect studies compare the impact of one type of justice beyond the effect of another. Interaction studies explore how different types of justice work together to influence employee attitudes and behaviors.

Main Effects of Justice

Especially prominent in this regard is the two-factor model. The two-factor model maintains that distributive justice, when compared with procedural justice, better predicts individual reactions to specific

allocation decisions. For example, the distributive justice of a person's compensation will be correlated with pay satisfaction. Procedural justice, however, tends to be the more efficacious predictor of reactions to organizations as a whole. For example, procedural justice will be correlated with organizational commitment. Data in support of the two-factor model lead many scholars to propose that procedural justice, when compared with distributive justice, is especially important for maintaining loyalty to institutions.

The multifoci model provides a similar main effect comparison. Multifoci researchers agree that reactions to organizations are best predicted by procedural justice. However, they add that interactional justice demonstrates an especially strong association to supervisory commitment and behaviors targeted to benefit a person's immediate boss. In this regard interactional justice tends to engender high-quality leader-member exchange relationships, as well as helpful citizenship behaviors directed toward supervisors.

Interactions Among Justice Types

Scholars also have examined the interactions between different types of justice. Generally speaking, individuals appear to be reasonably tolerant of a distributive injustice if the allocation procedures are viewed as fair. Likewise, they seem reasonably tolerant of a procedural injustice if the outcome is deemed to be appropriate. However, when both the outcome and the process are simultaneously unjust, worker reactions are especially negative. Put differently, distributive justice strongly predicts work-relevant attitudes and behaviors when the procedure is unfair; it is a weaker predictor of attitudes and behaviors when the procedure is fair. Research has also documented a similar two-way interaction between distributive and interactional justice. Specifically, individuals can accept a poor outcome if it is assigned via a fair interaction. Conversely, they can accept a poor interaction if it yields fair outcomes. However, employees become distressed when both things go poorly at once.

Recent research has begun to consider the interaction among all three types of justice together. Investigations of the resulting three-way interaction have been quite promising. This line of inquiry finds that the aforementioned two-way interaction between distributive and procedural justice is only significant

when interactional justice is low. To state the matter in a different way, reactions are most negative when individuals experience all three types of injustice at the same time. Only a few studies have been conducted, but so far all have supported the existence of this three-way interaction.

WHY PEOPLE CARE ABOUT JUSTICE

It is not intuitively obvious why workers would care about justice, as opposed to their pecuniary benefits. Several models have been proposed and tested, but it is important to recognize that these are not mutually exclusive. Most experts believe that employee responses to injustice are influenced by multiple considerations. Here we will consider the best known accounts, including economic self-interest, the control model, the group-value model, social exchange theory, and deontic justice.

Economic Self-Interest

One early and still influential proposition is that the concern for justice is motivated by a sense of economic self-interest. The *fairest* system, according to this framework, is the one that maximizes long-term benefits. Even if a single decision is not personally beneficial, long-term payouts are apt to be greater if the individual can rely on fair distribution systems and procedurally just policies. There is evidence in favor of the self-interest model. For example, high performers tend to prefer equity allocations (presumably because their payment will be higher when based on contribution), whereas lower performers tend to prefer equality allocations (presumably because their payment will be higher when everyone earns equivalent amounts). Despite such evidence, self-interest does not seem to be the only motive for justice. For example, if a process is fair individuals tend not to derogate decision makers, even when their outcomes are less than favorable.

The Control Model

Another early framework for understanding justice is the control model. According to the control model, justice matters because it provides people with some means of influencing decisions. This control could be exercised at the decision stage (somewhat akin to distributive justice) or at the process stage (often

interpreted as procedural justice, and especially voice). Based on this, research has found that individuals will report some measure of fairness if either decision or process control is present. When they lose both forms of control, of course, people tend to report less justice. The control model was originally formulated within the context of legal proceedings. It has been especially influential in research pertaining to conflict management, plea bargaining, and employee involvement in decision making.

The Group-Value Model

An especially popular approach is the group-value (also called the relational) model of justice. According to the group-value model, individuals are concerned with their social status or standing within important social groups. Injustice in this respect is perceived as a lack of respect on the part of authority figures, and an individual does not feel like an esteemed member of the organization or community. Fairness, and especially procedural fairness, is desirable because it signals that a person is valued by the group and is unlikely to be mistreated. This model makes intuitive sense and evidence supports it. For example, research suggests that procedural justice is a better predictor when it comes from groups with whom individuals closely identify, and it is a less efficacious predictor when it comes from groups not identified with as closely. This is consistent with the group-value model, because standing should be of greater consequence within an important group and of less consequence within an unimportant one.

Social Exchange Theory

Social exchange theory provides an interpersonally oriented understanding of justice but does so in a somewhat different fashion than the group-value model. According to this framework, employees often have economic exchange relationships with their employers and coworkers. These relationships are *quid pro quo*, with clearly delineated responsibilities for each party. Fair treatment, especially procedural and interactional justice, can create social exchange relationships. These higher-quality relationships tend to involve emotional attachments, a sense of obligation, and open-ended responsibilities to the other party. Justice, therefore, improves performance; furthermore, it engenders citizenship behavior by

improving the quality of the relationships among employees, between employees and their supervisor, and between employees and the organization as a whole. There is also solid evidence supporting this model. For example, the impact of procedural and interactional justice on work behavior seems to be at least partially mediated by the quality of interpersonal relationships.

Although the group-value model and social exchange theory both highlight the importance of relationships, they emphasize somewhat different mechanisms. Notice that the group-value model maintains that justice is based on a fear of exclusion from a desirable social group, as well as worries about exploitation from powerful decision makers. Social exchange theory, however, is based on a sense of obligation and a desire to help the other party.

Deontic Justice

An interesting feature of both the economic approach and the group-value model is the assumption that justice ultimately reduces to self-interest; it is less clear whether the control model and social exchange theory make this same assumption. For clarity, we define a self-interested concern as one based on achieving a personal benefit or benefits. These benefits may be financial (as in the case of the economic self-interest model) or social (as in the case of the group-value and relational models). The deontic model of justice breaks with this tradition by proposing that justice matters for its own sake. This approach emphasizes the importance that at least some people tend to place on their moral duty to do the right thing.

The deontic model is unique in proposing that individuals care about justice even when there are no concerns with financial gain and group status, and there is evidence for this. For example, studies suggest that individuals will forgo money to punish an act of injustice. Research has also shown that participants will sometimes sacrifice earnings even without material benefits for doing so and when it is unlikely that the participants identify with the relevant social group. Findings such as these suggest that neither economic gain nor social standing provides a full account of organizational justice. Research on deontic justice is important for another reason as well. By emphasizing moral duty, it builds bridges between empirical work on fair perceptions and normative work on business ethics.

CONCLUSION

As illustrated, organizational justice refers to perceptions of fairness in terms of outcomes, processes, and interactions. Research to date has concerned itself with identifying antecedents that influence these perceptions and the resulting attitudes and behaviors once these judgments have been made. However, it is important to keep in mind that these perceptions are subject to change, especially with a change in the referent, the standard, by which fairness is assessed. Considering what each possible framework has to offer can develop a more complete sense of the dynamics involved in any study of organizational justice and its effects.

—Russell Cropanzano and Sharon M. Discorfanio

See also Social Exchange Theory

FURTHER READING

- Brockner, J., & Wiesenfeld, B. M. (1996). An integrative framework for explaining attractiveness of decisions: The interactive effects of outcomes and processes. *Psychological Bulletin, 120*, 189–208.
- Cohen-Charash, Y., & Spector, P. E. (2001). The role of justice in organizations: A meta-analysis. *Organizational Behavior and Human Decision Processes, 86*, 278–321.
- Colquitt, J. A., Conlon, D. E., Wesson, M. J., Porter, C. O. L. H., & Ng, K. Y. (2001). Justice at the millennium: A meta-analytic review of 25 years of organizational justice research. *Journal of Applied Psychology, 86*, 425–445.
- Cropanzano, R., Byrne, Z. S., Bobocel, D. R., & Rupp, D. E. (2001). Moral virtues, fairness heuristics, social entities, and other denizens of organizational justice. *Journal of Vocational Behavior, 58*, 164–209.
- Cropanzano, R., Rupp, D. E., Mohler, C. J., & Schminke, M. (2001). Three roads to organizational justice. In G. R. Ferris (Ed.), *Research in personnel and human resource management* (Vol. 20, pp. 1–113). Greenwich, CT: JAI Press.
- Folger, R., & Cropanzano, R. (1998). *Organizational justice and human resource management*. Beverly Hills, CA: Sage.

ORGANIZATIONAL POLITICS

The term *organizational politics* refers to the informal ways people try to exercise influence in organizations through the management of shared meaning. As such, politics should be viewed as neither an inherently bad nor good phenomenon but rather one to be observed,

analyzed, and comprehended to gain a more informed understanding of organizations and how they operate. Theory and research on organizational politics has fallen into essentially three categories. One area concerns itself with the nature of actual political behavior, types of tactics and strategies, and their consequences. A second category focuses on *perceptions* of politics in work environments by individual employees, the antecedents of such perceptions, and their consequences. The third, and most recent, category of research on organizational politics emphasizes the construct of political skill, and demonstrates the role it plays in organizational behavior.

POLITICAL BEHAVIOR

Research in the domain of political behavior has been widespread and largely disconnected, being categorized in a number of distinct ways. Some of these include influence tactics, impression management, power, and social influence. Essentially, no matter the categorization, all these behaviors reflect attempts to influence someone or some outcome. These behaviors are generally considered to be self-serving in nature and employed to achieve some benefit for the influencer. The success of the influencing attempt depends on a multitude of factors including appropriateness and uniqueness of the attempt, readiness of targets, personal characteristics of both influencer and target, and the context. Influencing tactics have been studied singularly and in combinations or strategies of tactics such as ingratiation as a single tactic or shotgun as a combination of many tactics.

Researchers have examined political behaviors as antecedents, outcomes, and moderators of a myriad of organizational phenomena. Furthermore, both the antecedents and consequences of political behaviors have been studied. Although there have been numerous studies of work-related outcomes of influence attempts, many have found mixed results. The specific attempts of ingratiation and rationality have demonstrated the strongest relationships with work outcomes. Nonetheless, these mixed results suggest a need to examine whether the influence tactics are successful or unsuccessful.

PERCEPTIONS OF ORGANIZATIONAL POLITICS

Although the study of actual political behavior is important, many researchers consider the perception of

organizational politics of equal importance. It can be argued that individuals' perceptions of organizational politics may be just as influential on individual and organizational outcomes as the actual political behaviors occurring in the organization. People react to their perceptions of reality. Because people cannot see into the minds of others to determine the motive (e.g., self-serving or not) behind influencing attempts, they must rely on their perceptions of the attempts. The investigation of these perceptions is important, even if they differ from the actual reality of the organization.

Perceptions of organizational politics are individuals' subjective attributions of the extent to which behaviors occurring in the organization are of self-serving intent. There are three broad categories, which may influence individuals' perceptions of politics: personal influences such as personality factors, job environment influences such as autonomy and variety, and organizational influences such as organizational structure.

Several reactions to organizational politics have been investigated in the literature. Individuals perceiving a political environment could withdraw from the environment or have decreased job satisfaction, increased job anxiety, and even increased job involvement. With few exceptions, politics perceptions have been related to negative individual and organizational outcomes, such as decreased job satisfaction and increased actual turnover. Furthermore, researchers have found that politics perceptions can be viewed as a stressor causing strain reactions such as job anxiety.

However, these negative outcomes may not always occur. Specifically, there may be personal and environmental moderators of the perception–outcome relation. For example, if both supervisors and subordinates are striving toward the same goals, the impact of politics perceptions on important work outcomes is lessened. Furthermore, control and an understanding of the work environment lessens the extent to which organizational politics affects important work outcomes. Individual differences also affect the relationships between politics perceptions and negative outcomes, with some individuals working quite effectively in political environments.

POLITICAL SKILL

It is commonly held that organizations are inherently political. However, despite the negative consequences of politics perceptions, some individuals seem to

manage or even thrive in these environments. Political skill, which encompasses a skill set individuals use to understand the environment, choose the appropriate political behaviors, and act them out in ways that appear earnest, might explain how some individuals not only endure but are able to succeed in political environments. It accounts for individual influencing style. Political skill is seen as partly dispositional and partly learned.

Recent work has identified four dimensions of political skill:

1. Social astuteness
2. Interpersonal influence
3. Networking ability
4. Apparent sincerity

Social astuteness is an understanding of the environment and the actors involved in the environment. Interpersonal influence enables politically skilled individuals to choose and implement the correct influencing behaviors for a given situation. Networking ability refers to politically skilled individuals' abilities to garner and use social networks of people to their advantage. Finally, apparent sincerity involves coming across as honest without ulterior motives. Political skill is different from other social variables, such as social skill, and has been shown to be an important coping mechanism in stressful and political environments.

SUMMARY

In conclusion, organizational politics is a vast area of organizational study that spans many literatures and many decades of research. Several conclusions can be drawn through this brief introduction to the politics literature. It is important to examine not only political behavior but also individual subjective evaluations of organizational environments. Furthermore, when examining political behaviors, it is necessary to account for the style of the influencing technique as well as the success of the technique. This information will help bring consistency to the findings of political behavior studies.

Although organizational politics and perceptions of organizational politics largely have been related to negative personal and organizational outcomes, this negative relationship is avoidable. Political skill,

although partly inherent, can be taught to train individuals to thrive in organizational environments that they deem political.

—Gerald R. Ferris and Robyn L. Brouer

See also Person–Environment Fit

FURTHER READING

- Ferris, G. R., Adams, G., Kolodinsky, R. W., Hochwarter, W. A., & Ammeter, A. P. (2002). Perceptions of organizational politics: Theory and research directions. In F. J. Yammarino & F. Dansereau (Eds.), *Research in multi-level issues: Vol. 1. The many faces of multi-level issues* (pp. 179–254). Oxford, UK: JAI Press/Elsevier Science.
- Ferris, G. R., Hochwarter, W. A., Douglas, C., Blass, R., Kolodinsky, R. W., & Treadway, D. C. (2002). Social influence processes in organizations and human resources systems. In G. R. Ferris & J. J. Martocchio (Eds.), *Research in personnel and human resources management* (Vol. 21, pp. 65–127). Oxford, UK: JAI Press/Elsevier Science.
- Ferris, G. R., Treadway, D. C., Kolodinsky, R. W., Hochwarter, W. A., Kacmar, C. J., Douglas, C., & Frink, D. D. (2005). Development and validation of the political skill inventory. *Journal of Management*, *31*, 126–152.
- Kacmar, K. M., & Baron, R. A. (1999). Organizational politics: The state of the field, links to related processes, and an agenda for future research. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (Vol. 17, pp. 1–39). Stamford, CT: JAI Press.
- Witt, L. A. (1998). Enhancing organizational goal congruence: A solution to organizational politics. *Journal of Applied Psychology*, *83*, 666–674.

ORGANIZATIONAL RETALIATORY BEHAVIOR

Organizational retaliatory behavior refers to actions taken by disgruntled employees in response to perceived injustice at work. Organizational retaliatory behavior can take many forms, including withholding effort or citizenship behaviors, intentionally performing tasks incorrectly, purposely damaging equipment, taking supplies or materials, taking longer breaks than allowed, calling in sick, spreading rumors about people at work, refusing to help others at work, failing to report problems so they get worse, attending to

personal matters while at work, purposely wasting time, sabotaging projects, and ignoring or verbally abusing people at work.

Although many behaviors that are classified as organizational retaliatory behavior may also be called counterproductive work behavior, workplace aggression, or employee deviance, organizational retaliatory behavior is distinct in at least two ways. First, organizational retaliatory behavior places a stronger emphasis on the situational context in which the behavior occurs as the main catalyst. In contrast, employee deviance implies an underlying dispositional tendency to engage in negative behaviors at work. Employee deviance also refers to behavior that violates organizational norms regarding what is proper and acceptable behavior. Therefore, to the extent that retaliation is common and accepted behavior in the workplace, it may or may not be considered deviant.

Second, organizational retaliatory behavior refers specifically to behaviors that are provoked by unfair treatment at work and implies a singular motive: to restore justice or equity; counterproductive work behavior and workplace aggression take a broader perspective regarding the motives or intentions driving behavior. For example, counterproductive work behavior is defined as behavior that has the potential to harm an organization or individuals at work; and while it may be driven by malicious intent, employees may perform counterproductive work behaviors as a means of coping with job stress, as a reaction to unfairness, or out of ignorance or boredom. Workplace aggression, however, refers to behavior by employees that intends to harm; and the general aggression literature has identified two primary motives behind aggression. Aggression can be either reactive or *hot*, such as when an angry employee yells at a coworker, or aggression may be proactive or *cold*, such as when an employee spreads damaging rumors about a coworker to better personal chances of receiving a promotion. Thus although all organizational retaliatory behavior is considered workplace aggression and all workplace aggression is considered counterproductive work behavior, not all counterproductive work behavior or workplace aggression is considered organizational retaliatory behavior.

Organizational retaliatory behavior can be understood using justice theory and social exchange theory. Each of these frameworks is briefly discussed in the following text.

JUSTICE THEORY

Justice theory is the theoretical framework most commonly associated with organizational retaliatory behaviors. Organizational justice refers to the perceived fairness of interactions between individuals and organizations. Researchers have discussed justice in terms of its three forms:

1. *Distributive justice*: the perceived fairness of outcomes received from an employer
2. *Procedural justice*: the perceived fairness of the processes and decisions that determine organizational outcomes independent of the fairness of the actual outcomes received
3. *Interactional justice*: the quality of interpersonal treatment received during the enactment of organizational procedures

According to justice theory, when employees experience some form of injustice or inequity, they will be motivated to restore justice. Any effort to balance the justice equation would be considered a retaliatory behavior.

All three forms of justice have been shown to independently contribute to employee retaliation. However, procedural and interactional justice may be more important determinants of retaliatory behavior than distributive justice. Studies have shown that the negative effects of low distributive justice can be mitigated by the presence of high levels of either procedural or interactional justice. In other words, employees are less likely to retaliate for receiving fewer rewards if the procedures that determine those rewards are fair and if the employees are treated with dignity and respect throughout the reward distribution process. Employees, therefore, appear to place greater emphasis on the fairness of the procedures and how well they are treated as individuals than on the absolute level of outcomes received when deciding to retaliate.

Because organizational retaliatory behaviors are assumed to be motivated by an employee's desire to restore justice, retaliatory behavior is more easily legitimized in the eyes of the performer: "I had to do something. I couldn't let him just get away with treating me like that." Hence a valuable contribution of this construct is the recognition that employees may perform these behaviors out of a desire to punish the offender and correct some wrong. Also, unlike

counterproductive work behavior, workplace aggression, or employee deviance, which assume that the consequences of these behaviors are negative, no such assumption is made regarding the outcome of retaliatory behavior. In fact, it is possible that retaliation may lead to positive outcomes because there are two ways to balance the justice equation. For example, if employees feel that their supervisor is treating them unfairly, they can balance the equation by treating their supervisor unfairly in return, such as delaying actions on projects that are important to that supervisor; or they may balance the equation by demanding fairer treatment from their supervisor by confronting the supervisor directly or by complaining to a higher-level manager. Although both actions result in a more balanced justice equation, the former case has negative implications for the supervisor and organization, and possibly for the employee to the extent that job performance is affected, whereas the latter case may lead to positive outcomes if the supervisor changes behavior to treat the employee more fairly. Therefore, an important contribution of the organizational retaliatory behavior construct is that it recognizes the possibility that seemingly negative behaviors may be performed as a means to a more productive or prosocial end.

SOCIAL EXCHANGE THEORY

Organizational retaliatory behavior can also be understood within the framework of social exchange theory. According to social exchange theory, employees define their relationships with their organization and their supervisor in terms of social exchange using the norm of reciprocity. Thus employees engage in retaliatory behaviors to reciprocate unfavorable treatment received from the supervisor or organization. If employees believe the organization is looking out for their best interests or is fairly providing them with valued rewards, they will respond in kind by performing positive actions such as organizational citizenship behaviors. However, if employees believe the organization or supervisor is withholding rewards or punishing them unfairly, they will reciprocate by reducing actions that benefit the organization or by performing actions that directly injure the organization.

A related theory, leader–member exchange theory, is also useful for understanding employee retaliatory behavior, particularly when that behavior is directed toward a leader. According to leader–member

exchange theory, individual, group, and organizational outcomes are affected by the quality of the relationships that employees have with their leaders. Employees who have a high-quality relationship with their leaders are more trusted by their leaders and are given more autonomy and decision-making input. Those employees are more likely to be high performers and exhibit more citizenship behaviors as well. However, employees who have low-quality exchange relationships with their leaders are managed more closely and provided with less support from their leaders, and they are more likely to perform retaliatory behaviors in return.

Although justice theory and social exchange theory take slightly different approaches to understanding retaliation, both emphasize the importance of the relationship that employees have with their organizations and the people in them as antecedents to the performance of retaliatory behaviors.

PREVENTION

Because organizational retaliatory behaviors refer specifically to actions taken by employees in response to some perceived injustice or inequity, to prevent retaliatory behaviors organizations should identify ways to increase employee perceptions of fairness at work. According to both justice and social exchange theories, the quality of employees' relationships with their supervisors is an important determinant of retaliatory behavior; therefore organizations should carefully select managers and screen out those with a history of interpersonal conflict or other unethical behavior. Furthermore, organizations should make managers aware of the importance of treating all employees fairly and provide training to managers to equip them with the knowledge and skills necessary to provide employees with fair and just treatment, including suppressing personal biases, basing decisions on accurate information, administering policies consistently, giving employees a voice in the decision-making process, allowing for corrections to be made, behaving ethically, being truthful and honest with employees, and respectfully interacting with employees. Additionally, organizational policies and procedures should be reviewed and revised if necessary so they reflect the organization's commitment to fair treatment of all employees. If employees have confidence in their ability to redress a perceived injustice using formal channels, they may feel less of a need to

perform retaliatory behaviors or otherwise take matters into their own hands.

On the employee side, there is some evidence suggesting that individual differences in personality are related to the performance of retaliatory behaviors. At least one study found that individuals high in negative affectivity or low on agreeableness were more likely to perform retaliatory behaviors when they experienced low justice. Thus organizations should modify their selection and screening processes to identify individuals with a greater propensity to perform retaliatory behaviors or who have a history of performing retaliatory behaviors in past jobs.

—Lisa M. Penney

See also Counterproductive Work Behaviors; Leader–Member Exchange Theory; Organizational Justice; Social Exchange Theory; Workplace Incivility

FURTHER READING

- Folger, R., & Skarlicki, D. P. (2004). Beyond counterproductive work behavior: Moral emotions and deontic retaliation versus reconciliation. In P. E. Spector & S. Fox (Eds.), *Counterproductive work behavior: Investigations of actors and targets*. Washington, DC: American Psychological Association.
- Greenberg, J. (1993). Stealing in the name of justice: Informational and interpersonal moderators of theft reactions to underpayment inequity. *Organizational Behavior and Human Decision Processes*, 54, 81–103.
- Leventhal, G. S., Karuza, J., & Fry, W. R. (1980). Beyond fairness: A theory of allocation preferences. In G. Mikula (Ed.), *Justice and Social Interaction*. New York: Plenum Press.
- Skarlicki, D. P., & Folger, R. (1997). Retaliation in the workplace: The roles of distributive, procedural, and interactional justice. *Journal of Applied Psychology*, 82, 434–443.
- Townsend, J., Phillips, J. S., & Elkins, T. J. (2000). Employee retaliation: The neglected consequence of poor leader–member exchange relations. *Journal of Occupational Health Psychology*, 5(4), 457–463.

ORGANIZATIONAL SENSEMAKING

Organizational sensemaking is not an established body of knowledge; it is a developing set of ideas drawn from a range of disciplines (e.g., cognitive

psychology, social psychology, communication studies, and cultural analysis) concerning a particular way to approach organization studies. Central to the sensemaking perspective is the notion that explanations of organizational issues cannot be found in any form of organizational structure or system but in how organizational actors see and attribute meaning to things. From this perspective, strategies, plans, rules, and goals are not things that exist in an objective sense within (or external to) the organization. Rather, their source is people’s way of thinking. Moreover, from a sensemaking perspective, the issue of whether someone’s view of the world is *correct* is not meaningful and the correctness of a decision is contingent on the point of view that is being used for evaluation. The basic idea of sensemaking is that reality is an ongoing accomplishment that emerges from efforts to create order and understanding from complex environments. Sensemaking allows people to deal with uncertainty and ambiguity by creating rational accounts of the world that enable action.

Various definitions of organizational sensemaking have been presented. For some, sensemaking is an interpretive process; for others, it is a metaphor for interpretation. Some define it as interpretation coupled with action. Others divide perception into noticing and sensemaking, whereby noticing has to come before sensemaking so that there is something available to be made sense of. Still others define it as structuring the unknown or as a recurring cycle that uses retrospective accounts to explain surprises. The introduction of a sensemaking perspective into organization studies has, however, largely arisen from the work of Karl E. Weick, who defines sensemaking, at its simplest, quite literally as making sense. By this, Weick means that organizational actors not only come to an understanding of their environments but also create those same environments. The term *enactment* is used to capture the active role that organizational members play in creating such environments. By way of example, it is on the basis of their subjective perceptions of their occupational environment (their job role, manager, employment conditions, and so forth) that employees will take action and make a range of decisions, such as whether to come to work in the morning, and if so, whether they will do so on time, the decision as to what degree of effort and enthusiasm to invest, and ultimately, the decision whether or not to leave the organization. To differing degrees, each decision will influence individual, team,

department, and organizational performance and productivity. Hence, how these individuals come to understand their environments provides the basis for action, ultimately shaping this same environment (at least in part).

SEVEN PROPERTIES OF ORGANIZATIONAL SENSEMAKING

Organizational sensemaking is inherently complex (described by some as semi-inscrutable). Weick has, however, attempted to systematically organize and explain this multifaceted concept by distilling seven key properties most often mentioned in the sensemaking literature. Although there is some debate as to whether Weick construes this concept in an overly narrow fashion, this synthesis provides the best statement currently available.

1. *Retrospective*: All sensemaking processes involve some variation on the theme of retrospection or reflection on experience, which provides rationality and clarity to any outcome. This supports the notion that organizational strategic planning often involves the ability to write the story that fits recent history. Of note, although there is a consensus of opinion that it is primarily by examining history that we make sense, some scholars conclude that sensemaking is also prospective and that it is the act of envisioning the future that supplies the impetus for action.
2. *Plausible rather than accurate*: Meanings are constructed on the basis of reasonable explanations rather than through scientific discovery. Although filtered information will almost certainly be less “accurate,” it will undoubtedly be more understandable.
3. *Focused on and extracted by cues*: In organizational life we attend to and extract certain elements, which form the material of the sensemaking process. However, although only partial knowledge is extracted from a mass of complex information, sense will be made of the whole on the basis of this subset. What is actually extracted and how it is made sense of is complex and dependent on a variety of issues, including context and goals.
4. *Enactive of sensible environments*: By taking action organizations create (enact) their own environments (i.e., by doing something that produces some kind of outcome, constraints are then placed on what that person or organization does next).
5. *A social process*: Sense is made in organizations through conversations, communications, and the exchange of ideas, and it is influenced by the actual, implied, or imagined presence of others. That is how sense becomes organizational.
6. *Ongoing*: Sensemaking is an ongoing, constantly negotiated process. The implication of this insight for organizational sensemaking is that organizations are always in the middle of complex situations, which they try to disentangle by making and then revising provisional assumptions. Viewed as systems of sensemaking, a key organizational goal is to create and identify events that recur to stabilize their environments and make them more predictable.
7. *Grounded in identity construction*: The process of figuring out what is going on is a product of and a process based on who the sensemaker is and is becoming. In other words, how an organization (individual or group) identifies itself (who the sensemaker is) will define what it sees *out there*. Simultaneously, this will influence identity (who the sensemaker is becoming).

THE PROCESS OF ORGANIZATIONAL SENSEMAKING

Sensemaking is a critical organizational activity. For top managers sensemaking activities such as environmental scanning and issue interpretation are key tasks that significantly influence organizational decisions and strategic change. Sensemaking activities are particularly important in dynamic and turbulent contexts, where the creation of coherent understandings is crucial.

There is no formal model for organizational sensemaking, but the basic process is found in Weick’s sensemaking *recipe*. This is a sequence of enactment, selection, and retention.

- In enactment, people actively construct the environments, which they attend to by bracketing, rearranging, and labeling portions of the experience, thereby converting raw data from the environment into equivocal data to be interpreted.
- In selection, people choose meanings that can be imposed on the equivocal data by overlaying past interpretations as templates to the current experience. Selection produces an enacted environment that is meaningful in providing cause–effect explanation of what is taking place.
- In retention, the organization stores the products of (what it sees as) successful sensemaking (enacted or meaningful interpretations) so that they may be retrieved in the future.

As one property of sensemaking is that it is an ongoing process, there is no beginning point or end to this sequence.

Some view sensemaking as always being a conscious process, coming into play at times of shock or surprise or other particular occasions, for example in times of perceived environmental uncertainty or turbulence. Others believe that, although much of organizational life is routine and unsurprising and as such does not demand our attention, nonetheless we make sense in those habitual situations via the assimilation of subtle cues over time.

Organizational sensemaking can be driven by beliefs or by actions. In belief-driven processes, people start from an initial set of beliefs that are sufficiently clear and plausible and use them as nodes to connect more and more information into larger structures of meaning. People may use beliefs as expectations to guide the choice of plausible interpretations; or they may argue about beliefs and their relevancy to current experience, especially when beliefs and cues are contradictory. In action-driven processes, people start from their actions and grow their structures of meaning around them, by modifying the structures to give significance to those actions. People may create meaning to justify actions that are visible or irreversible.

RESEARCH IN ORGANIZATIONAL SENSEMAKING

A considerable amount of research has focused on strategic issue processing and making sense of the competition. Some researchers have concluded that strategic competition is essentially a product of the tendency of competitors to construct some shared interpretation of a competitive arena within which strategic thinking and action become meaningful. Such studies have provided invaluable insight not only into the identification of industry competitors and the bases on which they compete but also into why competitive industry structures in industries and markets come to develop in the first place. This is exemplified by the work carried out by Joseph F. Porac and his colleagues in the Scottish knitwear industry.

The sensemaking approach has also facilitated an understanding of organizational process, action, and structure in a range of contexts. Notable studies include those of Jane E. Dutton and her colleagues regarding issue and agenda formation and how stakeholders preserve their organization's image; and the

work of Dennis A. Gioia and his associates, who have investigated various aspects of change management, including top management teams' perceptions of identity and image under conditions of change. Additional contexts include technology diffusion and various aspects of organizational socialization and organizational crisis. Weick's concept of sensemaking has been further formulated by researchers who have coined the term *sensegiving* to the process by which managers attempt to influence sensemaking and meaning construction of others toward a preferred definition of organization reality.

—Gail P. Clarkson

See also Group Dynamics and Processes; Organizational Socialization

FURTHER READING

- Maitlis, S. (2005). The social processes of organizational sensemaking. *Academy of Management Review*, 48, 21–49.
- Porac, J. F., Thomas, H., & Baden-Fuller, C. (1989). Competitive groups as cognitive communities: The case of Scottish knitwear manufacturers. *Journal of Management Studies*, 26, 397–416.
- Porac, J. F., Thomas, H., Wilson, F., Paton, D., & Kanfer, A. (1995). Rivalry and the industry model of Scottish knitwear producers. *Administrative Science Quarterly*, 40, 203–227.
- Weick, K. E. (1979). *The social psychology of organizing* (2nd ed.). Reading, MA: Addison-Wesley.
- Weick, K. E. (1995). *Sensemaking in organizations*. Thousand Oaks, CA: Sage.
- Weick, K. E. (2001). *Making sense of the organization*. Oxford, UK: Blackwell Business.

ORGANIZATIONAL SOCIALIZATION

Organizational socialization (OS) is the process through which a newcomer to an organization transitions from outsider to integrated and effective insider. This longitudinal process includes the acquisition or adjustment of shared values, attitudes, skills, knowledge, abilities, behaviors, and workplace relationships. Organizational socialization occurs whenever an employee crosses an organizational boundary. The OS research mainly focuses on transitions across the

organizational boundary; but OS also occurs for functional and hierarchical transitions, such as lateral moves, promotions, and international transfers.

PROCESS APPROACHES TO ORGANIZATIONAL SOCIALIZATION

Organizational Actions

John Van Maanen and Edgar Schein (1979) developed a model of OS tactics, based on the premise that newcomers' learning is dependent on the process as much as the content. They outlined six tactics that organizations use to influence newcomers to adopt certain role orientations. The six tactics, each of which is bipolar, are

1. Collective–individual
2. Formal–informal
3. Sequential–random
4. Fixed–variable
5. Serial–disjunctive
6. Investiture–divestiture

These tactics have also been categorized as institutionalized (collective, formal, sequential, fixed, serial, and investiture) or individualized (their opposites). Institutionalized tactics are associated with a range of positive outcomes including lower role ambiguity, role conflict, intent to quit, and anxiety; and higher levels of job satisfaction, organizational commitment, and task mastery.

PREENTRY ORGANIZATION SOCIALIZATION

Preentry or *anticipatory* socialization occurs during selection procedures in which applicants are exposed to certain aspects of the employing organization. This allows applicants to develop more realistic expectations of working life in the organization. Realistic job previews (RJPs) have been proposed as one formal method by which to effectively achieve preentry OS.

Insider Actions

Newcomers regard organizational insiders such as managers and peers as more useful sources of knowledge and support than formal orientation programs.

Insiders help newcomers to adjust by providing information, feedback, role models, social relationships, and support, as well as access to broader networks and other work-relevant resources.

Newcomer Actions

As part of the OS process, newcomers experience surprises where their expectations are not matched by reality. Surprises may be in relation to their actual role through to the organizational environment. These surprises require newcomers to employ sensemaking strategies, with this research developing from models of employee information seeking, with evidence for newcomers using a range of strategies including overt feedback requests and covert monitoring. Seeking information more frequently overall is related to positive outcomes. Further, newcomers show relatively stable information seeking behaviors over time and choose strategies and sources according to the type of information sought, but observation is the most common strategy.

CONTENT APPROACHES TO ORGANIZATIONAL SOCIALIZATION

Newcomer Learning

Recently, researchers appear to agree that learning is the key element underlying OS. To date, five information-based models of OS content have been developed, with associated measures. The domains included in these models have included task, role (or performance), group processes (also defined as a social or people domain), organization (sometimes broken down further into aspects including history and language), interpersonal resources (or coworker support), training, and future prospects.

Proximal and Distal Outcomes

A number of outcomes have been proposed as reflecting OS success. The most common outcomes have been distal and measured at the individual level and include greater job satisfaction and organizational commitment, reduced anxiety and stress, and a lower intention of leaving. In the last decade researchers have increasingly focused on proximal outcomes that more directly reflect socialization itself, rather than its effects.

These outcomes include various types of knowledge (see Newcomer Learning earlier in this entry), task mastery, role clarity, social integration, and performance.

INDIVIDUAL DIFFERENCES AFFECTING ORGANIZATIONAL SOCIALIZATION

The OS research in the last decade has begun to investigate the influence of individual differences. Research has found that newcomers with high self-efficacy and behavioral self-management tend to use more independent strategies and have better OS outcomes. Further, extraversion and openness to experience are associated with higher levels of proactive socialization behavior, such as feedback seeking and relationship building; and proactive personality leads to more positive proximal outcomes such as task mastery and social integration.

A few studies have looked at newcomers' values during OS and found that those with better objective value fit showed quicker and better adjustment outcomes. The small amount of research on socio-demographic variables has shown minimal effects: Work experience is associated with better outcomes; female newcomers report lower self-efficacy, higher self-punishing behavior, and poorer treatment by colleagues relative to male newcomers.

—*Helena D. Cooper-Thomas and Neil Anderson*

See also Feedback Seeking; Group Development; New Employee Orientation; Socialization: Employee Proactive Behaviors

FURTHER READING

- Cooper-Thomas, H. D., & Anderson, N. (2002). Newcomer adjustment: The relationship between organizational socialization tactics, information acquisition and attitudes. *Journal of Occupational & Organizational Psychology, 75*(4), 423–437.
- Cooper-Thomas, H. D., & Anderson, N. (2005). Organizational socialization: A field study into socialization success and rate. *International Journal of Selection and Assessment, 13*(2), 116–128.
- Morrison, E. W. (2002). Information seeking within organizations. *Human Communication Research, 28*(2), 229–242.
- Van Maanen, J., & Schein, E. H. (1979). Toward a theory of organizational socialization. In B. M. Staw (Ed.), *Research in organizational behavior* (Vol. 1, pp. 209–264). Greenwich, CT: JAI Press.

ORGANIZATIONAL SOCIALIZATION TACTICS

Organizational socialization refers to the process whereby new employees move from being organizational *outsiders* to becoming functioning organizational *insiders*. Socialization has been called the process of *learning the ropes* of being an effective employee. Organizational socialization tactics are the ways that organizations socialize new employees. These tactics vary on a number of dimensions that range from formal to informal in nature.

Successful socialization should lead to an effective employee who feels confident, has limited role conflict and role ambiguity, and feels accepted by his or her coworkers. These positive *accommodation* factors should then lead to enhanced job satisfaction, organizational commitment, job performance, decreased stress, enhanced job and organizational fit, and lowered turnover. Unsuccessful socialization can be identified by poor performance, poor fit, and more rapid turnover. Research generally supports these relationships.

More specifically, research has shown that the process of socialization is not solely caused by the actions of the newcomer, nor is it solely based on the attempts of organizational insiders to socialize the new employee. Rather, the process of socialization refers to the intersection of both of these forces acting on one another.

Socialization includes learning about three important factors of organizational life:

1. Task information: “How do I do this job well?”
2. Social information: “Do I fit in with my coworkers and feel accepted?”
3. Cultural information: “Do I understand the norms and expectations of this organization?”

Research has shown that significant changes take place for newcomers at a number of delineations such as prior to entry (typically referred to as the anticipatory socialization stage), after three months on the job to around six months on the job (typically referred to as the accommodation stage), and after nine months on the job (typically referred to as the role management stage). After this point, newcomers and *old-timers*

seem more similar than not. Longitudinal research that follows newcomers across time has found that early indicators of socialization are predictive of later outcomes. Outcomes include adjustment variables (acceptance by the group, learning the task, forming psychological contracts) and more distal outcomes such as stress, performance, organizational commitment, job satisfaction, turnover intentions, turnover, and person–job fit.

Much work on organizational socialization tactics stems from the work of John Van Maanen and Edgar Schein (1979), who delineated six tactics that vary on a number of dimensions:

1. Level of interaction with other newcomers (ranging from formal to informal)
2. Number of newcomers within a given cohort (ranging from collective to individual)
3. Order in which socialization takes place (ranging from sequential to random)
4. Identification of whether or not there is a specific time frame for socialization (ranging from fixed to variable)
5. Identification of how newcomers are trained (ranging from serial to disjunctive)
6. Identification of whether newcomers are stripped of their old identity or not (ranging from investiture to divestiture)

Subsequent research has shown that these organizational socialization tactic dimensions developed by Van Maanen and Schein (1979) can be thought of as representing a continuum that ranges from highly institutionalized approaches to socialization (e.g., new army recruits going through boot camp) to more individualized approaches (e.g., a new college professor during the first term). To illustrate the differences between these two types of tactics, think first of a new recruit in boot camp in the army. This individual is in a collective situation with other recruits, undergoing a sequential process of physical demands, following a strict timetable of events, learning tasks serially, and being stripped of any individual identity during the process in favor of a collective identity with the army. However, a new college professor might be one of the only or few new hires for a given year; undergoing a random sequence of learning things independently; undergoing no set time frame for socialization other than tenure, which is some years away; learning tasks

in a disjunctive fashion; and valued for expertise and training at the individual level. The recruit is undergoing a classic case of institutionalized organizational socialization tactics with a high degree of routinization, and the college professor is undergoing a classic case of individualized organizational socialization tactics with a relatively *loose* structure and indoctrination. This may be because of the norms that are indoctrinated in professors as they earn their doctoral degrees so that less direction is needed once they begin in the profession.

Tactics that are highly institutional tend to be preferred by new employees, perhaps because the definite nature of these tactics helps to orient new employees and decrease ambiguity about what they should be doing. However, the potential downside of these tactics is a decrease in innovation and creativity. This is a dilemma that organizations need to approach carefully.

Organizations vary hugely in terms of how they employ these tactics. Research has shown that institutionalized tactics are negatively related to self-efficacy but positively related to organizational commitment, job satisfaction, and intentions to remain. Since that time, research on organizational socialization tactics has continued and has been associated with diverse outcomes.

For example, research studying psychological contract breach for newcomers found that those who perceived breaches were more likely to experience an informal socialization process. Additionally, newcomers' perceptions of fit are related to tactics that are fixed and serial. Researchers also found that institutionalized tactics were significantly related to newcomers' relations with organizational insiders as well as negatively related to role conflict and that serial and investiture tactics were negatively related to subsequent turnover for newcomers working at large financial services organizations.

In addition to organizational tactics, organizational insiders also influence new employee socialization. Two categories of these insiders exist: supervisors or leaders who oversee the newcomer and coworkers or peers who work with the new employee. A major goal of organizational socialization is to understand one's role in relation to these organizational insiders as well as to feel accepted by them. Newcomers who are able to do this are much more likely to become successfully socialized and integrated into their new organization. Research has also shown that newcomer

personality interacts with leadership to affect adjustment and relate to turnover. A study that examined new executives across four years found that those who were introverted and formed strong leadership ties were less likely to turn over than those introverts who did not form these ties. For extraverts, leadership relationships made no difference.

As mentioned earlier, newcomers also employ tactics to learn about their new jobs, coworkers, and organizations. These tactics usually revolve around information and feedback acquisition. Newcomers vary on many dimensions, but a key dimension is their proactive personality. Those who are very proactive will seek out information, ask for feedback, and initiate ways to learn about the job, coworkers, and organization. Their less proactive colleagues will be less likely to engage in these behaviors and therefore will be more susceptible to the organization's influence.

Information seeking is related to the outcomes of socialization, by increasing knowledge regarding role expectations and by increasing confidence to accomplish personal goals. In other words information seeking should be positively related to self-efficacy and negatively related to role ambiguity. Furthermore, by voicing questions and seeking information and feedback, individuals deal with conflicting information coming from different sources, leading to reduced role conflict. Finally, information seeking may facilitate social interactions and signal to others that the individual is motivated to do a good job, leading to acceptance by peers.

Several studies have found that information seeking plays an important role in newcomer socialization. Seeking and acquiring information is key to understanding one's roles, the norms of the group and organization, and the expectations and interconnections among colleagues and functional areas. However, seeking too much information can be costly to newcomers who might come across as *not getting it*. Timing may be the key to understanding when newcomers should seek information as well as understanding how to do it and from whom. Further, information seeking has been shown to relate to distal outcomes such as satisfaction, job performance, and intentions to remain, depending on the type and source of information obtained.

Another factor that should matter in new employee socialization is personality. Some newcomers are proactive in terms of their personalities, and these individuals should approach the socialization

process differently than newcomers who are not as proactive. Similarly, newcomers who are introverted need to establish strong interpersonal relationships to help them navigate the organization, whereas more extraverted newcomers are able to learn from multiple sources.

In summary, organizational socialization tactics seem to matter for newcomer organizational socialization. What remains to be seen is the relative impact it will have on the process and whether or not outcomes mediate the relationship between tactics and more distant outcomes.

—Talya N. Bauer

See also New Employee Orientation; Socialization: Employee Proactive Behaviors; Training Methods

FURTHER READING

- Bauer, T. N., Bodner, T., Erdogan, B., Truxillo, D. T., & Sommers, J. (2005). *A meta-analysis of the socialization literature*. Academy of Management Annual Conference, Honolulu, HI.
- Bauer, T., Morrison, E. W., & Callister, R. (1998). Organizational socialization: A review and directions for future research. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (Vol. 16, pp. 149–214). Greenwich, CT: JAI Press.
- Fisher, C. D. (1986). Organizational socialization: An integrative review. In K. M. Rowland & G. R. Ferris (Eds.), *Research in personnel and human resources management* (Vol. 4, pp. 101–145). Greenwich, CT: JAI Press.
- Kim, T., Cable, D. M., & Kim, S. (2005). Socialization tactics, employee proactivity, and person–organization fit. *Journal of Applied Psychology*, 90, 232–241.
- Morrison, E. W. (1993). Newcomer information seeking: Exploring types, modes, sources, and outcomes. *Academy of Management Journal*, 36, 557–589.
- Van Maanen, J., & Schein, E. H. (1979). Toward a theory of organizational socialization. In B. M. Staw (Ed.), *Research in organizational behavior* (Vol. 1, pp. 209–263). Greenwich, CT: JAI Press.

ORGANIZATIONAL STRUCTURE

Organizational structure refers to the formal and informal manner in which people, job tasks, and other organizational resources are configured and coordinated. Although organizational *structure* sounds like a

singular characteristic, it is composed of a number of dimensions, because there are multiple ways the employees within an organization and the job tasks that are carried out can be structured. The most commonly studied aspects of organizational structure include *formalization*, *centralization*, and *complexity*.

FUNDAMENTAL ELEMENTS OF ORGANIZATIONAL STRUCTURE

Formalization refers to the extent to which organizational policies, practices, and ways of completing tasks are standardized. Specifically, highly formalized organizations are those in which rules for expected behavior are clearly articulated and followed. Conversely, organizations that exhibit *low levels* of formalization have few standardized practices or rules. Formalization is often conveyed through formal means and documents such as job descriptions, but it need not be. Informal activities, such as practices that are reinforced through group norms or informal conversations with other members of the organization, also serve to reinforce the level of formalization.

Centralization refers to the distribution of decision-making authority, information, and power throughout an organization. In some organizations all or most decisions are made by a small group of individuals, often the top management team. Such organizations are considered *highly centralized* because power is maintained by a select few individuals, for example, when decisions are made by a central group of individuals. Conversely, in *highly decentralized* organizations, power and decision making are spread across individuals throughout the organization. Individual employees in these organizations have the opportunities and authority to make day-to-day decisions and other important decisions that affect their work. The centralization of power in an organization may be dictated and described in formal rules, policies, and job descriptions. It is also common, however, that centralization occurs informally through the behaviors and norms introduced and reinforced by those in power, such as a leader who purposefully limits access to key information.

Complexity has represented a number of different aspects of organizational structure throughout history (additional historical background is presented in a later section). Among the structural aspects that have been labeled *complexity* are *specialization*, *interdependency*, *span of control*, and *height*. Although each is somewhat unique, they all share the recognition that the organization

of workers and work processes can range in design from simple to complex. *Specialization* refers to the extent to which job tasks require highly specific (i.e., specialized) work skills or, conversely, can be successfully carried out by individuals who possess more broadly available knowledge, skills, and abilities. Research- and development-based organizations are examples of organizations that are likely to be highly specialized because such activities often require unique content knowledge and skills. *Interdependency* (also called integration) refers to the integration of tasks and activities across different workers. Highly integrated organizations require the cooperation and collaboration of many different employees to get work done. Nonintegrated organizations are composed of individuals who work largely on their own and do not require assistance or products from other employees. *Span of control* refers to the number of subordinates who report to a single manager. The size of the managerial span is often associated with the varying levels of the hierarchy within an organization (height). Large spans of control are associated with *flatter* organizations, such as those with fewer layers between entry-level positions and top management); small spans typically correspond with tall hierarchical organizations in which there are many levels from the bottom to the top.

Structural dimensions receiving less attention include *departmentalization* and *physical dispersion*. *Departmentalization* refers to the existence of formal and informal divisions within an organization. These divisions are often, but not always, created by grouping subsets of jobs, and often comprise similar (or related) jobs. Highly departmentalized organizations are those that have created many internal divisions, whereas highly nondepartmentalized organizations have few. *Physical dispersion* refers to the extent to which organizational members are physically spread apart from one another. This may refer to the dispersion of individuals within a single building or, in highly dispersed organizations, the spread of employees across numerous locations throughout the world.

FACTORS RELEVANT TO THE ELEMENTS OF ORGANIZATIONAL STRUCTURE

There is convincing evidence that no one structure is best for all organizations. Because there are many factors that determine the structure most effective for any given organization, researchers have adopted an approach called *contingency theory*. Contingency theory in this context refers to the idea that relevant

circumstances must be considered before applying a specific organizational design. A number of contingencies determine structure; *environment*, *technology*, *strategy*, and *size* are among the most influential.

Environment is the total of the factors that occur outside of the organization but are relevant to the decision making of the management of the organization. These external forces include social and cultural norms, governmental regulations, economic conditions, market competition, the relevant labor pool, availability and nature of raw materials, and industry type.

Technology represents one aspect of the environment affecting an organization. Because of its importance historically (see the brief description of the seminal Woodward studies that follows) and strong impact on modern organization, technology is often separated out for special consideration in its effect on organizational structure. Although in 2006 technology is often considered interchangeable with computerization, technology in its broadest sense may be defined as the knowledge necessary to process raw material. Depending on the organizational product or service, the raw material might be objects or people. Further, technological processes can be categorized as routine or nonroutine. Routine processes are well understood and standardized. Routine technology typically leads to more traditional organization structure with higher levels of centralization and formalization.

When taken together, environmental factors are often categorized by their complexity. Complexity here refers to the heterogeneity and incompatibility of the various elements of environment enumerated earlier. Large organizations often face more complex environments because of the sometimes conflicting objectives of the various stakeholders, such as governmental regulations and resource acquisition costs, found in the environment. Generally, the more complex the environment, the more complex the organizational structure to accommodate that environmental complexity.

Environmental factors can also be categorized as stable or volatile based on an overall assessment of the predictability of change in the environment. To meet the demands of these two types of environments, organizations may be said to employ two primary approaches to structure themselves: *mechanistic* and *organic*. Mechanistic models of structure are denoted by high specialization, rigid departmentalization, strong centralization and formalization, and narrow spans of control with clear authority lines. In contrast, the organic model has decentralized authority and decision making,

low standardization, and formalization with self-directed teams or work groups as the primary departmentalization strategy. It should be noted that the two classifications, mechanistic and organic, might be considered as ends of a continuum rather than definitive categories; for example, few organizations use all elements of a strictly mechanistic or organic structure but instead use some combination of the two.

To survive, an organization must have a *strategy* for providing its products or services. The strategy of an organization will differ relative to the target customer market and industry type within which the organization functions; but within these constraints, an organization can select from many types of strategy with *innovation* and *imitation* strategies representing classic types. Innovation strategies emphasize being the leader in the industry in introducing new products or services. Organizations that choose the imitation strategy do not produce new products or services until another organization has demonstrated that those products and services are in demand. A subtype of imitation strategy is minimizing costs in an effort to generate high profits with lowered risk. The implications of different organizational strategies—innovation or imitation—lead to structures that vary along the continuum of the mechanistic and organic models described previously. Innovation strategies are more likely to require organic types of structure, whereas imitation (and cost minimization) strategies are more apt to lead to mechanistic models of organizational structure.

Size of organization is most often represented by the number of employees but may alternatively be represented by the number of plant locations or offices, net assets (manufacturing), gross sales (manufacturing or service industries), or number of units that can be produced or people who can be served. Number of employees correlates more strongly than other indicators to structural features, and the size of an organization has a strong impact on resulting structure. Large organizations have more specialization in job types, more standardization of rules and formalization of procedures, and often more decentralization of decision making.

HOW MODERN CONCEPTUALIZATIONS OF ORGANIZATIONAL STRUCTURE DEVELOPED

How to organize the people and the tasks of work has been of interest from the earliest of times. Although concerns for structure can be dated to the Roman legions, modern interest among management theorists

stems most directly from Henri Fayol's prescriptions for management in the early 1900s. In his principles of management, Fayol recommended specialization, centralization, clear lines of authority with one superior for each employee, and unity of direction. *Unity of direction* refers to the proposal that all effort within a group be directed toward recognized organizational goals and is inherent in the hierarchical structures of many organizations.

Another pioneer in defining organization structure was sociologist and economist Max Weber. In the early 1900s Weber conceptualized the ideal *bureaucracy* as an organization with a hierarchical division of labor in which explicit rules were applied objectively to employees. This organizational design is widely used today and is characterized by high levels of specialization, strong formalization, functional departmentalization, narrow spans of control, and centralized authority and decision making, for example, following the mechanistic model noted earlier. Since Weber's original work, the term *bureaucracy* has also come to be used as a pejorative reference to the constraints incumbent in the rules governing organizational life.

In the 1950s Joan Woodward studied 100 manufacturing firms in England and categorized, from simple to complex, the technical complexity of their operations into three types: unit production, mass production, and continuous processing. She determined that the type of operating process an industry used determined the best structure for an organization; her findings brought to an end the search for one best structure and heralded the start of the contingency approach noted earlier. During the 1960s Paul R. Lawrence and Jay W. Lorsch continued the study of environment–structure fit and concluded that the contingencies of the environment were critical to selecting a suitable organizational configuration. More specifically, they found that organizations with stable environments were most successful if they used traditional hierarchical (i.e., mechanistic) structures; organizations with organic structures were more successful in volatile environments.

Among the best known and longest running (approximately 40 years, starting in the 1950s) studies of organizational structure are those that emanated from the University of Aston group in England. A collection of researchers headed by Derek S. Pugh examined a wide range of organizations and codified and developed measures of such concepts as centralization,

specialization, and formalization described previously. Their work bridges the early modern era with the current era.

EMERGING ISSUES OF ORGANIZATIONAL STRUCTURE

The globalization of work and expansion of multinational firms has provided one element of the environment that has fomented changes in prevailing organizational structures. In addition, the rapid changes brought about by the widespread use of computers and other elements of information technology have especially had a large impact on the functioning of organizations. These changes are expected to force changes in organizational structure. In fact, information technology has already influenced organizational structure. Large-scale users of information technology tend to have more decentralized and less formalized structures and more flexibility in responding to the challenges of a volatile environment. Further, with the globalization of work and markets, some organizations have capitalized on the advances of information technology to implement new structural forms. The *boundaryless* (also called virtual, network, shadow, barrier-free) organization may have only a small number of core employees and, in its most extreme case, no physical location beyond that needed to house the small cadre of management employees. Production or services that constitute the core of the organization's mission may be outsourced completely to sites around the globe with information technologies serving as the primary communication links.

THE ROLE OF STRUCTURE IN ORGANIZATIONS

A key role of organizational structure is its relationship to organizational strategy. Depending on an organization's strategy, certain structures will be more or less effective. Therefore, matching structure and strategy is important. Ultimately, a recursive relationship exists whereby the effective implementation of strategy creates an appropriate matching structure that, in turn, produces outcomes and processes that support the intended strategy. For example, an organization that has *innovation* as a core strategy would likely produce a structure with low levels of formalization and high levels of decentralization, among other characteristics. Individuals who work in such a structure experience greater autonomy, freedom, and flexibility

in carrying out their work tasks and, as a consequence, are likely to emerge as an innovative workforce. Thus structure and strategy should reinforce each other. Mismatch between structure and strategy often leads to organizational failure.

Structure is also important because of the direct and meaningful impact it may have on valued individual outcomes. A number of studies have demonstrated that organizational structure affects important individual worker attitudes including job satisfaction, work alienation, role ambiguity, role conflict, perceptions of justice, motivation, and job involvement. Structure has also been shown to affect employee behaviors such as performance, turnover, and organizational citizenship. Although some relationships are direct (i.e., increased formalization is associated with lower levels of role ambiguity), most require consideration of individual characteristics and other contextual factors to understand their impact.

Environmental demands such as changing technology and globalization have heightened the importance of organizational flexibility in many industries. Basic structural characteristics such as centralization, formalization, and complexity directly influence an organization's capacity to respond quickly to changes in the environment. One response to the demand for flexibility has been the increased dependence on self-guided teams. Further, formally hierarchical structures have become much flatter, resulting in greater decentralization, generally less formalization, and, in many cases, increased departmentalization.

SUMMARY

Organizational structure is the way people and the work to be accomplished within organizations are configured and coordinated. The primary elements of structure are centralization, formalization, and complexity. These elements are affected by forces outside the organization as well as by organizational size. Information technology and globalization are especially potent factors likely to alter the future of organizational structures. Meaningful relationships exist between organizational structure and organizational strategy, performance, and individual attitudes and behaviors.

—Janet L. Kottke and Mark D. Agars

See also Groups; Organizational Culture; Organizational Climate; Organizational Communication, Formal; Organizational Communication, Informal

FURTHER READING

- Dibrell, C. C., & Miller, T. R. (2002). Organization design: The continuing influence of information technology. *Management Decision*, 40(5/6), 620–627.
- Hall, R. H. (1991). *Organizations: Structure, processes, and outcomes* (5th ed.). Englewood Cliffs, NJ: Prentice Hall.
- James, L. R., & Jones, A. P. (1976). Organizational structure: A review of structural dimensions and their conceptual relationships with individual attitudes and behavior. *Organizational Behavior and Human Performance*, 16, 74–113.
- Mintzberg, H. (1979). *The structuring of organizations*. Englewood Cliffs, NJ: Prentice Hall.
- Pugh, D. S. (Ed.). (1998). *The Aston Programme, Vols. I–III. The Aston Study and its developments*. Burlington, VT: Ashgate.

ORGANIZATIONAL SURVEYS

Organizational surveys are also known as employee opinion surveys or employee attitude surveys. Most experts prefer to call them organizational surveys to clarify that the sponsor and user of such surveys is almost always the organization. Further, the people asked to complete such surveys may be employees at any or all levels, including top executives. Recent estimates conclude that about 75% of all medium- to large-sized firms conduct organizational surveys, typically every year or two. Surveys are also used extensively within the United States federal government, including the armed forces.

PURPOSE AND HISTORY

The size and content of such surveys may vary widely, reflecting the different purposes to which organizational surveys are put. These purposes range along a continuum, so surveys can be seen as tools for assessment and change. Historically, surveys have been used for assessment, much like taking a broad-scale annual medical examination to see *how we are doing*. In recent decades the emphasis has been more on stimulating and measuring change in specific areas of strategic value, such as product quality, work–life human resource initiatives, or customer satisfaction.

The survey is a popular methodology for conducting research in many areas of industrial and organizational psychology. Catherine Higgs and Steve

Ashworth noted that surveys can be used for several types of research. In early stages they can be merely exploratory and later move on to be fully descriptive of the phenomena measured. At the highest level, they can be used to test causal relationships. It is quite common to see journal articles that have used surveys to collect data. Practitioners often learn or borrow survey methodology from allied fields such as sociology.

The typical content of the organizational surveys has changed since the early popularity of employee surveys in the 1930s and 1940s. That was an era of concern for employee morale and emotional adjustment, often as desirable ends in themselves and sometimes to prevent unhappiness that might cause unionization. Typically, survey questions asked about the individual employee's contentment with different aspects of work, management, and pay. They even asked about environmental issues such as parking lots, cafeterias, and lighting. Both interviews and questionnaires were used.

In the 1950s and 1960s the emphasis shifted to the individual's job satisfaction because of presumed links of satisfaction to better organizational productivity. Typical surveys were based on paper-and-pencil questionnaires. In the 1970s and 1980s attempts were made to link employee satisfaction to organizational outcomes like turnover, absenteeism, and stress. The worker's job level and part of the organization were seen as important moderators. The technology for doing surveys also evolved to the use of self-administered, standardized, scannable forms.

Since the early 1990s an extraordinarily different view of surveys has taken hold in most organizations. Behind the change is a set of assumptions linking employee opinions and perceptions to the achievement of strategic organizational goals. In service-dominated industries, employee behaviors are now seen as directly influencing customers' reactions and loyalties and thus spilling over to bottom-line measures like financial growth, profit, and product success. Set against an increasingly competitive global marketplace, the emphasis in surveys is to capture employee views, perceptions, and reports of how their organizations work, with the aim of achieving more productive teams, better quality products and services, and more satisfied customers.

This view of surveys has led to several conceptual models, some with names like the *service-profit chain*. Still others are known as *linkage research* models. They help describe to organization management

just why the surveys measure the concepts they do, and show how they are linked to important outcomes. Several recent studies seem to support this way of viewing and using survey results. The relationship between employee views and organizational outcomes at the unit level (rather than the individual level) have proved to be more powerful than previously believed by a few meta-analytic studies, which distill the relationships found in many studies.

METHODOLOGY

Survey questions may cover a wide variety of issues. Closed-ended questions are typically written as Likert-type items, to be answered on a five-point scale of satisfaction or agreement.

- An example of the first type would be "How satisfied are you with the recognition you receive for doing a good job?" Possible answers: 1. Very satisfied; 2. Satisfied; 3. Neither satisfied nor dissatisfied; 4. Dissatisfied; 5. Very dissatisfied.
- An example of the agreement type would be "I like the kind of work I do." Possible answers: 1. Strongly agree; 2. Agree; 3. Neither agree nor disagree; 4. Disagree; 5. Strongly disagree.

Most surveys also include one or more open-ended questions that ask respondents to write in their response. Questions may be very general, such as, "Any other comments?" Or they may be very specific, such as, "What kind of training would help you to be more effective?" To encourage frank and honest responses to all questions, strict confidentiality is almost always promised by the survey sponsor.

In the last decade, organizational surveys have been administered largely by computers, using e-mail and the Internet. This has made astonishing changes in the administration, collection, and use of survey data. Surveys can now be sent electronically to eligible samples, avoiding the physical effort and expense of postal or other distribution systems. Surveys are cheaper and much more flexible once the infrastructure is available. Although printing a large survey might take weeks, an electronic version can be changed at the last minute (and even during a survey if a major crisis has occurred). These surveys can also use *branching* techniques, so respondents answering certain questions unfavorably can be offered more detailed follow-up items to help in diagnosis. Write-in comments are keyed in by respondents, avoiding the

laborious transcription needed in paper-and-pencil surveys.

In most ways, the electronic version of organizational surveys is quite superior to earlier versions. Careful studies show no distortion of replies versus paper-and-pencil versions, except that write-in comments are typically twice as long. Still, computer programs make write-in comments much easier to analyze and report than in the past. In general, reporting survey data has been shortened from many weeks to a few days. Reports to managers can also be made via computer, giving managers a chance to receive reports sooner and in more flexible formats.

RESPONSE RATES

However, electronic surveys may create problems because surveys now seem quite easy to do. Many groups in a firm launch their own internal surveys, often of dubious quality. Along with this are employee cries of *oversurveying*, and a decline in response rates. In the past it was common to survey all of a firm's population to do a census survey. Recently, many firms have shifted to doing more frequent surveys, or *pulse* surveys, often of small samples of respondents.

Typical response rates are hard to pin down with certainty. It is believed that census surveys of employees typically get response rates of anywhere from 30% to 95%, averaging about 65%. Sample surveys seem to get 10% to 15% lower response rates. Poor response rates undermine the credibility of survey results. Some recent research, however, suggests that nonrespondents are mostly people who have other priorities and are not actively opposed to the survey or its topics. Still, it would be wise to weight any subgroups that respond at higher or lower rates than typical, to properly represent each subgroup in the firm. Of course, survey researchers should always compare a sample's demographics with the known population demographics to be sure the sample is representative.

Most experts believe that the size and content of a survey questionnaire will influence the response rates. Surveys with clear, well-written questions on topics that are obviously important to the individual and organization will gain more participation. Respondents will be *turned off* by surveys they think are overly long. In prior decades, it was not unusual for paper-and-pencil surveys to have more than 200 questions. Recent electronic surveys typically have

from 40 to 75 items and can be completed in 10 to 20 minutes. This, too, reflects the competitive, fast-moving business climate in many firms.

NORMATIVE DATA

Management getting survey reports often ask how they compare with other firms. Different consortiums of companies have been born from this desire. The granddaddy of survey consortiums is the Mayflower Group (www.mayflowergroup.org), a group of roughly 40 large firms that ask the same two dozen core items in their respective surveys and share the normative data with other member firms under strict confidentiality. There is also the Information Technology Survey Group (www.itsg.org), made up of 18 high-technology firms, that operates in a similar way. The representatives of the consortium's member firms meet twice a year and share what they believe are *best practices* in doing organizational surveys. In addition, several survey vendors offer data norms based on their client data sets, or based on specially collected national data sets.

Other types of norm data are those that represent cultural or national differences. With many large firms now truly global organizations, some international data is available for norm comparisons. Basic advances in the social sciences are also helped through such data. Three decades ago the Dutch organizational scholar Geert Hofstede used the international survey data from the IBM Corporation to lay out several cross-cultural dimensions, such as the tendencies of people in different countries to be oriented toward the group, or collective (as in Asia), or toward the individual (as in the United States).

ORGANIZATIONAL DEVELOPMENT AND ACTION TAKING

The most important outcome of surveys is meaningful and responsive action. This is also the most elusive aspect of the organizational survey process. But experts in organizational development, working with survey researchers, have developed some excellent techniques. They recognized that survey data can be energizing and motivational. Naturally, meaningful action requires a supportive top management that is knowledgeable about the overall process. They must be advocates and champions of the organizational survey. Survey practitioners responsible for doing the

organization's survey must educate all levels of management; they must provide the training and infrastructure for data to be collected, analyzed, and reported and then track the actions taken.

Some experts favor reporting survey data first to top management, then letting the data *cascade* down to lower levels, with top management acting as role models for how to discuss and act on the data. Other experts prefer having the data *bubble up*, with lower levels seeing it first and then reporting their findings and action plans to higher levels. Over the years detailed protocols have been developed to *feed back* the survey results to respondents; and this is seen as a critical step to good survey practice. Recent research, however, has made it clear that action taking, not data feedback, is the critical ingredient for success. In fact, providing employees with survey data feedback and no action causes more unfavorable consequences than giving no feedback at all.

Companies that have described their experiences make it clear that the critical factor is to ensure that managers must act. It may even be best to focus on only one or two high priority areas to work on. Many firms use survey results, and improvements or declines, as the basis for performance appraisals, incentive bonuses, and promotions. If the topics measured in the survey are truly important to the organization, rewards and punishment for their achievement seem quite appropriate.

Organizational surveys have been used for many purposes in recent years. These include topics as different as managing the progress of mergers and acquisitions, improving a climate of diversity, reducing employee turnover, reinvigorating an organization after a business turndown, and coordinating practices in a large global organization. Surveys have also been modified to provide multisource feedback (360-degree feedback) for management development purposes. The organizational survey is a powerful tool for many purposes and seems destined for continuing use and influence.

—Allen I. Kraut

See also Feedback; Organizational Development; 360-Degree Feedback

FURTHER READING

Church, A. H., & Waclawski, J. (2001). *Designing and using organizational surveys: A seven step process*. San Francisco: Jossey-Bass.

Kraut, A. I. (Ed.). (1996). *Organizational surveys: Tools for assessment and change*. San Francisco: Jossey-Bass.

Kraut, A. I. (Ed.). (2006). *Getting action from organizational surveys: New concepts, methods and applications*. San Francisco: Jossey-Bass.

OUTSOURCING

Outsourcing is typically the domain of trade economists, whereas nonstandard work arrangements are the province of labor economists. Temporary work is one aspect of nonstandard work arrangements just as are part-time work, contract work, and other work forms. Although there are many polemics on the positive and negative results of outsourcing and nonstandard work on productivity and personal well-being, industrial/organizational (I/O) psychologists have paid scant research attention to either.

In the early 1980s outsourcing referred to the situation in which firms expanded their purchases of products (such as automakers buying car seat fabrics) rather than making them themselves. By 2004 outsourcing had taken on a different meaning. It referred to the specific segment of the growing international trade in services. This segment consists of arm's length or long-distance purchase of services abroad. Thus X-rays made in Boston can be transferred to Bombay for reading, and call centers in Deli can serve customers in Denver. This move is accompanied by the debate about whether the United States is weakening its economic power by *shipping jobs abroad*.

All in all, outsourcing is a growth industry and takes many forms. Some firms have partnered with competitors in some fashion for decades. Among the reasons firms team up with competitors are to secure sophisticated, cost-driven contracts; to fend off threats from other industries; to evaluate a partner's suitability for long-term joint ventures; to set industry standards for product compatibility in hopes of expanding markets for everyone; and so on. One study of a company's outsourcing partners found that approximately 50% were with competitors. One observer noted, "In today's complex, intertwined economy, the business-as-war, winner-take-all mind-set doesn't cut it. Better get a piece of the pie than no portion at all." In war, outsourcing cuts it. Outsourcing has been done in every war the United States has fought. In the second Gulf War, the U.S. military outsourced everything

from feeding troops to providing heavy machinery. Both the numbers and types of *coopetitions* are rising.

Partnering has a number of advantages and disadvantages. Some operational benefits accrue from partnering. Partners can teach new things, perhaps through access to best-of-class processes. Perhaps partnering competitors can learn technology secrets from one another. Where industry benchmarks aren't well-known, partnering with a competitor can offer insights on a company's productivity, quality, and efficiency.

But there are also obvious disadvantages. Lack of control is a critical disadvantage. If a U.S. oil company operating in a foreign environment outsources security to an in-country organization, and the in-country security force comes in contact with drug traders, it can start a war that the United States will then have to deal with. The demise of ValuJet, for example, happened because the company outsourced cargo handling to a company where they could not control quality standards. In another form of outsourcing, competitors learn from each other's operations, which may be detrimental to one or more partners. Or a coopetition may self-destruct before the renewal option dates arrive. A new company board for one of the partners may not approve of the other partner. The strategic aims of partners may change midstream, causing failure. These are just some of the reasons for outsourcing failures.

The current trend is to export international outsourcing as a source of cost saving, particularly in service-related industries. International outsourcing takes a number of forms: *outtasking* or subcontracted exportation of particular tasks or function to a foreign enterprise; a partial exportation of a task; *the foreign-local subsidiary model* that relies on a foreign enterprise to support a foreign subsidiary of the U.S. customer; a jointly owned subsidiary to provide shared services to affiliates; and global multilateral outsourcing that relies on a multinational enterprise to support a multinational customer's operations in multiple countries.

Outsourcing has a number of advantages and disadvantages. Among the advantages are price and cost reductions, the ability to expand contract programs in short periods of time, enhanced service benefits, finding and using new talent, and lower turnover rates when outsourcing is from the United States to non-U.S. countries. This latter is generally because the kinds of jobs outsourced from the United States are not as attractive as are other jobs to U.S. employees.

Risks are also involved in outsourcing. When outsourcing is done from the United States to other countries, political instability may be a factor. Companies also run the risk of losing their core competencies to their outsourced partners. Unemployment backlashes are another risk.

TEMPORARY WORK

Contingent labor is one of the fastest growing industries in the United States. The temporary work revolution is not limited to the United States. In Europe it grew 18% in 1997 alone. Although the number of contingent jobs is growing, the types of these jobs are changing. Health care and technology jobs are two of the fastest growing job sectors. For temporary workers nearly all the traditional human relations functions—recruitment, administration, and so on—have shifted from the work organization to temporary work agencies. Users of temporary workers are afforded considerable labor flexibility and reduced obligation to these workers. In addition to flexibility, rationales for hiring temporary workers are labor cost savings, increased global competition, new technology, and the need to respond quickly to changing conditions. Despite the increased use of temporary workers, human relations contemporary textbooks offer the area scant or no coverage.

Current research in the area of temporary and contingent employment addresses the demographic characteristics of the workforce and the evolution of organizations leading to their use. In 1998 the National Association of Temporary and Staffing Services (now called the American Staffing Association) conducted a demographic survey about the state of temporary employment. This survey counted 2.8 million Americans as a part of the temporary workforce. Forty-one percent of these people had at least a two-year college degree, and another 19% currently attended college. Twenty-one percent of *temps* recently finished high school or college and viewed temporary work as a means of entry into the workforce. Clerical and administrative positions counted for 40.5% of all temporary jobs, a decrease in the types of positions available through staffing agencies. Technical and professional positions accounted for 25% of available openings, but health care positions decreased by 2.2%. An earlier survey by the same organization reported that 80% of all temps were women.

Other research addresses how organizations use temps, individual consequences of temping, and individual responses to temping. Organizations with high variability in their product lines have increased need for temps, but they are also used when permanent employees leave their positions (e.g., vacation, long-term disability leave, maternity leave). Client companies reduce their training costs by hiring specialized temps. Because companies view temps as resources, temps see themselves as alienated and have little or no commitment to the organization. Individual responses to temping include developing coping strategies to reduce feelings of alienation. Temps may seek autonomous, mentally challenging work, or control the pace of work to exert some control over their environment. Temps often look for long-term assignments to counter isolation. Existing research does not explain the motivational processes in which individuals engage while temping, despite the fact that motivation is one of the most frequently researched areas in I/O psychology.

Temps come in two types. There are those seeking permanent employment, or temporary temps, and those not seeking permanent employment, or permanent temps. About one third of both groups enjoy the variety of temporary jobs and the quality of job assignment. Temporary temps are more likely than permanent temps to use temporary employment to find job leads and develop networks. Permanent temps are more likely to feel they do not have time for permanent jobs and are more likely to value the flexibility of temporary work.

SUMMARY

Outsourcing and temporary work are both given short shrift in I/O research. In the early 2000s outsourcing

came to mean the arm's length or distance purchase of services abroad. Outsourcing is a growth industry, and there are many forms of partnering that have a number of advantages and disadvantages.

Temporary work is one part of the contingent labor force and is growing dramatically. Existing research addresses the demography and organizational uses of temps. It also addresses individual consequences of and individual responses to temping and why people seek temporary work. Sadly lacking is research on the motivational aspects of temporary work.

—Karlene H. Roberts and Daniel S. Wong

FURTHER READING

- Davis-Blake, A., & Uzzi, B. (1993). Determinants of employment externalization: A study of temporary workers and independent contractors. *Administrative Science Quarterly*, 38, 195–223.
- Greaver, M. F. (1998). *Strategic outsourcing: A structural approach to outsourcing decisions and initiatives*. New York: AMACOM AMA Publications.
- Housman, S., & Osawa, M. (2003). *Nonstandard work in developed economies: Causes and consequences*. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- National Association of Temporary and Staffing Services. (1998). *Who are temporary workers? You may be surprised to learn*. Alexandria, VA: Author.
- Wheeler, A. R., & Buckley, M. R. (2001). Examining the motivation process of temporary work employees: A holistic model and research framework. *Journal of Managerial Psychology*, 16, 339–354.

P

PATH–GOAL THEORY

The path–goal theory of leadership is a situational theory of leadership and is closely aligned with expectancy theory. The theory holds that the major function of the leader is to enhance subordinates' instrumentalities, for example, perceived degree of relationship between behavior and outcome; expectancies, such as perceived relationship between effort and behavior; and valences including feelings regarding attractiveness of outcome to increase subordinate force such as motivational effort. Thus, although the theory is a leadership theory, it relies heavily on the work motivation literature.

Path–goal theory was originally contrived as a dyadic theory of leadership concerning relationships between appointed supervisors and subordinates, but it has been expanded to include supervisor and unit relationships. It is generally concerned with how formally appointed supervisors influence the motivation and attitudes of their respective subordinates. It is not concerned with organizational leadership, emergent leadership, leadership strategy, or leadership during times of organizational change; it is concerned with job task leadership. In more concrete terms, path–goal theory proposes that the primary function of a leader is to increase individual employee gains, rewards, and other positive outcomes for work goal attainment by creating a more easily traversed path to goal attainment (i.e., removing obstacles, clarifying goals, increasing job satisfaction). Whether the leader can do so effectively depends heavily on various contextual and situational factors and subordinate characteristics. Thus according

to the theory, effective leaders streamline work processes by complementing the characteristics of the environment and subordinates. If such situational affordances are present, leaders can increase subordinate motivation, job attitudes, and performance.

LEADER BEHAVIORS

The theory further states that a leader might display four different types of leadership styles, depending on the situation, to maximize employee effectiveness. Some researchers state that more effective leaders simultaneously incorporate all four styles because of the unique effects of each style across varying work tasks and conditions. The four styles are as follows:

1. **Directive Leadership:** Effective leaders should provide specific guidance of performance, set acceptable standards of performance, and provide explicit performance expectations to subordinates. Generally, this approach is best when work is unstructured and complex and the subordinates are inexperienced. Such an approach tends to increase subordinates' sense of security and control.
2. **Supportive Leadership:** Effective leaders should be friendly to subordinates and demonstrate concern for each subordinate's well-being by considering each individual's needs. Generally, this approach is best when work is stressful, boring, and hazardous.
3. **Participative Leadership:** The effective leader consults with subordinates by soliciting ideas and suggestions from subordinates, soliciting participative decision making affecting subordinates, and valuing and considering subordinate suggestions.

Generally, this approach is best when the subordinates are experts and their advice is necessary for achieving work goals.

4. **Achievement-Oriented Leadership:** Effective leaders set moderately difficult and challenging goals, continuously emphasize work performance improvements, and expect subordinates to achieve high levels of performance. Generally, this approach is optimal for complex work, but research suggests it is important across all types of work.

SITUATIONAL MODERATORS

Path-goal theory also contends that leadership effects on subordinates are moderated by two general classes of boundary conditions:

1. **Environmental Characteristics:** task structure and demands, role ambiguity, work autonomy, task interdependence, and task scope
2. **Subordinate Characteristics:** cognitive ability, dependence, locus of control, goal orientation, and authoritarianism

Using one of the four styles of leadership just described and considering situational factors, leaders try to influence employee perceptions and motivate them toward goal attainment by clarifying roles, expectancies, satisfaction, and performance standards.

SUPPORT FOR THE THEORY

Although path-goal theory can be classified as one of the *major triumphs* for leadership theory, empirical support for many of its mechanisms is lacking. The theoretical crux of the theory was motivation: Motivation was posited as a mediator between leader behavior and subordinate behavior and outcomes such as satisfaction and performance. However, the major pitfall of research on path-goal theory was the lack of integration of motivation into empirical assessments of the theory. Empirical assessments have focused on the direct effects of leader behavior on subordinate behavior and outcomes. This was a major problem in most leadership and work motivation research until the early 1990s. Additionally, empirical studies on path-goal theory were quite restrictive in the variety of leader behaviors examined, the outcomes studied, and the situational and person moderator variables

examined. For example, nearly all empirical work on path-goal theory has focused on only two leader behaviors: directive leadership behavior and supportive leadership behavior. These two classes of behavior have generally been examined in light of task structure, task and job performance, and facets of satisfaction (e.g., job, intrinsic, extrinsic satisfaction), and results are mixed. Because of these shortcomings, the original theory has been recast to encourage researchers to reexamine the theory by including more leadership behaviors, motivational influences, and subordinate and work unit outcomes.

REFORMULATED PATH-GOAL THEORY (1996)

The increasing use of teams and other more structurally and socially defined units in organizations has forced organizational researchers to modify their way of thinking about organizational behavior and consequently the way we conduct organizational research. This change, among others, forced path-goal theory to adapt. In 1996, the theory was recast to be more inclusive of recent theoretical advancement and more readily testable. The reformulated theory concerns work-unit leadership and is not limited to dyadic relationships. This is partly because of the transition of organizations to more team-based structures. The theory is now driven by mechanisms aimed at enhancing empowerment and motivation of all subordinates within a work unit and how such empowerment influences work unit effectiveness via motivation.

SUMMARY

When comparing leadership theories, path-goal theory has stood the test of time, even with the lack of empirical support, which is easily attributable to the lack of appropriate empirical investigations. It is a theory that has helped direct the leadership area by expanding theoretical thinking and has given rise to many important leadership theories such as transformational leadership. It has done so by incorporating two important areas of industrial/organizational (I/O) psychology: motivation and power. Overall, and as with many other I/O theories, more research is needed, especially in testing the reformulated theory. The theory is certainly worthy of future attention.

—J. Craig Wallace

FURTHER READING

- Bass, B. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
- Evans, M. G. (1996). R. J. House's "A path-goal theory of leader effectiveness." *Leadership Quarterly*, 7, 305–309.
- Georgopoulos, B. S., Mahoney, T. M., & Jones, L. W. (1957). A path-goal approach to productivity. *Journal of Applied Psychology*, 41, 345–353.
- House, R. J. (1996). Path-goal theory of leadership: Lessons, legacy and a reformulated theory. *Leadership Quarterly*, 7, 323–352.

PERFORMANCE APPRAISAL

Performance appraisal refers to the systematic measurement and evaluation of employee work behaviors as part of an organization's performance management system. Performance appraisals typically focus on employee behaviors or performance dimensions that are required of the position and tend not to include discretionary employee behaviors. Reflecting social, political, and organizational changes, performance appraisal systems continue to evolve to serve many different individual and organizational purposes.

BRIEF HISTORY

Performance appraisals began to grow in popularity with the industrial revolution of the early 20th century. World War II fueled this interest as industrial psychologists were given the tasks of classifying and placing individuals in positions to increase the effectiveness of the military. Performance appraisals research continued following World War II and today remains a major focus of research in industrial/organizational (I/O) psychology. Performance appraisal research has gone through many phases throughout its history. The 1960s and 1970s were largely devoted to research on rating formats, the 1980s and early 1990s largely investigated issues related to rater cognitive processes, and recent research is devoted largely to 360-degree feedback or multirater systems. One constant challenge for researchers and practitioners has been the difficulty of defining and measuring job performance given its dynamic and multidimensional nature.

VARIATIONS IN APPROACHES

Appraisals generally are classified into objective (e.g., sales volume) or subjective (e.g., supervisory ratings) measures, with the vast majority of performance appraisal systems using subjective measures of performance. Elements of the appraisal system that may differ across contexts or organizations include variations in rating purpose, rater sources, rating content and formats, and system characteristics.

Appraisal Purpose

Performance appraisals may be used for a variety of purposes, which may be classified into three categories: within-person, between-person, and system maintenance purposes. Within-person purposes involve identifying an employee's strengths or weaknesses to provide developmental feedback to the employee, set employee goals, or suggest particular training or development programs. Between-person purposes are used to make comparisons between employees and may be used to identify who should be promoted, administer merit pay increases, or decide which employees should be terminated. System maintenance purposes include using the appraisals to validate personnel selection assessments, identify organizational training needs, or document information pertaining to personnel decisions. Research indicates that the organizations often use performance appraisals for multiple purposes simultaneously, and the observed ratings and user attitudes differ as a function of rating purpose. Appraisal purpose is an important consideration given that it will direct how an organization's performance management system is developed, implemented, and maintained.

Rater Source

Supervisors are the most widely used source of performance appraisal information. Recent changes in how organizations are structured and function (e.g., flatter and more decentralized, organized around team-based work) have led many organizations to collect performance information from nonsupervisory sources. These rater sources may include peers, subordinates, or customers. Research indicates that different rater sources provide different information, and a more comprehensive assessment of work behaviors

may be obtained by collecting information from multiple sources.

Rating Content and Format

Virtually any aspect of employee behavior, such as specific behaviors or outcomes, and any level of performance, whether individual or group, may be appraised. Early performance appraisal systems tended to focus on evaluating traits, whereas the current focus is on evaluating job-related behaviors. Performance appraisals generally evaluate past performance, but some forms may require raters to make predictions about potential or future performance. Rating formats may also differ across situations such that, for example, some formats requiring ratings and other formats require raters to rank-order employees.

System Characteristics

Additional features of the performance appraisal system that may differ across contexts include the frequency of appraisals; the mode by which information is collected, such as paper-and-pencil versus electronically; whether the raters are anonymous; and whether the evaluations are confidential or public.

SUMMARY

The evaluation of employee work behaviors continues to be an integral part of most organizations' performance management systems. Performance appraisal research has addressed a myriad of topics expected to influence the effectiveness of the performance appraisal system, such as rater training programs and user attitudes. Research suggests that the effectiveness of performance appraisal systems is improved when they are based on a thorough job analysis, participants are involved in its design, and raters and ratees are trained to use the system effectively. Despite some research suggesting that the task of evaluating employee performance remains one of managers' least favorite activities, an appropriately designed and implemented system has the ability to improve individual and organizational decision making and effectiveness.

—Gary J. Greguras

See also Criterion Theory; Job Analysis; Performance Appraisal, Objective Indexes; Performance Appraisal, Subjective Indexes; 360-Degree Feedback

FURTHER READING

- Borman, W. C. (1991). Job behavior, performance, and effectiveness. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology*, (2nd ed., Vol. 2, pp. 271–326). Palo Alto, CA: Consulting Psychologists Press.
- Bretz, R. D., Jr., Milkovich, G. T., & Read, W. (1992). The current state of performance appraisal research and practice: Concerns, directions, and implications. *Journal of Management*, *18*, 321–352.
- Murphy, K. R., & Cleveland, J. N. (1995). *Understanding performance appraisal: Social, organizational, and goal-based perspectives*. Thousand Oaks, CA: Sage.
- Smither, J. W. (1998). *Performance appraisal: State of the art in practice*. San Francisco: Jossey-Bass.

PERFORMANCE APPRAISAL, OBJECTIVE INDEXES

Industrial/organizational (I/O) psychologists (and organizational managers) are interested in knowing how well employees perform their jobs. Such information can help make administrative decisions about employees (e.g., promotions, terminations), provide feedback to employees to help them improve their performance, and evaluate human resource procedures such as selection and training. There are two general types of indexes that provide information about employee performance. *Subjective* (or *judgmental*) *indexes* are based on evaluations or judgments of others concerning employee effectiveness. *Objective indexes* refer to measures of performance that are countable, or directly observable, and comparable for different employees.

TYPES OF OBJECTIVE PERFORMANCE INDEXES

Objective performance indexes are grouped in two categories: *production measures* and *personnel data*. Production measures are related to the amount of acceptable work (products or services) resulting from employee effort. Examples are production output, sales volume, and time required to complete a task. Personnel data do not directly assess an employee's work but are important to the overall performance of an employee. Personnel data are typically maintained in employee personnel files and include information

related to absence, accidents, grievances, awards, disciplinary actions, and turnover.

Production Measures

Employers are concerned that their employees are productive and efficient in performing their job duties. Production measures are often considered to be the *gold standard* of job performance indexes, because they are linked to an organization's profitability. They also usually have greater credibility than subjective performance indexes because they do not appear to rely on human judgments. The label *objective* suggests that the measures are accurate, unbiased, and reliable; but the label can be misleading.

Objective production measures exist for many jobs, especially those jobs in which tasks are well-structured and frequently performed, such as the manufacture or assembly of established products or the provision of standard customer services. There are many possible production measures, some applicable to numerous jobs but others specific to a narrow range of jobs. Objective performance measures should be selected following a thorough *job analysis* that has identified the job's critical duties and responsibilities.

The most commonly used type of production measure is related to *quantity of work*, a count of the volume of work produced by employees. Specific examples are the number of lines of computer code written per hour by programmers, number of phone calls made per day by telemarketers, number of arrests per month made by police officers, percentage of standard time required to complete repairs by auto mechanics, and number of patent applications filed by research engineers.

Although also measuring work quantity, indexes that assess performance in sales jobs occur frequently and some specific examples are warranted. Most straightforward are simple indexes that count for some time period the number of sales of products or services or tabulate the value of such sales. More fine-grained sales measures include number of new customers, percentage of past customers who make new purchases, number of potential customers contacted, and sales of newly introduced versus *older* products or services.

Another type of production index assesses quality of work. These measures count the number of errors committed or assess the number of unacceptable or damaged items produced. Specific examples include the dollar value of scrapped raw material for

manufacturing employees, number of shortages and overages in cash balances for bank tellers, errors by catalog sales clerks in processing customer orders, rate of errors for data entry personnel, and cost of dishes and glassware broken by restaurant servers.

Primarily in occupations requiring employee–customer interactions using telecommunications systems, such as call center operators and telemarketers, organizations have developed automated approaches to performance measurement. These *electronic performance monitoring* systems can accurately measure the amount of time an employee requires to answer customer questions, process orders, or present marketing information. The frequency and amount of time that employees are not connected to the telecommunication system can also be measured. Questions have been raised about whether such performance monitoring is invasive of employee privacy or reduces employee trust in the organization. Research indicates that employees are more accepting of electronic monitoring when measured behaviors are clearly job related, employees have input into the design of the monitoring procedure, and employees have some control over when monitoring occurs. Electronic performance monitoring should increase as technological advances lead to more assessment capabilities with decreased costs.

Personnel Data

Measures of *absence* are the most common personnel data. The importance of absenteeism is evident: Employees cannot meet performance goals if they are absent. Although total days absent in a time period seems like a useful measure, several problems are masked by its apparent simplicity. First, employees are absent from work for many reasons, including personal illness, the illness of family members, transportation problems, and weather conditions. These varied reasons suggest that some absences are more justified than others, but decisions about absence justification may be unclear. Second, various patterns of absence result in differential impact on the organization or are linked to different causes. For example, if Mary is absent all week and Bill is absent on either Monday or Friday for five consecutive weeks, both are absent for a total of five days. Mary's absences may be caused by illness, whereas Bill's absence pattern suggests job dissatisfaction or poor work motivation. Finally, its many causes lead to inconsistent levels of absence for

individual employees over time. These problems have led to the development of absence indexes that attempt to account for different reasons that absence occurred. Some measure the amount of time lost because of specific causes, whereas others count the number of periods of absence (i.e., Mary's five consecutive days absent count as one absence period, whereas Bill's five days absent count as five absence periods).

Another type of personnel data measures *employee accidents*, usually in terms of lost work time or direct financial costs that result from the accidents. As with absence, not all accidents reflect equally on employee performance. Usually distinctions must be made in terms of the primary cause or causes of an accident and whether the accident could have been avoided if the involved one or more employees had behaved differently. Accident rates are often inconsistent unless they are based on time periods of several months or more. Research suggests that the frequency of unsafe behaviors of employees may yield more useful information than accident rates. Many unsafe behaviors do not lead to an actual accident, but reducing the amount of unsafe behavior should reduce the number of accidents. Unfortunately, it is more difficult to count unsafe work behaviors than accidents.

Turnover is another form of personnel data. Turnover can be defined as whether a particular employee is still employed by the organization at some point in time (often one year) following hiring. Turnover can also be defined as the percentage of employees in a job title whose employment ends during some time period (again, often one year). Often organizations attempt to distinguish between causes of turnover. Commonly used categories are voluntary (the employee quit) and involuntary (the employee was fired), but often these distinctions are ambiguous. Not all employees who leave an organization are equally valuable, so organizations may attempt to categorize leavers as effective or ineffective and calculate separate turnover rates for each group.

Effectiveness of Objective Performance Indexes

Objective indexes seem like valuable ways to measure job performance, but they also have less apparent limitations. Useful objective indexes are virtually nonexistent for many jobs (especially managerial and professional) and rarely exist for all important duties and responsibilities of *any* job. As examples, it is

difficult to measure well a manager's effectiveness with motivating employees or developing creative solutions to problems by simply counting something. A performance index that does not measure all important parts of the job is termed *deficient*.

Another serious limitation of many objective performance indexes is that the scores are affected by situational factors not controlled by employees. For example, assigned patrol areas affect the number of arrests made by police officers, tool quality affects the dollar value of scrapped material and products, customer questions affect the time required to process an order, and work stress from understaffing may increase employee absences. Performance measures affected by factors outside employee control are termed *contaminated*. Often attempts are made to minimize contamination of the index, such as by measuring officers' arrests relative to other officers in the work unit.

Another limitation of objective indexes is that they often provide unhelpful performance feedback, because they assess the results of behavior and not the behavior itself. Informing an employee that too few products were sold does not provide the employee with information about what job behaviors, if any, are ineffective. Objective indexes that are based on counts of specific job behaviors such as number of customers called per month and number of sales of new products may provide more useful feedback.

Although objective performance indexes usually assess individual employee performance, they are often better measures of work group performance. When employees work together closely, countable measures of individual contributions are often lacking, but quantity and quality of the group's output can be assessed. Also, employees may conceal negative behaviors, such as theft or sabotage, but missing or damaged supplies and equipment can often be assessed at the group level.

Research has investigated how strongly objective and subjective measures of performance are related. The average relation can be described as moderate in strength. Although both objective and subjective indexes are measuring job performance, it is clear that each also assesses other factors. One type is not a substitute for the other.

CONCLUSIONS

Objective performance indexes are not well named. Judgments are typically required when establishing

these performance measures. Commonly required judgments include the time period over which performance is assessed, the breadth of behaviors or results included in the index, and adjustments to the index to account for situational factors affecting performance.

Objective indexes can be useful measures of job performance when they assess behaviors that employees control and address a job's important duties. Objective measures are better suited for use in administrative decisions about employees and evaluation of human resource programs than for providing feedback to employees. They often provide better assessments of work group performance than of individual employees.

—James L. Farr

See also Job Analysis; Performance Appraisal, Subjective Indexes

FURTHER READING

- Bommer, W. H., Johnson, J. L., Rich, G. A., Podsakoff, P. M., & MacKenzie, S. B. (1995). On the interchangeability of objective and subjective measures of employee performance: A meta-analysis. *Personnel Psychology, 48*, 587–605.
- Campion, M. A. (1991). Meaning and measurement of turnover: Comparison of alternative measures and recommendations for research. *Journal of Applied Psychology, 76*, 199–212.
- Landy, F. J., & Farr, J. L. (1983). *The measurement of work performance: Methods, theory and applications*. Orlando, FL: Academic Press.
- Levy, P. E. (2006). Criterion measurement. In *Industrial/organizational psychology* (2nd ed., pp. 86–111). Boston: Houghton Mifflin.

PERFORMANCE APPRAISAL, SUBJECTIVE INDEXES

Employee work behaviors or job outcomes may be measured and evaluated using a variety of different methods. Although employee performance may be measured with either objective (e.g., sales volume) or subjective (e.g., supervisory ratings) methods, the overwhelming majority of appraisals require raters to make subjective judgments about the performance of the ratee. These subjective judgments may be either

ratings or rankings and may be collected using a variety of different rating formats.

APPRAISAL METHODS

Graphic Rating Scales

Graphic rating scales are the most widely used format for appraising performance. Graphic rating scales require raters to evaluate employee performance along a continuum of response categories or anchors that convey information about the meaningfulness of the various points along the continuum. For example, a rater may be asked to evaluate an employee's performance using a scale ranging from 1 (fails to meet expectations) through 5 (exceeds expectations). Another example requires the rater to evaluate the employee's performance by placing a check mark on a line anchored from poor to excellent. These evaluations or ratings can then easily be converted into numerical scores for the purposes of making comparisons between employees or across performance dimensions. The specificity of both the anchors and the aspect of performance being evaluated vary across scales. The simplicity and ease with which graphic rating scales may be developed likely explain their widespread use. However, this simplicity is also a limitation. The anchors of the scales and the aspect of behavior being evaluated are often ambiguously defined, which may lead to inconsistencies or disagreements among raters using the same scale. It is precisely this ambiguity of the anchors and items that served as the impetus for the development of more specifically defined scales.

Behaviorally Anchored Rating Scales

Behaviorally anchored rating scales (BARS) are a type of graphic rating scale that defines the anchors and levels of performance in specific behavioral terms. The behavioral anchors are stated in terms of expectations such as, "This employee could be expected to . . ." because it is possible that the rater may not have had the opportunity to observe the exact behavior listed on the form. This specificity in defining the behaviors and levels of performance, as well as favorable rater and ratee reactions to BARS, likely explain much of their popularity in the 1960s and 1970s. As with any approach, BARS have several limitations: The scale development process is time-consuming and

costly, raters often disagree about the ordering of behavioral examples along the continuum, raters often have difficulty seeing the link between the behavioral example and the performance dimension being evaluated, and the scales often do not generalize from one setting to another. The research on the utility and effectiveness of BARS has produced inconsistent results, leading some to argue that the costs associated with developing BARS cannot be justified from a data quality perspective.

Mixed Standard Scales

Mixed standard scales (MSS) are a derivation of BARS. Consistent with BARS, MSS use behavioral anchors to define the type and level of performance being evaluated. However, instead of listing the behavioral anchors for a particular dimension along a continuum and requiring the rater to choose the anchor that most closely describes the ratee's performance, MSS require raters to evaluate each behavioral example. Generally, three items are written for each performance dimension to reflect low, medium, and high levels of performance. Items from all performance dimensions are randomly mixed together and presented to the rater. The rater then indicates whether the ratee performs at, above, or below the level of performance described for each behavioral item. These judgments are then combined to produce separate scores for each performance dimension. One advantage of this approach is that there are several judgments made for each performance dimension (i.e., each behavioral anchor serves as an item), and therefore internal reliability estimates may be calculated for each performance dimension. Similarly, raters who rate inconsistently can easily be identified and can be recommended to receive additional training. Likewise, items or performance dimensions that are inconsistently evaluated across raters can be identified for refinement. Because MSS are conceptually similar to BARS, many of the limitations noted earlier with BARS also apply to these scales. A derivation of the MSS is the behavioral observation scale (BOS), which requires raters to report the frequency, rather than favorability, of the behaviors being evaluated.

Forced-Choice Scales

Forced-choice scales require raters to choose from among a set of statements the one that best describes

the ratee. Both the favorability, or social desirability, and discriminability, the degree to which the statement distinguishes between good and poor performers, of an item are considered in the development of a forced-choice scale. Statements or items are grouped so that they are relatively equal on the favorability index but differ on the discriminability index. As such, all items appear equally desirable, but only some of the items discriminate between good and poor performers. Rater responses to the items may be differentially weighted in an algorithm used to derive the overall score on a particular performance dimension, or the number of items chosen with high discriminability indexes may be summated to represent the ratee's score on that particular dimension. Forced-choice scales were designed primarily to reduce rater bias by forcing raters to choose from among a list of equally desirable descriptors. Raters who wish to intentionally distort their ratings have difficulty doing so because all items appear equally favorable and the raters likely cannot discern which items have high discriminability indexes. Research suggests that rater errors such as leniency are decreased with forced-choice scales; however, some raters react negatively to the forced-choice format because it is not directly apparent to them how they are evaluating the levels of their employees. Because of the disguised nature of the scoring, raters may also react negatively because it may be difficult for them to provide feedback to the ratees. The forced-choice rating scale is similar to the mixed standard scale in that the scale continuum or actual rating level given to the ratee is not readily apparent to the rater.

Employee Comparison Methods

All the aforementioned scales or methods required raters to make judgments about a particular ratee. In contrast, employee comparison methods require raters to evaluate ratees relative to one another. The three most common employee comparison methods include paired comparisons, ranking, and forced distribution methods.

Paired Comparisons. In contrast to the forced-choice method, which requires raters to choose from among statements for a single ratee, paired comparison methods force raters to choose between two ratees. With this method, the supervisor chooses the one employee in the comparison who performs at a higher level or

more favorably on the aspect of performance being evaluated. Typically, all possible comparisons are made among employees such that there are $N(N - 1)/2$ total comparisons where N is the number of employees to be evaluated. For example, if a supervisor is responsible for evaluating 10 employees, the paired comparison method would require the supervisor to make 45 paired comparisons. Once all comparisons have been completed, the rank ordering of employees may be identified by summing the number of times an employee was chosen. One limitation of this approach is that the number of comparisons required of a rater may be quite large and the task may become time-consuming as the number of ratees and the number of rated dimensions increase. Another potential difficulty of using the paired comparison method deals with the nature of the task. Generally, raters are required to choose the employee in the pairing whose overall performance is better. Raters may have difficulty with this task because a certain employee may perform better than a different employee on one dimension but not another. To overcome this limitation, raters could evaluate specific performance dimensions, rather than overall performance. Rating performance dimensions, instead of overall performance, would increase the feedback value of the ratings to the employee but would add to the complexity (i.e., number of comparisons) of the task.

Rank Ordering. Rank ordering of ratees is another type of employee comparison method and requires raters to create a list of ratees from the best to the worst employee. This rank-ordering method is much less tedious and simpler in terms of comparisons than the paired comparison method. Although it is often easy for raters to identify individuals who should be at the top or bottom of the list, the task may become increasingly difficult in the middle of the list where ratees may be very similar. Raters are often instructed to use an alternating ranking approach: They first select the best person in the group, then the worst person in the group, then the second best person from the group, and so on until all ratees have been ranked. With both the paired comparison and rank-ordering methods, an ordered list of employees is created, but this listing provides no information about the absolute level of performance of any particular individual; for example, there is no way of knowing how far apart the best and worst employees are in terms of performance. Another limitation of this approach is that it is

difficult to compare ratees from different lists or groups because the rankings are dependent on who is included in each of the different groups.

Forced Distribution. The forced distribution approach requires raters to place a certain percentage of employees into various performance categories. For example, raters may be required to place 20% of the ratees in the poor performance category, 60% of the ratees in the average performance category, and 20% of the ratees in the good performance category. This method requires less detailed distinctions between ratees because the rater is merely placing them into general categories instead of rank ordering them. One difficulty with the forced distribution approach is that the size of the performance categories that is forced on raters may not reflect the actual distribution of performance of the ratees. Although this approach may simplify the rater's task, especially when the number of ratees is large, both raters and ratees may be less accepting of this appraisal approach if the forced distribution does not accommodate the actual level of performance among ratees.

Additional Approaches

The approaches previously reviewed represent the most commonly used techniques to appraise employee performance. There are, however, numerous derivations and alternative techniques that could be used. For example, narrative approaches require raters to provide written statements that reflect their evaluations and descriptions of employee performance. Although this approach has several limitations, such as amount of time and the rater's ability to effectively communicate in writing, research suggests that narrative comments are effective in improving the performance of the ratees and generally are viewed quite favorably. Other examples of approaches include behavioral diaries, weighted checklists, management by objectives, critical incidents checklists, and behavioral checklists.

SUMMARY

A variety of different performance appraisal approaches exist for measuring and evaluating employee work behaviors. Which approach is best? Comparisons of the different approaches usually involve comparing the rater errors or rating accuracy

associated with the various rating approaches. Results comparing different rating formats have generally been inconsistent, and the effect sizes of rating format on rating quality have been quite small. Research has yet to produce a rating format that is clearly superior to the others. Many have suggested that rating format has little impact on data quality or appraisal effectiveness in contrast to individual, social, and organizational factors that influence performance appraisal systems.

—Gary J. Greguras

See also Criterion Theory; Critical Incident Technique; Frame-of-Reference Training; Performance Appraisal; Performance Appraisal, Objective Indexes

FURTHER READING

- Bernardin, H. J., & Beatty, R. W. (1984). *Performance appraisal: Assessing human behavior at work*. Boston: Kent Publishing Company.
- Borman, W. C. (1991). Job behavior, performance, and effectiveness. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 2, pp. 271–326). Palo Alto, CA: Consulting Psychologists Press.
- Feldman, J. M. (1986). Instrumentation and training for performance appraisal: A perceptual-cognitive viewpoint. In K. M. Rowland & G. Ferris (Eds.), *Research in personnel and human resources management* (Vol. 4). Greenwich, CT: JAI.
- Landy, F. J., & Farr, J. L. (1980). Performance rating. *Psychological Bulletin*, 87, 72–107.
- Murphy, K. R., & Cleveland, J. N. (1995). *Understanding performance appraisal: Social, organizational, and goal-based perspectives*. Thousand Oaks, CA: Sage.
- Smith, P. C., & Kendall, L. M. (1963). Retranslation of expectations: An approach to the construction of unambiguous anchors for rating scales. *Journal of Applied Psychology*, 47, 149–155.

PERFORMANCE FEEDBACK

Feedback is a subset of the available information in the work environment that indicates how well individuals are meeting their goals. Thus feedback guides, motivates, and reinforces effective behaviors while simultaneously discouraging ineffective ones. Feedback is a complex stimulus entailing a process in

which a sender conveys a message to a recipient regarding personal behavior at work. The presence of feedback triggers psychological processes that precede behavioral responses. Daniel R. Ilgen and colleagues outlined how psychological processes, such as recipients' perceptions of feedback, acceptance of feedback, desire to respond to feedback, and intended responses are influenced by such factors as the recipient's own characteristics, such as individual differences; characteristics of the source, including credibility; and characteristics of the feedback message, for example positive or negative sign.

Feedback has three primary uses in organizations. First, it can be used for employee development. Feedback can be used to communicate information to employees regarding their performance strengths and weaknesses so that they can be recognized for what they are doing well and can focus their efforts on areas that need improvement. A second use of feedback is for personnel decisions. For example, data from formal feedback sessions such as performance appraisals can be used to make decisions regarding who gets promoted, fired, or laid off. Finally, feedback can be used for documentation of organizational decisions. In particular, feedback records can be used to track employees' performance patterns over time; and these records can be used to protect organizations from lawsuits. These uses for feedback can be integrated into a comprehensive performance management system, which can be used to develop, motivate, and document employee behaviors.

Although feedback has traditionally been examined within the context of how it influences individual behaviors, more dynamic approaches have been recently adopted. In the following paragraphs, we review some of these perspectives to provide a more complete understanding of feedback processes in organizations.

FEEDBACK SEEKING BEHAVIOR

Moving beyond the view of the feedback target as a passive recipient of information, feedback has been conceptualized as an individual resource that people are motivated to actively seek. Originating in the work of Susan J. Ashford and Larry L. Cummings, this perspective portrays the workplace as an information environment in which individuals engage in feedback seeking behavior (FSB), enacting such strategies as monitoring the environment for feedback cues or

making direct inquiries of actors in the environment in an effort to obtain personally relevant information.

A number of motivating factors can prompt an individual to engage in FSBs. First, feedback can reduce the uncertainty individuals experience regarding their roles or performance. Feedback can also serve an error corrective function and facilitate the attainment of competence or goal achievement. Furthermore, feedback has implications for self-evaluation and impression management. Individuals' desires to bolster their egos through obtaining positive feedback or, on the contrary, protect their egos by avoiding negative feedback can drive FSB. The greater the perceived value of feedback, the more proactive individuals will be in seeking it.

The costs perceived to accompany FSB can also affect the frequency of feedback seeking and the manner in which individuals pursue feedback. Costs of FSB are generally construed in terms of how much effort is necessary to acquire feedback information, concerns about image or loss of face, and the degree of inference required to make sense of feedback messages. Monitoring the feedback environment tends to necessitate less effort and invokes fewer image concerns than direct inquiry strategies. A trade-off exists between the accuracy and clarity of feedback and the effort and risk entailed in obtaining such feedback. Individuals desiring highly accurate feedback may forego the *safer* monitoring strategy in favor of inquiry. However, because feedback interpretation can be colored by such factors as recipient motives and expectations, even clearly communicated feedback messages can be misunderstood.

MULTISOURCE FEEDBACK

Multisource feedback, sometimes referred to as 360-degree feedback, is defined as feedback gathered about the target from two or more rating sources. These sources may include the self, supervisor, peers, direct reports, and customers. Multisource feedback can be used for a variety of purposes, including communicating performance expectations, setting developmental goals, establishing a learning culture, and tracking the effects of organizational change. In general, the benefits of a multisource as opposed to a traditional feedback system are predicated on five important assumptions:

1. Each of the rating sources can provide unique information about the target.
2. These multiple ratings will provide incremental validity over individual sources.
3. Feedback from multiple sources will increase the target's self-awareness and lead to behavioral change.
4. Feedback from multiple sources reduces idiosyncrasies of individual raters.
5. Ratees appreciate being involved in the process and tend to react favorably to this opportunity.

Research supporting the benefits of multisource feedback remains incomplete. Specifically, researchers need to clarify the aspects of multisource feedback requiring employee attention, the performance goals set by employees receiving multisource feedback, how employees react to discrepancies between multisource feedback and their performance goals, and how employees react to discrepancies between self-evaluations and multisource feedback. In addition, the individual differences and organizational conditions that determine when multisource feedback will be most beneficial are not well understood.

However, the literature has provided some suggestions for improving the effectiveness of multisource feedback. First, ratings should be made anonymously. Multisource feedback is more threatening to raters and ratees when ratings are not anonymous. Second, although multisource feedback is often used for evaluative purposes, it seems to garner the best response from employees when it is used for the purpose of employee development. However, there are benefits associated with using multisource feedback for administrative decisions; for example, multiple sources of feedback allow decisions to be based on more information. Another recommendation is that organizations should evaluate the effectiveness of multisource feedback programs and not simply assume that such programs are beneficial.

IMPLICATIONS OF FEEDBACK FOR PERFORMANCE: FEEDBACK INTERVENTION THEORY

A common assumption is that feedback yields consistent performance improvements. However, the literature indicates that feedback does not always result in large, across-the-board improvements in performance. In some conditions feedback improves performance, in other conditions it has no apparent effects on

performance, and in certain circumstances it is actually detrimental to employee performance. To explain these inconsistencies, Avraham N. Kluger and Angelo S. DeNisi (1996) put forth the feedback intervention theory (FIT), which detailed specific conditions that help determine the effectiveness of feedback for improving employee performance.

Built largely around the notion of the feedback-standard comparison process that is the basis of control theory, FIT posits that feedback is used by individuals to evaluate their performance on some goal or standard. This comparison process indicates whether the individual's performance is above or below the standard, which has implications for subsequent performance. When performance, as informed by the feedback intervention, differs from the standard, feedback recipients can either alter their efforts, abandon the standard, alter the standard, or reject the feedback message altogether.

Because feedback has serious implications for the self, FIT posits that feedback interventions regulate behavior by changing the locus of attention to either the self or the task. According to FIT, feedback that directs attention toward the self can have a detrimental effect on performance because such feedback often depletes cognitive resources and generates affective reactions. An interesting implication of this is that feedback interventions containing praise can impede task performance because such interventions likely draw attention to the self rather than the task.

On the whole FIT suggests that there are three characteristics of feedback interventions that determine the effects of feedback on performance. First, the cues of the feedback message are important because they determine whether attention is drawn to the self or the task. Feedback interventions that contain information solely regarding performance outcomes have been shown to be detrimental to performance because they likely direct attention to the self. However, this pattern has not been displayed by feedback interventions that contain process information, which draws attention to the task. Therefore, Kluger and DeNisi (1996) suggested that the effectiveness of feedback is maximized when it directs attention to task motivation and learning processes and when the solution to the problem at hand is provided. Second, the nature of the task, such as task complexity, should be considered. In particular, feedback often improves motivation. However, improved motivation does not increase the amount of cognitive

resources available to complete a task. As such, motivation improves performance mostly when the task requires few cognitive resources. Finally, situational (e.g., the presence of goal-setting interventions) and personality variables (e.g., self-esteem) can moderate the effects of feedback interventions.

CONTEMPORARY PERSPECTIVES: PERSON-ENVIRONMENT ASPECTS OF FEEDBACK PROCESSES

Consistent with recent trends in industrial/organizational (I/O) psychology, feedback has been described as a dynamic process involving an interaction between characteristics of the individual and situation. In particular, employees' feedback orientations and the social context in which feedback is embedded have been identified as important determinants of rater and ratee behavior and reactions to feedback. Manuel London (2003) has recently identified these aspects of the person and the situation as important elements of what has been termed the organization's feedback culture. In particular, London suggested that organizations may create more global psychological settings—feedback-oriented cultures—by enhancing the quality of feedback given in the organization, emphasizing its importance, and supporting its use by employees. In such cultures, feedback is easily accessible and salient, and thus it is likely to influence employee beliefs and behaviors on a day-to-day basis.

Feedback orientation refers to a multidimensional construct that determines an individual's overall receptivity to feedback, guidance, and coaching. According to London, feedback orientation involves liking feedback; a behavioral propensity to seek feedback; a cognitive propensity to process feedback mindfully and deeply; sensitivity to others' view of oneself and to external propensity; a belief in the value of feedback; and feeling accountable to act on feedback. Individuals who have more favorable feedback orientations will believe that feedback is more useful, will feel accountable to use the feedback, and will be more likely to seek feedback from their work environments. In general, feedback orientation is likely to be more positive when the social context of the organization is more supportive of learning and development.

Recently, Paul E. Levy and his colleagues have provided a framework for understanding the social context of feedback processes in organizations.

According to this framework, distal variables such as organizational goals, legal climate, and competition; proximal process variables including organization's policies regarding feedback, feedback environment, and rater accountability; and proximal structural variables, for example purpose of feedback and feedback system features are each important aspects of the organizational environment for feedback. Although all these aspects of the social context influence feedback processes, the extent to which the workplace encourages and supports the use of feedback for the purposes of improving work performance has been identified as an element of the social context, which is especially important to feedback processes in organizations. In this vein Levy and his colleagues have started to examine the feedback environment, which is defined as contextual characteristics of organizations that support informal, day-to-day feedback processes.

The feedback environment goes beyond the formal presentation of feedback such as performance appraisal and includes information regarding how supervisors and coworkers mention and discuss feedback on a day-to-day basis. The following seven facets of the feedback environment have been identified:

1. Source credibility
2. Feedback quality
3. Feedback delivery
4. Favorable feedback
5. Unfavorable feedback
6. Source availability
7. Promotion of feedback seeking

Organizations that have more favorable feedback environments are also likely to have more effective feedback processes and communicate more information to employees that helps guide their behavior at work. Furthermore, there is evidence that the feedback environment is related to a variety of positive employee outcomes, such as increased affective commitment, job satisfaction, and citizenship behaviors, as well as decreased absenteeism. Therefore, to the extent that organizations develop favorable feedback environments, they will foster positive feedback orientations from employees. These factors will serve to develop feedback-oriented cultures and maximize the effectiveness of feedback processes in organizations.

CONCLUSION

The early feedback literature focused on feedback in a relatively narrow context. Feedback was traditionally viewed as a stimulus to which employees respond. More recently, researchers have taken a more dynamic approach, which includes examinations of active feedback seeking behavior, multisource feedback, feedback's relationship to performance, and an investigation of individual and situational variables that are associated with feedback-oriented cultures. Finally, researchers have started to focus on the feedback orientation of employees and contextual aspects of the feedback process that are associated with the provision, acceptance, and use of feedback in organizations.

—Paul E. Levy, Christopher C. Rosen,
and Alison L. O'Malley

See also Control Theory; Feedback; Feedback Seeking; Performance Appraisal; 360-Degree Feedback

FURTHER READING

- Ashford, S. J., & Cummings, L. L. (1983). Feedback as an individual resource: Personal strategies of creating information. *Organizational Behavior and Human Performance*, *32*, 370–398.
- Ilggen, D. R., Fisher, C. D., & Taylor, M. S. (1979). Consequences of individual feedback on behavior in organizations. *Journal of Applied Psychology*, *64*, 349–371.
- Kluger, A. N., & DeNisi, A. (1996). The effect of feedback interventions on performance: A historical review, meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, *119*, 254–284.
- Levy, P. E., & Williams, J. R. (2004). The social context of performance appraisal: A review and framework for the future. *Journal of Management*, *30*, 881–905.
- London, M. (2003). *Job feedback: Giving, seeking, and using feedback for performance improvement* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum.
- London, M., & Smither, J. W. (2002). Feedback orientation, feedback culture, and the longitudinal performance management process. *Human Resource Management Review*, *12*, 81–100.

PERSONALITY

Despite the fact that many scholars have offered formal definitions of personality for almost 100 years, no

consensus on any single definition has been achieved. In fact, a survey of 50 textbooks devoted to the study of personality would quite likely result in 50 distinct definitions of the term. Perhaps the reason that scholars have not agreed on a single definition is because of the broad scope encompassed by the notion of human personality. Clyde Kluckhohn and Henry A. Murray have suggested that human personality can be addressed at three distinct levels:

1. How we are like all other people
2. How we are like some other people
3. How we are like no other people

At the broadest level, Kluckhohn and Murray's framework suggests that there are some aspects of behavior that are common to all members of the human species. Murray, for example, in his classic taxonomy of needs, included a set of viscerogenic needs that are shared by all people. This category of needs, representing those things that humans need to survive, includes the need for air, the need for water, and the need for heat avoidance. Likewise, Abraham Maslow, in his specification of the hierarchy of needs, suggested that an individual's psychological needs could not be addressed unless the basic physiological (e.g., food, water) and safety (e.g., security, avoidance of pain) needs were met.

At the second level—the way we are like some other people—Kluckhohn and Murray suggested that, when considering specific aspects of personality, individuals will share similarities with some but not all people. Within contemporary personality psychology, this level of personality description is where the notion of personality traits resides. Traits can be defined as characteristic behaviors, thoughts, and feelings of an individual that tend to occur across diverse situations and are relatively stable over time. A trait, once identified, is something that all people possess, but to differing degrees. For example, although all people can be described in terms of their extroversion, some people are outgoing and social, whereas others tend to be more introverted and reserved. Thus in a trait we can be said to be like some other people.

At the third level of personality description is how we are like no other people. This level of explanation includes those aspects of our personality that make us unique individuals. As such, this level includes the experiences we have had in our own histories that

have shaped the way we think, feel, and act. In his writings about this level of personality description, Daniel P. McAdams has suggested that the goal of studying personality at this level is to understand individuals in the context of their personal life stories.

IDIOPHIC VERSUS NOMOTHETIC SCIENCE

A debate has existed among personality scholars about the best approach for studying personality. Many scholars have argued that personality is best studied at the third level of Kluckhohn and Murray's framework. Science at this level is idiographic, and knowledge of personality is gained through in-depth studies of particular individuals. However, other scholars have argued that personality is best studied at Kluckhohn and Murray's second level. Science at this level is nomothetic, involving the study of general principles through the examination and comparison of many individuals. The debate over which of these approaches yields better information about the nature of human personality has, at times, been quite hostile. Although the debate has largely been argued in terms of methodological issues (i.e., the benefits and limitations of idiographic and nomothetic science), the heart of the argument is about the most appropriate level at which to understand personality. As such, the debate is in many ways pointless, because information from both levels of personality is necessary to develop a full understanding of the complexities of human personality.

LEVELS OF PERSONALITY DESCRIPTION AND INDUSTRIAL/ ORGANIZATIONAL PSYCHOLOGY

All three of Kluckhohn and Murray's levels of description are important for understanding human behavior in workplace contexts. For example, if a person's basic needs are not being met, we might come to understand why the individual no longer appears to be driven for success at work. Likewise, if we were to know an individual's personal history, we might better understand the person's problems with authority from a supervisor. However, despite the applicability of the first and third levels of personality description, almost all applications of personality to industrial/organizational (I/O) psychology are associated with the second level of

personality description (i.e., how we are like some other people), and more specifically, with the notion of personality traits.

What Is a Trait?

There are two perspectives on the concept of personality traits. A first perspective is that traits are internal mechanisms that cause behavior. From this perspective, agreeableness, for example, is something within an individual that causes the person to behave in an agreeable manner. Hans J. Eysenck's theory of extroversion is an example of this perspective. Specifically, he theorized that introverts have a higher baseline level of arousal than do extroverts. When placed in a social situation with considerable stimulation, the introvert (with an already high level of arousal) would be predicted to become easily overaroused. In an attempt to reduce that overarousal, the introvert would engage in introverted behaviors, such as withdrawing from the situation. In contrast the extrovert, with a lower level of baseline arousal, would behave in an extroverted manner to obtain stimulation from the environment, thereby increasing the level of arousal (i.e., so as to avoid underarousal). According to Eysenck, then, the trait of extroversion is an internal biological process that causes behavior. Data have provided support for this internal mechanism approach to personality traits. Additionally, behavior genetic research, which has found that approximately 50% of variation in many traits can be explained by genetic influences, also points to a causal mechanism behind trait-related behavior.

A second perspective, typified by the act-frequency approach, is that personality traits are nothing more than descriptive categories of behavior. As such, a trait is a label for a set of related behaviors or acts. Acts that fall into the trait of sociability include talking to a stranger on an elevator, calling friends just to say hello, talking to coworkers in the hallway, or having a conversation with a clerk at a store. There could be hundreds of acts falling within this trait classification. A person with a high standing on this trait engages in this class of acts across situations more often than do other people. This approach is completely descriptive; there is no statement about the psychological processes that lead persons to behave the way they do. Although the acts people engage in may be caused by internal causal mechanisms, the act frequency approach does not specify those mechanisms.

The Structure of Personality Traits

Personality researchers have sought to develop a structure of personality traits for nearly 100 years. Much of this work has been based on studies of words in the English language, the so-called lexical hypothesis. The central idea of this hypothesis is that important aspects of human behavior will be encoded in the language. As such, it has been reasoned, a comprehensive understanding of personality traits can be derived from an examination of a language. The culmination of studies of the English lexicon is a structure of personality known as the Big Five. The Big Five taxonomy of personality is a hierarchical representation of the trait domain, with five broad traits representing the highest level of the classification structure. These five traits include the following:

1. **Neuroticism:** Anxious, temperamental, nervous, moody versus confident, relaxed, unexcitable
2. **Extroversion:** Sociable, energetic, active, assertive versus shy, reserved, withdrawn, unadventurous
3. **Openness:** Intellectual, innovative, artistic, complex versus unimaginative, simple, unsophisticated
4. **Agreeableness:** Trusting, trustful, helpful, generous versus cold, harsh, rude, unsympathetic
5. **Conscientiousness:** Organized, neat, thorough, systematic, efficient versus careless, undependable, haphazard, sloppy

Although adversaries of the Big Five remain and have raised notable criticisms, the Big Five is the dominant perspective on the organization of personality traits within contemporary personality psychology.

It is expected that sets of more narrowly defined traits lie under each of these broad traits. For example, it has been proposed that the broad trait of conscientiousness can be broken down into more narrowly defined traits of dependability and achievement striving. Personality researchers, however, are far from reaching consensus on the precise number or nature of these narrowly defined traits at the next level of the hierarchy.

COMPOUND TRAITS

Behavior is clearly complex, and many behaviors, especially those relevant to I/O contexts, are not a function of any single trait. Consistent with this line of thinking, more than one trait is often found to relate to

particularly important work-related behaviors. In these cases researchers have proposed the notion of compound traits, which involve the combination of fundamental personality variables into a new personality variable that is capable of predicting a particular criterion. Perhaps the best known example of a compound personality variable is that of integrity. Research has demonstrated that scores on integrity tests—designed to be predictive of counterproductive employee behaviors—are notably related to the Big Five traits of conscientiousness, agreeableness, and (negatively) neuroticism. Thus the trait of integrity can be thought of as, at least in part, the confluence of these three Big Five dimensions. Other compound personality variables include customer service orientation and managerial potential. A unique aspect of compound personality traits is that they tend to result in criterion-related validities that are higher than those of the fundamental personality traits that compose them. Meta-analyses have shown, for example, that integrity tests tend to have greater predictive validity than do the individual traits of conscientiousness, agreeableness, or neuroticism.

Trait Personality and I/O Psychology

The role of personality within I/O psychology has had a rather tumultuous history. Today, however, personality is a topic of notable interest to both researchers and practitioners.

RESEARCH

Much of the research on personality in I/O contexts has sought to identify whether and which personality traits are related in meaningful ways to important organizationally relevant behaviors. Primary research and subsequent meta-analyses have demonstrated that personality traits are related to such organizational behaviors as task performance, contextual performance, performance in training, job choice, leadership, job satisfaction, and perceptions of organizational justice, among others. This research has led to a better understanding of the personal characteristics associated with important work behaviors. For example, by studying how personality traits are associated with leadership, a better understanding of those individual characteristics associated with effective leadership has been developed.

Most research (and application) involving personality within I/O psychology is associated with the act-frequency approach to personality traits. A relationship between a personality trait and a criterion, as interpreted from an act-frequency perspective, suggests only that the behaviors associated with the trait classification are also important for the criterion. By way of example, an act frequency interpretation of a relationship between extroversion and leadership would suggest that some of the acts associated with the trait of extroversion are also associated with effective leadership. Although this research is certainly useful and informative, it is descriptive in nature; there is no identification or explication of the mechanisms through which personality traits cause organizationally relevant behavior.

APPLICATION

The primary application of personality in I/O contexts is the assessment of personality traits for purposes of personnel selection. The goal of preemployment testing is to make inferences about an individual's future behaviors in the workplace. Most assessments of personality traits for personnel selection are done through self-report questionnaires, but other methods can also be used to assess traits. If an applicant were to complete a self-report assessment of the trait of conscientiousness and receive a high score, an employer could surmise that this individual tends to engage in conscientious behaviors across situations and make the inference that the person will do so in the workplace as well. If the job requires behaviors that are associated with conscientious acts, this applicant could be desirable for the position. Meta-analytic research has shown that personality trait assessments can be predictive of job performance for a number of occupational groupings and across a range of performance criteria, with the strongest findings for the trait of conscientiousness.

When attempting to predict work-related behavior with personality trait assessments, care must be taken when choosing an appropriate criterion measure. The trait-situation debate taught personality researchers a great deal about what makes an appropriate criterion. The trait-situation debate arose when scholars began to argue that there was no consistency in behavior across situations. Research had shown, for example, that when children were put into various situations

where they could behave honestly or dishonestly, the children did not behave in the same ways across situations. More specifically, a child who cheated on a test in one situation may turn in a lost dollar in another. This lack of observed consistency in trait-related behaviors across situations led these scholars to argue that traits were *convenient fictions*, and that situations were the stronger determinant of behavior. In further support of their point, these situationists argued that scores on personality trait assessments were not strongly related to observed behaviors. Although it took personality psychologists some time to respond to these arguments, they finally found their voice in the principle of aggregation. The principle of aggregation suggests that if behavior is considered across many situations, consistencies will emerge. These consistencies were interpreted as providing evidence in support of the existence of traits. Likewise, personality researchers argued that if behavior is aggregated across situations, scores from assessments of personality traits will be predictive of that aggregated behavior and will, in fact, account for as much variability in behavior as situations.

The lesson learned from the trait-situation debate and the resulting principle of aggregation is important for I/O psychology. Specifically, for personality to be predictive of organizationally relevant behaviors, those behaviors must be aggregated across situations. It will not be possible, for example, to predict whether an employee will be late next Tuesday on the basis of the conscientiousness score. It should be possible, however, to make a prediction regarding this person's tendency to be late over the course of a year. In short, personality does not predict specific instances of behavior well, but it can predict lawful patterns of behavior. This is a point that I/O researchers and practitioners must keep in mind. There are several cases in the published literature where researchers have used a single instance of behavior as a criterion, and have, not surprisingly, failed to find the expected association between personality trait scores and the criterion measure.

Although personality trait assessments for purposes of personnel selection were traditionally administered in a paper-and-pencil format, it is becoming increasingly common for preemployment personality tests to be computer administered. Many companies are even beginning to use Web-based administrations, where a test taker can complete the test in an unproctored

environment. Although research evaluating this mode of test administration is still emerging, initial evidence suggests that mean scores are similar between proctored and unproctored environments and that the criterion-related validity of the assessments is similar.

SUMMARY

Personality is a broad field within psychology that has been studied at various levels, from single individuals to groups of people to people in general. Within I/O psychology, almost all work on personality has focused on personality traits, or stable tendencies to behave in certain ways. Personality traits have been found to relate to a wide variety of employee behaviors at work. An emerging notion is that of compound traits, or broad personality dimensions that are associated with several more fundamental personality dimensions and are predictive of important work-related behaviors. The primary application of personality to I/O contexts is preemployment testing, where scores on personality tests are used to make predictions about people's future behaviors at work. When attempting to predict behavior from personality traits, it is essential for the I/O researchers and practitioners to keep in mind the principle of aggregation.

—Eric D. Heggstad

See also Big Five Taxonomy of Personality; Individual Differences; Personality Assessment

FURTHER READING

- Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology, 44*, 1–26.
- Buss, D. M., & Craik, K. H. (1983). The act frequency approach to personality. *Psychological Review, 90*, 105–126.
- Guilford, J. P. (1959). *Personality*. New York: McGraw-Hill.
- Hough, L. M., & Ones, D. (2001). The structure, measurement, validity, and use of personality variables in industrial, work, and organizational psychology. In N. Anderson (Ed.), *Handbook of industrial, work, and organizational psychology* (Vol. 1, pp. 233–277). Thousand Oaks, CA: Sage.
- McAdams, D. P. (1995). What do we know when we know a person? *Journal of Personality, 63*, 365–396.

PERSONALITY ASSESSMENT

Personality assessment is the process of gathering information about an individual to make inferences about personal characteristics including thoughts, feelings, and behaviors. Raymond B. Cattell identified three primary sources of obtaining such personality information: life-data, information collected from objective records; test-data, information obtained in constructed situations where a person's behavior can be observed and objectively scored; and questionnaire-data, or information from self-report questionnaires. Each type of data is used to make assessments of personality within contemporary industrial/organizational (I/O) psychology. Common forms of life-data might include information contained in a résumé or an application blank and examinations of court, financial, or driving records in background checks. Test-data would include scores on personality-based dimensions derived from the assessment center method. However, by far the most common form of personality data in I/O psychology is questionnaire-data.

Self-report measures of personality can be divided into two broad categories: clinical and nonclinical. Self-report clinical measures, such as the Minnesota Multiphasic Personality Inventory (MMPI), have been used for some workers, such as airline pilots and police officers, to ensure that a potential employee does not suffer from an underlying psychological disorder. These clinical measures are generally given along with an interview (life-data) in the context of an individual assessment. Decisions to use these clinical evaluations for personnel selection, however, must be made carefully, because there is a notable possibility of violating the Americans With Disabilities Act.

Nonclinical self-report personality assessments, which are much more widely used than clinical assessments, are typically designed to assess personality traits. Personality traits are characteristic behaviors, thoughts, and feelings of an individual that tend to occur across diverse situations and are relatively stable over time. A trait that has been particularly important in the context of I/O psychology is conscientiousness, which is associated with a tendency to be organized, thorough, systematic and efficient. Assuming that these characteristics are desirable in an employee, a self-report questionnaire may be administered to make inferences about the conscientiousness of individuals within an applicant pool.

CONTENT VERSUS EMPIRICAL SCALE DEVELOPMENT

Although there are numerous approaches to constructing a personality assessment, two broad approaches can be identified. By far the more common approach to scale development is the content approach. In this approach items are written based on a theory of the construct the set of items is intended to measure. By way of example, an item such as *I enjoy the company of others* might be written for a sociability scale. Once written, the items are then typically empirically evaluated using principles of construct validation. As factor analysis is frequently used to evaluate items, this approach is also commonly referred to as the *factor analytic approach*.

As P. E. Meehl (1945) pointed out, however, interpreting an individual's response to such an item requires certain assumptions. For example, it must be assumed that all respondents have interpreted the item in the same way, that people are aware of and can report their own behavior, and that people are willing to tell you about their behavior. Some personality measurement theorists felt these assumptions were untenable and suggested a different approach to personality test construction, the empirical keying approach. According to this approach, a personality item is useful to the extent that responses to it accurately differentiate two groups. For example, an item would be included on a depression scale if, and only if, depressed people responded to the item differently from nondepressed people. In the classic empirical keying approach the content of the item is irrelevant; whether the item appears theoretically related to the construct does not matter. Because the response to the item is considered to be the behavior of interest, interpretation of scores from an empirically keyed measure does not require the assumptions associated with the content approach. Although the empirical keying approach was the basis for such well-known measures as the MMPI and the California Psychological Inventory, the vast majority of personality assessments in use today are based on the content approach to scale development.

NORMATIVE VERSUS IPSATIVE ASSESSMENT

Most personality assessments given in I/O contexts provide normative scores. Normative scores result when the responses to one item are independent from responses to other items. The common Likert-type

rating scale, in which the respondents use the scale to place themselves along the trait continuum as represented by a single item, will result in normative scale scores. Ipsative scores, in contrast, result from response formats in which respondents choose, rank order, or otherwise indicate preference among a set of statements presented in an item. The Myers-Briggs Type Indicator is a well-known measure that provides ipsative scores.

Normative and ipsative scores result in different inferences about a person's trait standing. Normative scores allow for inferences regarding the amount of a trait that an individual possesses *compared with other people*. Ipsative scores, in contrast, support inferences about the amount of a trait possessed by the individual *compared with the other traits assessed by the measure*. Thus, a high score on a particular scale in an ipsative measure does not suggest that the respondent has a high standing on that trait, but suggests rather that the respondent has a higher standing on that trait than on any of the other traits assessed by the measure. Ipsative measures, therefore, are useful for identifying a person's particular strengths and weaknesses (i.e., intraindividual differences) and may be particularly useful in vocational guidance contexts. In many I/O contexts, however, the explicit desire is to compare the scores from a set of people (i.e., interindividual differences), as in personnel selection. When comparing people is the goal, ipsative scores are inappropriate and such measures should not be used.

ORIGINS OF PERSONALITY ASSESSMENT IN I/O PSYCHOLOGY

Applications of personality assessment within I/O psychology began as early as 1915 with the creation of the Division of Applied Psychology and the Bureau of Salesmanship Research at the Carnegie Institute of Technology. In addition to developing technologies for the selection of salesmen, this group of researchers also sought to develop measures of personality (or temperament/character as it was referred to at that time). Personality assessment gained further acceptance during World War I when United States military researchers developed the Woodworth Personal Data Sheet to identify individuals who might be susceptible to *war neuroses*. With the development of several multitrait assessment tools, the popularity of personality testing grew through the 1940s and 1950s. For example, a survey of more than 600 American

companies conducted in 1953 indicated that nearly 40% of those companies used measures of personality or vocational interests in their selection systems.

Three factors led to a marked decline in the popularity of personality testing in applied contexts during the 1960s and 1970s. First, two influential literature reviews were published that suggested that there was little evidence for the criterion-related validities of personality measures for the prediction of job performance. Second, the trait-situation debate dominated personality psychology over this period of time. On the situationist side of the debate, led by Walter Mischel, it was argued that aspects of the situation, not personal characteristics, were the driving force behind behavior. Third, Title VII of the Civil Rights Act of 1964 brought increased legal responsibilities to the use of assessments in the context of personnel decisions. Based largely on these factors, many organizations decided to forgo personality assessments in their selection systems, opting to avoid possible legal issues resulting from the administration of these tests.

Personality testing was given new life in applied contexts during the 1980s and early 1990s. Personality theorists finally found their voice in the trait-situation debate, effectively arguing that personal characteristics can predict behavior. The heart of the argument was the principle of aggregation, which suggests personality generally does not predict single instances of behavior well, but it does predict lawful patterns in behavior across diverse situations. But the biggest boon to personality assessment in I/O contexts was the emergence of the Big Five and subsequent meta-analyses demonstrating the criterion-related validities of some of these broad traits.

CRITERION-RELATED VALIDITY AND UTILITY OF PERSONALITY ASSESSMENT

One reason for the lack of strong criterion-related validity findings for personality assessments in the 1950s was the *broadside approach* taken by researchers. This tendency to correlate every available personality test score with all available performance measures was said to have resulted in large numbers of small criterion-related validity coefficients, many of which would have been expected, on the basis of theory, to be small. With the emergence of the Big Five trait taxonomy in the 1980s, conceptual links between the traits and the criterion variables could be drawn. A result of this better predictor-criterion

linkage was stronger evidence for the criterion-related validities of personality assessments. To date, numerous meta-analyses on the relationships between personality test scores and measures of work performance have resulted in positive findings. The strongest findings have been associated with the conscientiousness trait, which seems to be associated with most job-related criteria (i.e., performance, training, attendance, etc.) across almost all jobs. However, the criterion-related validities remain modest, even after the corrections typically employed in meta-analytic procedures. For example, one of the most widely cited meta-analyses reported corrected criterion-related validities for conscientiousness in the range of .20 to .22 across performance criteria and occupational groups.

Many personality assessments frequently used in I/O settings were not created explicitly for applied use. That is, the questionnaires were created to provide a general assessment of personality; and as such, the items in these measures tend to be very general and do not typically convey information about any specific situational context. When responding to such acontextual items, respondents may consider their behaviors across a wide range of social situations, such as at home with family, at a gathering with friends, at a public event, or at work. Research has found, however, that when the item content was contextualized in a work setting, for example by adding the phrase *at work* to the end of each item, the criterion-related validity of the test was higher than when acontextual items were used. Thus, by including work-based situational cues within personality items, the criterion-related validity of personality scores can be enhanced.

Despite the improved validity associated with the contextualization of personality items, the criterion-related validity of personality assessments is clearly lower than that of many other available selection tools, such as ability tests, assessment centers, and work samples. Despite the lower criterion-related validities, personality assessment can still be of value in selection contexts. First, the correlations between personality test scores and scores from cognitive ability tests tend to be small, suggesting that personality tests can improve prediction of performance above and beyond cognitive ability test scores. Second, personality test scores tend not to show the large mean differences between racial groups that are found with cognitive ability tests. Third, these tests can often be administered quickly and typically are relatively inexpensive.

IMPRESSION MANAGEMENT AND FAKING

A major issue facing the application of personality assessment is the possibility of impression management, which is also known as socially desirable responding or faking. Impression management occurs when an individual changes a response to a personality item to create a positive impression. Consider a situation in which a person would, under normal circumstances, respond to the item *I am a hard worker* with a response of *neutral* on a five point Likert-type scale. If that same person were presented with the same item when applying for a job and responded with *agree completely* to increase the chances of being hired, then the individual would be engaging in impression management.

The precise effects of faking on the criterion-related validity of personality measures is still being debated, but it would appear that the effect is rather small. However, impression management does appear to negatively influence the quality of selection decisions. Although this may seem contradictory, it must be recognized that the validity coefficient takes into account the full range of personality test scores, whereas selection is generally concerned only with scores over a certain portion, usually the high end, of that distribution. In a top-down selection context, the quality of selection decisions appears to be negatively affected by the fact that a number of low performing people will rise to the top of the personality test distribution, increasing their chances of being selected. Researchers are currently examining the precise impact of faking on selection and are working on ways to deal with faking to maintain the usefulness of personality assessments.

SUMMARY

Personality assessment is the process of gathering information about a person to make an inference about the individual's characteristic ways of behaving. Although there are numerous methods for assessing personality, the most common form of assessment in I/O psychology is the self-report questionnaire. Meta-analyses have shown that these self-report measures can provide information that is valid for predicting various organizational outcomes. Further, that criterion validity may be enhanced by writing items that are contextualized in workplace settings. Finally, although personality assessments can provide useful

information for making personnel decisions, intentional response distortion on the part of the respondent may lessen the usefulness of those scores in applicant contexts.

—Eric D. Heggstad

See also Big Five Taxonomy of Personality; Impression Management; Individual Assessment; Normative Versus Ipsative Measurement; Personality; Reliability; Validity

FURTHER READING

- Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology, 44*, 1–26.
- Guion, R. M., & Gottier, R. F. (1965). Validity of personality measures in personnel selection. *Personnel Psychology, 18*, 135–164.
- Kanfer, R., Ackerman, P. L., Murtha, T., & Goff, M. (1995). Personality and intelligence in industrial organizational psychology. In D. H. Saklofske & M. Zeidner (Eds.), *International handbook of personality and intelligence* (pp. 577–602). New York: Plenum.
- Meehl, P. E. (1945). The dynamics of structured personality tests. *Journal of Clinical Psychology, 1*, 296–303.
- Mueller-Hanson, R., Heggstad, E. D., & Thornton, G. C., III. (2003). Faking and selection: Considering the use of personality from a select-in and a select-out perspective. *Journal of Applied Psychology, 88*, 348–355.
- Schmit, M. J., Ryan, A. M., Stierwalt, S. L., & Powell, A. B. (1995). Frame-of-reference effects on personality scale scores and criterion-related validity. *Journal of Applied Psychology, 80*, 607–620.

PERSON–ENVIRONMENT FIT

Person–environment (PE) fit refers to the degree of match between individuals and some aspect of their work environment. The concept of PE fit is firmly rooted in the tradition of Kurt Lewin’s maxim that $B = f(PE)$; behavior is a function of both person and environment. The early interactional psychologists emphasized Lewin’s perspective and developed a perspective that individuals’ behaviors and attitudes are determined jointly by personal and environmental conditions. On the person side, characteristics may include interests; preferences; knowledge, skills, and abilities (KSAs); personality traits; values; or goals. On the environment side, characteristics may include

vocational norms, job demands, job characteristics, organizational cultures and climates, and company or group goals. Various synonyms have been used to describe fit, including congruence, match, similarity, interaction, correspondence, and need fulfillment.

The basic premise of PE fit research is that for each individual there are particular environments that are most compatible with that person’s personal characteristics. If a person works in those environments, positive consequences including improved work attitudes and performance, as well as reduced stress and withdrawal behaviors, will result. Although the premise is straightforward, research on PE fit is one of the most eclectic domains in organizational psychology. In part this is because of the wide variety of conceptualizations, content dimensions, and measurement strategies used to assess fit. Questions about what we mean by the term *fit*, what characteristics constitute fit, and how to best assess fit are addressed in the following text.

WHAT DO WE MEAN BY FIT?

Although terms such as *congruence* or *match* seem to imply similarity, multiple conceptualizations of PE fit have been discussed in the literature. *Supplementary fit* exists when the individual and the environment are similar on a particular characteristic. The underlying mechanism is one of similarity-attraction, such that people tend to like interacting with other people and with environments that are similar to themselves in some way. Alternatively, *complementary fit* occurs when individuals’ characteristics fill a gap in the current environment or the environment meets a need in the person. Complementary fit is based on the underlying process of need fulfillment, resulting in positive attitudinal and behavioral outcomes.

Research on stress and coping, which describes fit as adjustment, has elaborated on two distinct forms of complementary fit. The first is needs-supplies fit, which exists when a person’s needs are met by the resources in the environment. The second is demands-abilities fit, which generally focuses on individuals’ KSAs meeting environmental demands.

FIT ON WHAT?

PE fit research has generally concentrated on matching the individual to one of four levels of the environment:

1. Vocation
2. Job
3. Organization
4. Group

Each of these subtypes of PE fit emphasizes different person and environment characteristics as relevant to fit. Each type is briefly reviewed in the following text.

Person–Vocation Fit

The broadest form of PE fit is the fit between individuals and their vocations or occupations, generally labeled person–vocation (PV) fit. Vocational choice theories, such as those by John L. Holland, René Dawis, and L. H. Lofquist fall into this category. Holland proposed in 1985 that the RIASEC typology (people and vocations are characterized as realistic, investigative, artistic, social, enterprising, or conventional) suggests that people will be most satisfied if they pursue careers that are compatible with their interests. Fit is defined by the degree of match between an individual's interests and those of others who generally make up the person's chosen vocation. Dawis and Lofquist's theory of work adjustment posits that individuals and careers are compatible to the extent that personal traits (including skills, abilities, needs, and values) correspond with the requirements imposed by the environment, and personal needs are simultaneously met by the environment.

Reviews of the PV literature generally report moderate positive correlations between PV congruence and individual measures of well-being such as job and career satisfaction, stability, and personal achievement. Correlations are higher when focusing on the congruence with specialty areas within vocations. Consistent negative relationships have been found between fit and mental distress, somatic symptoms, changing vocations, and seeking satisfaction through leisure activities unrelated to work.

Person–Job Fit

A second type of fit concerns the relationship between an individual and a specific job. Labeled person–job (PJ) fit, this includes the match between a person's KSAs and the demands of a job (demands–abilities fit), or the person's needs and interests and the

resources provided by the job (needs–supplies fit). Traditional notions of personnel selection, which began during World War II with the selection of soldiers into specific positions in the army, emphasized the importance of hiring people who possessed the requisite KSAs for particular jobs. Thus, PJ fit was defined from the organization's perspective, such that the most appropriately qualified people would be hired.

PJ fit from the needs-supplies perspective was the emphasis of work done by J. R. P. French, Jr., and colleagues on stress and adjustment. Their research presented a model that described psychosocial stress as the outcome of a discrepancy between the subjective environment and the subjective person (i.e., subjective PE fit), which in turn was the result of the fit between the objective environment and objective self. Thus, fit was equated to adjustment. PJ fit is also assessed in early definitions of job satisfaction, which emphasized satisfaction as the result of personal needs being met by a job. Over time scholars have separated job satisfaction (the affective outcome) from fit (the objective or perceived match that leads to the outcome). Yet because of the close relationship, PJ fit and job satisfaction are generally found to have a moderate to strong positive relationship. Other outcomes associated with PJ fit include organizational commitment, intent to quit, task performance, and strain.

Person–Organization Fit

Person–organization (PO) fit, defined broadly as the compatibility between people and organizational characteristics, is a third type of PE fit. Benjamin Schneider popularized this approach to fit with the attraction–selection–attrition (ASA) model, used to explain how homogeneity naturally results from organizational recruitment and selection processes. Although the ASA model emphasizes the antecedents and consequences of homogeneity at the organizational level, Jennifer Chatman proposed a model that emphasized PO fit from the individual's perspective. This interactive model of PO fit emphasizes the objective fit between individuals' values and those that senior management believe best represent the organization. Many researchers have used the notion of value congruence to assess PO fit but have followed French and colleagues' approach of emphasizing subjective or perceived fit, rather than objective fit. PO fit has also been assessed using personality traits, goals, and needs. Meta-analytic estimates demonstrate that

PO fit is most strongly associated with feelings of attachment to the organization, such as organizational commitment and intent to quit. Additional influences on contextual performance, or extrarole behavior, and turnover have been found.

Person–Group Fit

Finally, a fourth type of PE fit is the match between individuals and members of their immediate work groups. Most of the emphasis on person–group (PG) or person–team fit has been on demographic variables. The concept of relational demography suggests that individuals' attitudes and behaviors are influenced by the demographic similarity among teammates or coworkers. However, more recent studies have moved beyond demographic similarity to examine fit on deeper, less directly observable characteristics, including personality traits, goals, and KSAs. Outcomes most strongly associated with PG fit are group-level attitudes, including cohesion and satisfaction with coworkers, as well as contextual performance.

HOW CAN FIT BE MEASURED?

Debate over how to measure PE fit reflects the diversity of approaches outlined earlier. Each of the following strategies has been used to assess or infer PE fit.

Statistical Interactions

Traditional methods relied heavily on the use of statistical interactions, where the effect of the environment was moderated by the characteristics of the person, or vice versa. There was no requirement in such approaches that the dimensions of person and environment be commensurate (i.e., using the same dimensions), just that they were theoretically related. Fit was assumed to be supported if the interaction term explained significant variance in the outcomes, beyond the main effects of person and environment. This method captures objective, or actual, fit because person and environment are measured separately and fit is determined algebraically as the multiplicative interaction of the two terms.

Direct Measures

A second measurement strategy involves directly asking individuals whether they believe that a good

PE fit exists. For example, people may be asked to assess how well their vocation or job satisfies their personal needs (PV and PJ fit respectively), how well their KSAs meet job requirements (PV fit), how compatible their values are with their organizations' (PO fit), or whether they share their coworkers' goals (PG fit). This type of assessment captures holistic assessments of subjective or perceived fit, because the individuals are asked to mentally calculate fit using whatever internal standards they wish to apply.

Indirect Measures

An alternative method for assessing subjective or perceived fit is to use indirect methods, in which person and environment variables are reported separately. This could be by the same person (perceived fit) or from two unique sources (objective fit). The actual calculation of fit is done by a researcher making an explicit comparison of these two descriptions. How these two are compared can be further differentiated into two categories:

Difference Scores. The primary means of indirect fit assessment has been the use of profile similarity indexes or difference scores. These methods assess the algebraic difference between the person and environment variables. Despite their popularity they have been heavily criticized because of the inability to determine whether person and environment contribute equally to the outcome and the loss of information on the absolute level of characteristics and the direction of differences, as well as overly restrictive statistical constraints. These limitations may result in inappropriate conclusions about the nature of the fit relationships under investigation.

Polynomial Regression. In response to the concerns over difference scores, J. R. Edwards and colleagues proposed polynomial regression as an alternative way to assess PE fit. At its core, this approach avoids using a single term to capture fit. Instead, both person and environment, and associated higher-order terms (P^2 , $P \times E$, and E^2), are included as predictors in a regression. The relationship between these variables is then graphed in three-dimensional surface plots, which can be visually inspected, or characteristics of the surface (i.e., slopes and curvatures) can be statistically evaluated to determine whether a fit relationship is supported. This method requires large sample sizes

and assesses fit on single dimensions (i.e., on one value) rather than across a set of dimensions (i.e., across a value profile). It provides a precise depiction of the relationship between person and environment variables but does not result in an effect size attributable to fit.

SUMMARY

Research on PE fit remains one of the most eclectic domains of organizational psychology. However it is conceptualized, operationalized, or assessed, results consistently demonstrate that people's perceptions of, and actual fit with, their environment has important consequences for work-related attitudes and behaviors.

—Amy L. Kristof-Brown

See also Careers; Individual Differences; Person–Job Fit; Person–Organization Fit; Person–Vocation Fit

FURTHER READING

- Chatman, J. A. (1989). Improving interactional organizational research: A model of person–organization fit. *Academy of Management Review*, *14*, 333–349.
- Dawis, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment*. Minneapolis: University of Minnesota Press.
- Edwards, J. R. (1991). Person–job fit: A conceptual integration, literature review, and methodological critique. In C. L. R. I. T. Cooper (Ed.), *International review of industrial and organizational psychology* (Vol. 6, pp. 283–357). Chichester, England: Wiley.
- Edwards, J. R. (1994). The study of congruence in organizational behavior research: Critique and a proposed alternative. *Organizational Behavior and Human Decision Processes*, *58*, 51–100.
- Holland, J. E. (1985). *Making vocational choices: A theory of careers*. Englewood Cliffs, NJ: Prentice Hall.
- Kristof, A. L. (1996). Person–organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, *49*(1), 1–49.
- Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person–job, person–organization, person–group, and person–supervisor fit. *Personnel Psychology*, *58*, 281–342.
- Lewin, K. (1935). *A dynamic theory of personality*. New York: McGraw-Hill.
- Schneider, B. (1987). The people make the place. *Personnel Psychology*, *40*, 437–453.

PERSON–JOB FIT

Person–job (PJ) fit is defined as the compatibility between individuals and the job or tasks that they perform at work. This definition includes compatibility based on employee needs and job supplies available to meet those needs, as well as job demands and employee abilities to meet those demands. In the past, the term *PJ fit* has been used to describe fit with occupations or vocations as well, but more recently it has been distinguished from this broader form of fit.

Based firmly in interactional psychology, the underlying premise of PJ fit is that characteristics of the person and the job work jointly to determine individual outcomes. There are many theories that involve joint influence of person and job characteristics, but fit is a specific domain in which commensurate measurement is generally considered essential. Commensurate measures assess the person and job along the same content dimensions, thus allowing an assessment of fit or match to be determined. Often the combined effects of conceptually related person and job measures such as the need for achievement and job complexity are interpreted as PJ fit; however, because they employ non-commensurate measures they do not fall within the fit domain, as strictly defined. In the following text, further discussion on the various conceptualizations of PJ fit and their consequences is presented.

TWO CONCEPTUALIZATIONS OF PERSON–JOB FIT

Needs–Supplies Fit

Two primary conceptualizations characterize research on PJ fit. The first is the correspondence between employee needs or desires and the supplies that a job provides. Alternately labeled needs–supplies or supplies–values fit, this is the most commonly investigated form of PJ fit. Much of the research in this domain is based on Lyman Porter's need satisfaction questionnaire, or similar measures, which ask people to describe how much their current job provides (actual) of a particular characteristic and also how much of that characteristic is desired (ideal).

The basic notion of needs–supplies fit is that negative consequences result when job supplies fall short of personal needs, whereas positive consequences are maximized when environmental supplies exactly

match personal needs. The theories imply, but often do not directly test, that negative consequences also result when there is an excess of supplies (i.e., the job provides more than what the individual wants or needs). Research by John R. P. French, Jr., Robert Caplan, and R. Van Harrison was some of the first to explicitly examine outcomes associated with conditions of both deficiency and excess. Their research, which spanned much of the 1960s and 1970s, emphasized the psychological and physiological strain that results from a mismatch between the subjective environment and person (that is, the environment as it is perceived by the individual, and the person as perceived by self).

In the mid-1990s Jeff Edwards elaborated on areas of *misfit*, suggesting four possible processes that can occur when job supplies do not correspond with individual needs. When excess supplies exist, individuals will benefit if they can either carry over these supplies to fulfill other needs, or conserve the excess to fulfill a later need. Alternatively, when excess supplies hinder the future fulfillment of needs (depletion) or interfere with fulfilling other needs, individuals will suffer from greater strain. Edwards proposed an advanced analytic strategy labeled polynomial regression and three-dimensional surface plot analysis to allow for closer inspection of misfit and fit relationships. These techniques were specifically proposed as alternatives to the commonly used algebraic difference scores or direct measures of the discrepancy between desired and actual job attributes.

Demands–Abilities Fit

The second conceptualization of PJ fit considers fit from the perspective of the organization rather than the individual. Demands–abilities fit occurs when the individual possesses the abilities (skills, knowledge, time, energy) to meet job demands. When environmental demands exceed personal abilities, strain and negative affective consequences are likely to result. When personal abilities exceed environmental demands, the four processes described previously (carryover, conservation, depletion, and interference) could also apply. The concept of demands–abilities fit is the basis for traditional selection techniques that seek to find qualified applicants to fill job vacancies. Research by David Caldwell and Charles O’Reilly III operationalized this approach by using a profile comparison process to examine the match of individual

abilities to specific task requirements. However, techniques such as polynomial regression could also be used to assess this conceptualization of fit.

CONSEQUENCES OF PERSON–JOB FIT

Person–job fit has been found to have the strongest positive correlations with job satisfaction and intent to hire, followed by moderate to strong positive correlations with organizational attraction, organizational commitment, and satisfaction with coworkers and supervisors. Moderate negative correlations exist with intent to quit and strain. With regard to behaviors, PJ fit is moderately correlated with overall performance and tenure (positive) and weakly associated with turnover (negative). For all outcomes, needs–supplies fit is a better predictor than demands–abilities fit, but for strain the effects are almost equivocal. In general, direct and indirect measures of perceived fit have stronger relationships with criteria than do measures of actual or objective fit. This is in keeping with French and colleagues’ perspective that fit between the subjective person and environment is more proximal to outcomes than fit between the objective person and environment.

SUMMARY

Research on PJ fit has been popular since the early 1960s. In the beginning much of the PJ fit research was combined with research on person–vocation fit (see that entry in this volume) and was conducted under the rubric of need fulfillment or need satisfaction. More recently the trend has been to distinguish PJ fit from other forms of fit and to focus on areas of both fit and misfit as predictors of affective, behavioral, and physiological outcomes.

—Amy L. Kristof-Brown

See also Person–Environment Fit; Person–Organization Fit; Person–Vocation Fit

FURTHER READING

- Caldwell, D. F., & O’Reilly, C. A., III. (1990). Measuring person–job fit with a profile comparison process. *Journal of Applied Psychology, 75*, 648–657.
- Caplan, R. D. (1987). Person–environment fit theory: Commensurate dimensions, time perspectives, and mechanisms. *Journal of Vocational Behavior, 31*, 248–267.

- Edwards, J. R. (1996). An examination of competing versions of the person–environment fit approach to stress. *Academy of Management Journal*, 39(2), 292–339.
- French, J. R. P., Jr., Caplan, R. D., & Harrison, R. V. (1982). *The mechanisms of job stress and strain*. London: Wiley.
- French, J. R. P., Jr., Rogers, W., & Cobb, S. (1974). Adjustment as person–environment fit. In D. A. H. G. V. Coelho & J. E. Adams (Eds.), *Coping and adaptation*. New York: Basic Books.
- Porter, L. W. (1961). A study of perceived job satisfactions in bottom and middle management jobs. *Journal of Applied Psychology*, 45, 1–10.

PERSON–ORGANIZATION FIT

Person–organization (PO) fit is defined as the compatibility between people and organizations, which occurs when at least one entity provides what the other needs; they share similar fundamental characteristics; or both. This definition includes examples of mutual need fulfillment, value congruence between individuals and organizations, personality similarity between individuals and other members of the organization, and shared individual and organizational goals. PO fit has also been called person–culture fit.

Based in the interactionist perspective, in which both personal and environmental characteristics interact to predict individual outcomes, PO fit gained greatest prominence in the early 1990s. Since that time more than 100 studies have been conducted that emphasize the match between individuals and organizational cultures, not just the jobs within those organizations. In the text that follows, a brief history of the concept and its theoretical underpinnings, antecedents, and consequences are described.

A HISTORY OF PERSON–ORGANIZATION FIT

In 1958 Chris Argyris proposed that organizations were characterized by particular types of climates, which played an important role in the attraction and selection of organizational members. This view that companies hire the *right types* suggests that there is differential compatibility of individuals and organizations. In 1987 Benjamin Schneider elaborated on these ideas in what has become one of the most

respected theories of interactionist psychology—the attraction–selection–attrition (ASA) framework. At its core the ASA framework proposes that the three aforementioned processes result in organizations characterized by homogeneous members, and structures, systems, and processes that reflect the characteristics of the people who *make the place*. Although principally concerned with predicting organizational-level outcomes and characteristics, the ASA framework has become the theoretical cornerstone for much of the research on PO fit.

In the late 1980s and early 1990s PO fit gained further prominence in the organizational psychology literature. This was in part because of the growing recognition of the importance of organizational cultures. Jennifer Chatman changed the focus from the ASA model that predicted organizational-level consequences to PO fit, because it affected individuals' attitudes and behaviors at work. Her definition of PO fit as individual/organizational (I/O) value congruence became the commonly accepted definition of the concept. This was coupled with the introduction of a measurement tool, the organizational culture profile, by Chatman and her colleagues Charles O'Reilly and David Caldwell, which has become the most widely used tool for operationalizing PO fit. In 1993 an *Academy of Management Executive* article by David Bowen and colleagues articulated the importance of selecting applicants for PO fit, as well as the traditional person–job (PJ) fit based on skills. In my review of the literature in 1996, I proposed the comprehensive definition that begins this entry to integrate the research on PO value congruence with other types of PO interaction such as need fulfillment, personality similarity, and goal congruence.

THEORETICAL UNDERPINNINGS OF PO FIT

There are two fundamental processes underlying PO fit. First, there is the concept of need fulfillment. As in other theories of person–environment (PE) fit, psychological need fulfillment represents a complementary perspective on fit, in which fit is determined by the extent to which the person's needs are met by the organizational environment or the organization's needs are met by the capabilities of the individual. Theories of need fulfillment suggest that dissatisfaction results when needs go unmet, and may also be the consequence of *overfulfillment*, depending on the need. The second theoretical tradition in PO fit

research is the concept of I/O congruence, a supplementary approach to fit. Theoretically, congruence affects attitudes and behaviors because people are more attracted to similar others. Similarity facilitates communication, validates choices, and socially reinforces personal identities. Taken together, these mechanisms provide alternative, but not competing, explanations for why PO fit influences individual outcomes at work.

ANTECEDENTS OF PERSON–ORGANIZATION FIT

Research has emphasized recruitment, selection, and socialization as antecedents to PO fit. These processes closely mirror the three components of the ASA framework: attraction, selection, and attrition. During recruitment, organizations seek to convey particular images of themselves to applicants. In turn, job applicants draw inferences about organizational culture based on all available information, including features of the compensation system, interactions with current employees, and recruitment materials. There is evidence that both job applicants and organizational recruiters consider PO fit during selection decisions, placing it only slightly behind fit with the job in terms of importance. Socialization mechanisms, both formal and informal, are then used to convey the values and other key characteristics of the organization.

CONSEQUENCES OF PERSON–ORGANIZATION FIT

Person–organization fit has been found to have the strongest positive correlations with organizational commitment and organizational satisfaction, followed by moderate positive correlations with job satisfaction, trust, and satisfaction with coworkers and supervisors, and moderate negative correlations with intent to quit and strain. With regard to behaviors, PO fit is weakly correlated with task performance (positive) and turnover (negative), but moderately correlated with contextual performance or extrarole behaviors (positive). For all outcomes except tenure, direct measures of perceived fit have the strongest relationship with criteria, followed by indirect measures of the fit between personal characteristics and perceived organizational attributes, and then by indirect measures of the person and objective measures of the organization.

SUMMARY

Research on PO fit has proliferated since the early 1990s. Despite debates over complementary versus supplementary conceptualizations, values versus other content dimensions, and how to best measure PO fit (see Person–Environment Fit for a more in-depth discussion of these issues), there is compelling evidence that individuals are differentially compatible with various organizations, and that this compatibility has important consequences.

—Amy L. Kristof-Brown

See also Person–Environment Fit; Person–Job Fit; Person–Vocation Fit

FURTHER READING

- Cable, D. M., & Edwards, J. R. (2004). Complementary and supplementary fit: A theoretical and empirical integration. *Journal of Applied Psychology, 89*, 822–834.
- Chatman, J. A. (1989). Improving interactional organizational research: A model of person–organization fit. *Academy of Management Review, 14*, 333–349.
- Chatman, J. A. (1991). Matching people and organizations: Selection and socialization in public accounting firms. *Administrative Science Quarterly, 36*, 459–484.
- Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person–job, person–organization, person–group, and person–supervisor fit. *Personnel Psychology, 58*, 281–342.
- Schneider, B. (1987). The people make the place. *Personnel Psychology, 40*, 437–453.

PERSON–VOCATION FIT

The idea that sparked person–vocation (PV) fit came from Frank Parsons, one of the earliest figures in vocational psychology, who believed that people need a clear understanding of themselves and the environment in which they work to be happy in their jobs and careers.

PV fit is the relationship between individuals and their vocations or occupations. PV literature has generally reported positive correlations between PV congruence and individual measures of well-being such as job and career satisfaction, stability, and personal achievement.

A number of theories either directly or indirectly have relevance for understanding PV fit. Some of the more prominent of these are detailed in the following text.

HOLLAND'S THEORY

John Holland's theory of vocational personality types, first presented in 1959, is one of the most influential and researched theories in psychology. Holland proposed a typology that divided interests and work environments into six types. He organized the types spatially around the six points of a hexagon. The types are as follows:

1. Realistic (likes hands-on tasks)
2. Investigative (analyzes ideas)
3. Artistic (creative and original)
4. Social (helps people)
5. Enterprising (takes on leadership role)
6. Conventional (follows rules and orders)

The main premise of the theory is that individuals search for work environments that allow them to express their vocational interests and associate with other people with similar interests. Furthermore, the interaction between the person's interests and the work environment's requirements is likely to influence job satisfaction and tenure. For example, if Jane is interested in the artistic domain, then she would be most likely to find satisfaction in work that has a large creative component. If, however, Jane's work environment is incongruent with her interests, say she is working in a conventional environment that does not allow her to do creative work, then she may express dissatisfaction with her job.

Holland based his theory of vocational types on empirical data derived from correlational and factor analytic studies. A plethora of research studies provide evidence of validity for the major tenets of Holland's theory for Western societies. Recently, research on the evidence of validity for Holland's theory for non-Western cultures has begun to appear in the literature. A benefit of Holland's theory is the ease with which the propositions and constructs can be applied to a career counseling setting. For example, understanding how the six vocational types relate to

one another helps a person to match interests with the work environment. Moreover, the scale development of all major interest inventories has been influenced by Holland's theory, and instruments such as the Strong Interest Inventory and the Self-Directed Search include scales constructed to measure the six vocational types.

THEORY OF WORK ADJUSTMENT

The theory of work adjustment (TWA) was developed at the University of Minnesota by René Dawis and Lloyd Lofquist. Like Holland's theory, TWA proposes that a person will stay in a job longer if there is congruence, or correspondence in the TWA terminology, between the person and the work environment. Specifically, TWA postulates that if a person's abilities, needs, and values match the analogous workplace environment components (i.e., ability requirements and reinforcers), then job satisfaction and satisfactoriness occur. Tenure, or longevity on the job, in turn, is a result of the individual's satisfaction and satisfactoriness. In other words, the individual is satisfied if the work environment matches the person's values and needs, and the environment deems the individual satisfactory if the person's abilities or skills meet the requirements of the job. Values, an important aspect of the TWA, are grouped into six categories:

1. Achievement
2. Comfort
3. Status
4. Altruism
5. Safety
6. Autonomy

Ability also is an important consideration.

In some situations, an individual's flexibility may help that person to compensate for a lack of correspondence. In other words, people who are flexible can tolerate noncorrespondence more than individuals who are inflexible.

The Theory of Work Adjustment has been applied in areas such as career counseling, career assessment, and selection. Several instruments, such as the Minnesota Importance Questionnaire (MIQ) and the Minnesota Satisfaction Questionnaire (MSQ), have been developed to measure TWA variables.

PERSON–ENVIRONMENT FIT THEORY OF STRESS

The person–environment (PE) fit theory of stress comes from the field of occupational health psychology. Robert Caplan, John French, and R. Van Harrison contributed to the PE fit theory of stress, which developed from the perspective of PE misfit instead of the PE correspondence view of TWA. According to the theory, PE misfit causes some disturbance in the person both psychologically and physically. The theory first makes a distinction between the person and the environment and their reciprocal relationship. Then, person and environment are divided into both objective and subjective components. Subjective refers to the perception of a person's characteristics or environment. Objective refers to the personal characteristics and physical and social environment of an individual that can be observed or assessed by others.

The theory states that if PE misfit surfaces, two sets of outcomes may occur. Psychological, physical, and behavior strains compose the first set of outcomes. These negative consequences eventually lead to poor health and unresolved PE misfit. The second set of outcomes includes coping and defensive behaviors, which are used to resolve the PE misfit. Some coping strategies, used to find ways to balance the current misfit, come from objective PE fit. One such strategy is adapting to the environment. Defensive coping strategies, such as denial, provide a means for enhancing subjective PE fit. The PE fit theory of stress also suggests that outcomes of subjective misfit can be reduced by shrinking objective misfit, and vice versa.

ATTRACTION–SELECTION– ATTRITION MODEL

In the field of industrial/organizational (I/O) psychology, Benjamin Schneider's attraction–selection–attrition (ASA) model looks at organizational behavior from the person-oriented side. The model proposes that an organization is defined by the *collective characteristics* of the people who work there, which are hypothesized to develop through three steps:

1. Employee attraction to the job
2. Employer selection of employees
3. Departure by employees who are not congruent with the work environment

In other words, when people are attracted to an organization by its characteristics, their personalities are implicitly congruent with the organization's characteristics. Then, the organization chooses whom to hire based on whether the individual's attributes match what the organization wants. If the individual does not fit well with others in the organization, this person is asked to leave. As a result, characteristics of the employees will match the objectives of the organization; and ideally, people within the organization will get along because they are similar to one another. Some researchers, however, argue that adding diversity to an organization may bring more creativity and better problem-solving skills to the workplace than does a homogeneous working population.

The ASA model's main premise is that the attributes of people define the organization. Therefore, Schneider suggests that when changes need to occur in an organization, the process should begin with changes in personnel rather than with changes in the structure and processes of the organization itself.

—Jo-Ida C. Hansen and W. Vanessa Lee

See also Attraction-Selection-Attrition Model; Careers; Person–Environment Fit; Person–Organization Fit; Person–Job Fit; Theory of Work Adjustment

FURTHER READING

- Brown, D., & Brooks, L. (Eds.). (2002). *Career choice and development* (4th ed.). San Francisco: Jossey-Bass.
- Cooper, C. L. (1998). *Theories of organizational stress*. New York: Oxford University Press.
- Schneider, B., Goldstein, H. W., & Smith, D. B. (1995). The ASA framework: An update. *Personnel Psychology*, 48, 747–773.

PHYSICAL PERFORMANCE ASSESSMENT

Physically demanding occupations, such as manual materials handling and public safety, require the use of a variety of physical abilities to perform the job tasks. Because of the need for workers to meet the physical requirements of arduous jobs and the potential for injury, employers use physical performance tests to determine an individual's physical capabilities to meet the job requirements. The physical abilities assessed by the tests are based on the essential tasks

and functions, working conditions, and ergonomic parameters associated with a job. These abilities are defined in the following text:

- Muscular strength is the ability to exert force to lift, push, pull, or hold objects. The amount of force generated by a muscle contraction is dependent on the size of the muscles (cross-section) involved and muscle fiber type such as a fast twitch.
- Muscular endurance is the ability to exert force continuously over moderate to long time periods. The length of time a muscle can contract is dependent on the size of the muscles involved, the chemical composition of the muscle tissue, and the muscle fiber type such as a slow twitch.
- Aerobic capacity or cardiovascular endurance is the ability of the respiratory and cardiovascular systems to provide oxygen to the body systems for medium- to high-intensity tasks performed over a moderate time period. Aerobic tasks require continuous oxygen consumption.
- Anaerobic power is the ability to complete high-intensity, short-duration (e.g., 5–90 seconds) tasks. Anaerobic tasks are performed using stored energy in the form of adenosine triphosphate (ATP).
- Flexibility involves the range of motion at the joints including knees and shoulders to bend, stoop, rotate, and reach in all directions with the arms and legs. Flexibility at the joints is dependent on the extensibility of the ligaments, tendons, muscle, and skin.
- Equilibrium is the ability to maintain the center of gravity over the base of support such as feet. Equilibrium involves maintaining and recovering to a balanced position when outside forces, including gravity and slipping on ice, occur.

Combinations of different levels of these abilities are needed for all tasks in which muscular contraction, oxygen consumption, and energy expenditure are required. For example, low levels of muscular strength and muscular endurance in the abdominal and back muscles are required to sit in a chair. However, high levels of these two abilities are required to lift and carry thirty 70-pound boxes. Performance of arduous job tasks typically requires all six abilities, but to different extents. Lifting ten 90-pound boxes from a table and carrying them 100 yards to another table requires high levels of muscular strength and muscular endurance in the arms, legs, and torso, but only low levels of flexibility. The level of equilibrium needed is moderate because gravity is pulling downward as the box is carried forward. Similarly, to avoid falling over when picking up a

weighted object, the base of support must be adjusted or widened, for example. This task also requires a moderate level of aerobic capacity because of the weight of the boxes, the distance they are carried, and the duration of the task. Therefore, the physical abilities interact at varying levels throughout performance of all arduous job tasks. The specificity of an ability can be determined through direct physiological measurement such as oxygen consumption, ergonomic measurement including force to torque bolts, or questionnaire data.

Physical performance tests are developed, validated, and implemented for purposes of applicant assessment, incumbent assessment and retention, and worker assessment for return to work after an injury. Physical tests are used for arduous jobs in the public (e.g., law enforcement, firefighter, emergency medical service), private (e.g., warehouse, manufacturing, longshoring, telecommunications, railroad, trades, electric, natural gas), and military sectors. Use of physical performance tests in the selection setting provides several benefits. First, individuals whose physical ability is commensurate with the demands of the job are identified. Second, physically qualified individuals have fewer injuries, which leads to lower worker compensation costs, increased productivity, and reduced turnover. Research in this area has shown reductions in injury rates of 10% to 20% for new hires who successfully completed a physical test screening when compared with individuals who did not take the test. Further, when workers were injured, those who passed the physical test had significantly lower injury costs than those who were not tested, for example, \$4 million versus \$12 million.

TYPES OF TESTS

There are numerous physical performance tests used by organizations to assess physical capabilities. However, these tests can be placed into one of two categories: basic ability tests and work/job simulations. Basic ability tests assess an individual's physical ability including muscular strength and flexibility. Tests such as sit-ups (muscular endurance), the step test (aerobic capacity), arm ergometry (muscular endurance), and sit and reach (flexibility) are basic ability tests. Basic ability tests measure an ability required to perform job tasks.

Work/job simulation tests include components of the job being evaluated such as dragging a hose and climbing stairs. Work simulations require individuals

to perform simulated job tasks or components and may require equipment or tools used on the job. A test requiring an individual to lift boxes and place them on shelves of various heights is considered a work simulation test. Law enforcement tests that simulate pursuing and restraining a suspect are also work simulation tests.

Organizations have used basic ability, work simulation, and a combination of both test types to assess candidate and incumbent physical capabilities. Both types of test have substantial validity that ranges from 0.45 to 0.85, depending on the type of criterion measure used in the validation study. However, regardless of the type of test used, significant gender differences in performance are typically present. These differences are attributed to the physiological differences between men and women such as larger muscle mass and greater lung volume.

DEVELOPMENT AND VALIDATION OF PHYSICAL PERFORMANCE TESTS

Both basic ability and work simulation tests must match the job in terms of the physical abilities or the job tasks being assessed. Job analysis data provides the input to select or design basic ability tests or to identify essential tasks that can be safely simulated. Ergonomic parameters (e.g., weights of tools and objects, forces to loosen nuts and bolts, distances walked, heights) and working conditions (e.g., temperature, surface, surface incline) related to the essential job tasks should be incorporated into the test development plan. In addition, when developing or selecting physical performance tests, the safety of the examinees must be considered; their health status and fitness level is usually unknown, and their age can range from 20 to 60 years old.

Design or selection of basic ability tests should include consideration of the tasks that require the abilities, and not just the relevant abilities. For example, if the job requires lifting 35-pound boxes to heights of 50 to 60 inches, a test of upper body muscular strength may be more appropriate than a lower body strength test. Similarly, if a job requires performing arduous tasks such as climbing stairs while wearing a protective nonbreathable suit with a respirator, a step test or treadmill test of aerobic capacity may be more appropriate than a bicycle test. Further, the duration of a basic ability test, such as muscular endurance, can be determined based on the time it takes to complete a physically demanding task or a series of tasks.

Consideration of these parameters will result in a testing process that is more specific to the job demands.

For work simulation tests, the job's essential tasks are reviewed to determine which tasks are frequently performed and which tasks best represent the essence of the job demands. These tasks are evaluated to select which tasks can be simulated without using equipment or procedures that require on-the-job training. Use of working conditions and ergonomic parameters in the test development stage increases test fidelity. For example, a frequent and important task for firefighters is dragging a hose. This task can be safely simulated and requires no prior training, except for a demonstration of how to hold the hose. To increase the fidelity of this test component, ergonomic data such as the distances that hoses are dragged, size of the hose used, and use of assistance are evaluated to select hose size and distance parameters that are performed by one person. Other parameters related to the condition of the hose (e.g., filled with water or no water) are also examined. An example of a drag parameter that may not be included because it requires training would be opening the hose and spraying water at a target. Finally, the job analysis and working conditions information are used to ensure accurate ordering of test components, proper equipment usage, and appropriate durations for the test and its components.

The linking of job analysis and ergonomic parameters to test components provides the basis for establishing construct validity for basic ability tests and content validity for work simulations. Once the tests meet the conditions described earlier, a criterion-related validity approach can also be used to empirically establish the test validity and passing score(s).

SUMMARY

Arduous jobs are found in numerous private (e.g., electric, telecommunications, natural gas, railroad, freight, warehousing) and public (e.g., fire, police) sector organizations. Identifying the demands of essential job tasks is paramount to development or selection of basic ability or work simulation tests. The ergonomic and working conditions parameters should be incorporated into the test development or selection to ensure that the test accurately represents the physical demands of the job. Careful attention to the details of the job task demands will ensure that the test is content or construct valid and will identify individuals who can perform arduous job tasks. Although design

of physical performance tests involves different strategies than cognitive test development, most of the developmental and testing principles are similar.

—Deborah L. Gebhardt and Todd A. Baker

See also Prescreening Assessment Methods for Personnel Selection

FURTHER READING

- Gebhardt, D. L. (2000). Establishing performance standards. In S. Constable & B. Palmer (Eds.), *The process of physical fitness standards development—State of the art report*. Wright-Patterson AFB, OH: Human Systems Information Analysis Center (HSIAC-SOAR).
- Jackson, A. S. (2000). Types of physical performance tests. In S. Constable & B. Palmer (Eds.), *The process of physical fitness standards development—State of the art report*. Wright-Patterson AFB, OH: Human Systems Information Analysis Center (HSIAC-SOAR).
- Myers, D. C., Gebhardt, D. L., Crump, C. E., & Fleishman, E. A. (1993). The dimensions of human physical performance: Factor analyses of strength, stamina, flexibility, and body composition measures. *Human Performance*, 6(4), 309–344.
- Rayson, M. P., Holliman, D., & Belyavin, A. (2000). Development of physical selection procedures for the British Army. Phase 2: Relationship between physical performance tests and criterion tasks. *Ergonomics*, 43, 73–105.
- Sothmann, M. S., Gebhardt, D. L., Baker, T. A., Kastello, G. M., & Sheppard, V. A. (2004). Performance requirements of physically strenuous occupations: Validating minimum standards for muscular strength and endurance. *Ergonomics*, 47(8), 864–875.

PLACEMENT AND CLASSIFICATION

Selection is a personnel decision whereby an organization decides whether to hire individuals using each person's score on a single assessment, such as a test or interview, or a single predicted performance score based on a composite of multiple assessments. Using this single score to assign each individual to one of multiple jobs or assignments is referred to as placement. An example of placement is when colleges assign new students to a particular level of math class based on a math test score. Classification refers to the situation in which each of a number of individuals is assigned to one of multiple jobs based on their scores

on multiple assessments. Classification refers to a complex set of personnel decisions and requires more explanation.

A CONCEPTUAL EXAMPLE

The idea of classification can be illustrated by an example. An organization has 50 openings in four entry-level jobs: Word processor has 10 openings, administrative assistant has 12 openings, accounting clerk has 8 openings, and receptionist has 20 openings. Sixty people apply for a job at this organization and each completes three employment tests: word processing, basic accounting, and interpersonal skills.

Generally, the goal of classification is to use each applicant's predicted performance score for each job to fill all the openings and maximize the overall predicted performance across all four jobs. Linear computer programming approaches have been developed that make such assignments within the constraints of a given classification situation such as the number of jobs, openings or quotas for each job, and applicants. Note that in the example, 50 applicants would get assigned to one of the four jobs and 10 applicants would get assigned to *not hired*.

Using past scores on the three tests and measures of performance, formulas can be developed to estimate predicted performance for each applicant in each job. The tests differ in how well they predict performance in each job. For example, the basic accounting test is fairly predictive of performance in the accounting clerk job, but is less predictive of performance in the receptionist job. Additionally, the word processing test is very predictive of performance in the word processor job but is less predictive of performance in the receptionist job. This means that the equations for calculating predicted performance for each job give different weights to each test. For example, the equation for accounting clerk gives its largest weight to basic accounting test scores, whereas the receptionist equation gives its largest weight to interpersonal skill test scores and little weight to accounting test scores. Additionally, scores vary across applicants within each test and across tests within each individual. This means that each individual will have a different predicted performance score for each job.

One way to assign applicants to these jobs would be to calculate a single predicted performance score for each applicant, select all applicants who have scores above some cutoff, and randomly assign

applicants to jobs within the constraints of the quotas. However, random assignment would not take advantage of the possibility that each selected applicant will not perform equally well on all available jobs. Classification takes advantage of this possibility. Classification efficiency can be viewed as the difference in overall predicted performance between this univariate (one score per applicant) strategy and the multivariate (one score per applicant per job) classification approach that uses a different equation to predict performance for each job.

A number of parameters influence the degree of classification efficiency. An important one is the extent to which predicted scores for each job are related to each other. The smaller the relationships among predicted scores across jobs, the greater the potential classification efficiency. That is, classification efficiency increases to the extent that multiple assessments capture differences in the individual characteristics that determine performance in each job.

CLASSIFICATION IN THE U.S. MILITARY

With regard to most organizations and their personnel decisions, classification is much more of an idea than a practice. Although large organizations will apply classifications at a localized level, such as when staffing a new facility, most often an organization is considering a group of applicants who have applied for one particular job; that is, most personnel decisions are selection rather than classification. The armed services are a notable exception. Although their practice only approximates conceptual discussions of classification, the individual armed services (i.e., Army, Air Force, Navy, Marine Corps, and Coast Guard) constitute the best real-world example. On an annual basis, the services must select and assign a large number of inexperienced individuals to a large number of entry-level jobs. The situation requires use of classification principles.

Prospective armed service applicants complete a battery of tests. The tests an applicant completes are used to first determine whether the person qualifies for military service and second to assign the individual to one of many jobs. Qualification for military service is a selection decision. The methods the services use to narrow the range of jobs for selected individuals use ideas from classification.

The armed services hire approximately 180,000 new persons annually and need to fit them into

roughly 800 entry-level jobs. Historically, the military was the first organization of any type to use large-scale testing for selection and job assignment, starting in about 1916. In 1976 a version of the current battery was put into use—the Armed Services Vocational Aptitude Battery (ASVAB). Although the ASVAB has gone through restructuring, renorming, and regular revision, it is the current official mental testing battery used by each service for entry and for job assignment on acceptance. The current ASVAB is a battery of nine operational tests:

1. general science (GS),
2. arithmetic reasoning (AR),
3. word knowledge (WK),
4. paragraph comprehension (PC),
5. mathematics knowledge (MK),
6. electronics information (EI),
7. auto information (AI),
8. shop information (SI), and
9. mechanical comprehension (MC).

Selection and Assignment

Before individuals are assigned to a job, they must meet minimal criteria to join the armed services. One of these is a cut score on a composite of four ASVAB tests (WK, PC, AR, and MK) referred to as the Armed Forces Qualification Test (AFQT). Other criteria include age, education, passing a physical examination, and meeting background and moral character requirements.

AFQT is used only to determine overall service eligibility and is not used to determine whether someone is qualified to be trained in a specific job. Each individual service uses the tests somewhat differently to make job assignments. The rest of this discussion tracks examples of applications used by the U.S. Army. A significant contributor to the assignment decision in the Army is the individual's score on each of nine scores of uniquely weighted composites of the ASVAB tests. Each entry-level job in the Army is associated with one of these *aptitude area composites*. The weights for each aptitude area were developed to predict training performance in Army jobs. For example, some entry-level Army jobs are assigned to the mechanical maintenance (MM) aptitude area. The

weights for calculating the MM composite score emphasize the AI, SI, MC, and EI tests. Every Army job has a minimum cut score on its composite that an applicant must meet to be eligible for that job. There are many factors that determine to which job an applicant is assigned. Only one is whether the applicant's aptitude area composite score satisfies the job's minimum score. Other factors include current job openings, the Army's priorities, when applicants choose to begin their term of service, and which job applicants prefer.

This job assignment process is only an approximation of the conceptual classification decision model described previously. First, the goal was not to assign applicants to jobs in a way that maximizes overall predicted performance but rather to assign applicants to jobs to

- meet minimum aptitude requirements for each job,
- fill current openings,
- satisfy applicant preferences, and
- meet other constraints.

Additionally, it is difficult to satisfy the pure version of the classification model when personnel decisions are made in real time rather than in large batches that allow classification efficiency advantages associated with optimizing assignments across a larger number of applicants. Although assignments made this way are not likely to achieve the level of classification efficiency that a model closer to the conceptual description of classification would produce, the Army application is still a substantial improvement over what would be realized by selection and unguided assignment.

THE FUTURE

Although the Army example presented is not classification in the strictest sense, it is a good large-scale approximation of classification and is frequently discussed in the literature. Nonetheless, the Army is working on potential improvements to its assignment system that would improve classification efficiency. The Army is currently considering adding applicants' actual predicted score for each aptitude area to the decision process. That is, among other considerations, an applicant could choose or be assigned to a job for which the applicant's predicted score is higher than others among those for which the applicant meets

minimum qualifications. Another consideration is the possibility of using projections of the likely scores of applicants during a time period so that the assignment takes place in the context of a large batch of applicants rather than only those applying at that particular time. Finally, the Army is actively conducting research into potential additions to the ASVAB that could increase its classification efficiency. Measures of constructs in the areas of temperament, spatial and psychomotor aptitudes, and situational judgment are being examined.

—Roy C. Campbell and Christopher E. Sager

See also Army Alpha/Army Beta; Employee Selection; Project A; Selection Strategies

FURTHER READING

- Campbell, J. P. (1991). Modeling the performance prediction problem in industrial and organizational psychology. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (pp. 687–732). Palo Alto, CA: Consulting Psychologists Press.
- Rosse, R. L., Campbell, J. P., & Peterson, N. G. (2001). Personnel classification and differential job assignments: Estimating classification gains. In J. P. Campbell & D. J. Knapp (Eds.), *Exploring the limits in personnel selection and classification* (pp. 453–506). Mahwah, NJ: Lawrence Erlbaum.
- Waters, B. K. (1997). Army Alpha to CAT-ASVAB: Four-score years of military personnel selection and classification testing. In R. F. Dillon (Ed.), *Handbook on testing* (pp. 187–203). Westport, CT: Greenwood Press.

POLICY CAPTURING

Policy capturing has its roots in activities central to industrial/organizational (I/O) psychology. Its origins lie in the work of the Personnel Research Laboratory at Lackland Air Force Base in the 1950s, and it achieved prominence in the broader field of psychology with the publication in 1960 of Paul Hoffman's *Psychological Bulletin* paper, "The Paramorphic Representation of Clinical Judgment." Although policy capturing is not derivative of Egon Brunswik's probabilistic functionalism, scholars in the Brunswikian tradition have been attracted to policy capturing as a method to address certain research questions.

This attraction is based on the practice in good policy capturing research of faithfully representing the situation to which generalization is aimed. Hence, policy capturing is often loosely associated with social judgment theory, which is the contemporary manifestation of Brunswikian theory.

TASKS

Many cognitive tasks require decision makers to make inferences or decisions based on multiple, often conflicting, pieces of information. Such tasks include performance assessment and salary assignments, employment interviewing, investment decisions, medical diagnosis and prognosis, evaluation of charges of discrimination, assessment of the desirability of employment contracts, and even the selection of the most appropriate bullet for use by an urban police force—the list is endless. Such tasks abound in organizations! Policy capturing is used to investigate what factors influence the decision maker, and how heavily each is weighted. Environmental outcomes are not part of the policy capturing procedure.

DATA COLLECTION

The essence of the data-gathering procedure is to have an individual respondent make a substantial number of judgments on multiattribute bundles, often paper-and-pencil or computer-presented profiles, but the judgments can be made on actual people, files, or abstracts of files or anything that can be represented by a set of quantitative variables. Typically, the attributes and the judgments are treated as interval scales, although dichotomous data such as gender are often found among quantitative variables including age, length of experience, or rating scales. The phrase *individual respondent* was not an accident, in that policy capturing entails an idiographic analysis, which may be followed by nomothetic analyses of the idiographic indexes describing the individual respondents.

DATA ANALYSIS

The appropriate data analysis depends on a number of factors, including the level of measurement of the predictors and the judgments, the function forms relating predictors to judgments, predictor intercorrelation, the presumed aggregation rule, and so forth. The common default procedure is multiple regression, but

mathematical models that reflect noncompensatory rules such as conjunctive or disjunctive decision rules might also be used. Given that multiple regression is the most commonly used analytic procedure, we'll concentrate on it.

Multiple Regression

Given a sufficient number of multiattribute judgments, the investigator can use ordinary least squares regression to ascertain the degree to which each attribute accounts for variance in the judgments. Doing so requires the usual assumptions underlying regression, some of which can be violated without affecting the investigator's inferences too severely. For example, if the linear function form assumed in the regression algorithm does not correspond exactly to that used by the judge but is monotonically related thereto, the model misspecification tends to be inconsequential. Furthermore, appropriate cross-validation within subjects provides some sense of the consequences of violations of assumptions.

PERFORMANCE INDEXES

Standard multiple regression indexes are used to describe the judgment policy. The multiple correlation, or R_s , is crucial; if it is not substantial, the investigator cannot claim to have learned much about the judgment policy of the person without further analysis. One possible reason for a low R_s , other than the ever-present unreliability of judgment, is that the function forms relating the judgments to the attributes may be nonlinear. A second is that the judge's aggregation rule may be nonadditive, and the assumption of additivity has resulted in model misspecification. These first two possibilities can be subjected to some data snooping, such as inspecting the scatterplots for nonlinearities, fitting quadratic and multiplicative terms, and so forth.

These possibilities may be illustrated by a favorite class exercise: having the class design a policy-capturing study to select a mate, serve as subjects, and analyze the data. "A malevolent deity has sentenced you to spend 10 years alone on an island. In a last-minute moment of benevolence, the deity has offered to create a mate according to your preferences as assessed via policy capturing." The students develop the attributes, but gender and age, ranging from 2 to 72 years, must be among them. Assuming linearity,

the weight for age will likely be trivial, but inspection of the scatterplot of desirability on age will show radical nonlinearity and implicate an important source of judgment variance. If gender is key, the regression of desirability on, say, physical attractiveness will reveal a strange-looking array, with half the points sitting in a straight line across the bottom of the scatterplot and the other half forming a typical envelope of points.

Other reasons for a low R_s include systematic shifts in importance weights as a result of doing the task, inattention caused by fatigue, and the like. One way of obtaining information about whether the judge is systematic is including reliability profiles and assessing test-retest reliability (r_{tt}). If both R_s and r_{tt} are low, it is unlikely the judge can be modeled.

Suppose R_s is high? Then we can predict the judge's responses from the attributes, assuming linearity and additivity. We can predict a new set of judgments via cross validation of a holdout sample, mitigating concerns about capitalization on chance. But this high R_s should not be taken to mean that the judge is in fact using a linear additive model; the predictive power of the linear model is all too well-known. But the weights do give us significant information about what attributes are important to the judge. Comparing the weights of different judges who have provided judgments on the same data set may reveal sources of conflict or reveal underlying sources of agreement in situations marked by conflict.

TYPICAL RESULTS

People are remarkably predictable in judgment tasks. If R_s is not more than .70 or so, even after taking nonlinearities and nonadditivities into account, do not place much faith in the results. It is not uncommon for expert judges in consequential tasks to have R_s values of .90 or more. An important finding is that judges often believe that they are taking many attributes into account, even though relatively few attributes control virtually all the systematic variance in the judgments.

OTHER DECISION MODELS

There are many approaches to the study of multiattribute judgment, decision making, and decision aiding. Some require the decision maker to decompose the decision intuitively, such as the MAUT (multiattribute utility theoretic) model of Ward Edwards and

his colleagues. Others, like policy capturing, have the decision maker make multiple holistic judgments and employ computer decomposition, such as the ANOVA approach of information integration theory. Judgment analysis is important to mention in this article because it is often confused with policy capturing. It uses the same statistical machinery as policy capturing but refers to the situation where environmental outcomes are available, and the full power of the lens model can be brought to bear on exploring the relation between the judge and the environment.

—Michael E. Doherty

See also Lens Model

FURTHER READING

- Brehmer, A., & Brehmer, B. (1988). What have we learned about human judgment from thirty years of policy capturing? In B. Brehmer & C. R. B. Joyce (Eds.), *Human judgment: The SJT view* (pp. 75–114). Amsterdam: Elsevier Science Publishers B. V. (North-Holland).
- Cooksey, R. W. (1996). *Judgment analysis: Theory, methods, and applications*. San Diego: Academic Press.
- Hoffman, P. J. (1960). The paramorphic representation of clinical judgment. *Psychological Bulletin*, 57, 116–131.
- Roose, J. E., & Doherty, M. E. (1978). A social judgment theoretic approach to sex discrimination in faculty salaries. *Organizational Behavior and Human Performance*, 22, 193–215.

POSITIVE PSYCHOLOGY APPLIED TO WORK

POSITIVE PSYCHOLOGY

The roots of inquiry into what is good about human nature and optimal human functioning can be traced back to Aristotle. Indeed, the initial impetus of modern psychology was to gain an understanding of transcendent experience. This objective was echoed in humanistic psychology's interest in the self-actualizing potential of human beings. However, following World War II psychology's emphasis shifted to a predominant attention to pathology, prevention, and human malfunctioning. In 1998 the president of the American Psychological Association (APA), Martin Seligman, made the clarion call for a new psychological emphasis that he termed *positive psychology*.

Positive psychology was aimed at redirecting the focus of psychology to positive individual traits and subjective experience. The purpose of positive psychology is to shift the focus away from human weakness, vulnerability, and pathology to an emphasis on strengths, resilience, and wellness. However, unlike other trends in popular psychology, positive psychology insists on the application of sound scientific theory and research to provide a social and behavioral scientific understanding of optimal functioning. The field has many levels of analysis including individual subjective experience, for example, well-being, happiness, optimal experience, hope, and optimism; positive individual traits, such as courage, forgiveness, spirituality, the capacity for love, aesthetic sensibility, perseverance, and wisdom; and beneficial group and institutional characteristics, including civic virtues that inspire good citizenship, altruism, civility, tolerance, responsibility, and transcendent performance.

Most of the processes and states that are the scholarly focus of positive psychology are not new. However, positive psychology does provide new ways of looking at old phenomena. It offers a broad conceptual framework for linking theories in several psychological fields. It is based on the assumption that happiness, goodness, and excellence are authentic states that can be analyzed by science and achieved in practice. Over the last 10 years positive psychology has generated a significant literature in the areas of clinical, counseling, community, educational, social, health, and industrial/organizational (I/O) psychology.

POSITIVE ORGANIZATIONAL PSYCHOLOGY

Industrial/organizational psychology has always been interested in the relationship between worker well-being, such as satisfaction, and performance. However, more than 40 years of research has shown that happy workers are not necessarily productive workers. By redefining what is meant by well-being, positive psychology has influenced the debate concerning the relationship between satisfaction and productivity. Subjective well-being is typically measured by two variables: happiness and satisfaction. Happiness refers to an emotional state and indicates how people feel (pleasant moods and emotions) about their work, their life, and themselves in reaction to their lives. Satisfaction consists of more global evaluative and judgmental processes about the acceptability of various aspects of work and life and as such is a

more cognitive process. I/O psychology has tended to exclusively focus on judgments (satisfaction) in determining worker well-being, and ignored the affective component (happiness). Yet each is an important, but separate, characteristic of subjective well-being.

Positive organizational psychology can be defined as the application of psychological theory and research to understanding the positive, adaptive, and emotionally fulfilling elements of work. It focuses on studying both the statelike characteristics of work and how they affect subjective well-being, engagement, and transcendent performance. The emphasis on statelike characteristics is an important distinction between positive organizational psychology and positive psychology. Fred Luthans, one of the main proponents of positive organizational scholarship, believes that the field should emphasize three basic characteristics:

1. The positive constructs studied should be measurable.
2. The focus should be on statelike concepts that can be developed, as opposed to traitlike or dispositional characteristics.
3. Psychological capacities can be effectively managed to optimize performance in the workplace.

Positive Subjective States

Positive organizational psychology studies positive constructs such as confidence or self-efficacy, hope, optimism, resiliency, and subjective well-being (or happiness). Research on these characteristics has shown that they are capable of being measured and are related to effective leadership, high performance, goal attainment, perceived control, effective functioning, and positive affect. Developing people's talents has been linked to increases in employee engagement, performance, and subjective well-being.

One important subjective state that has emerged from the positive psychology literature on work is *flow*. *Flow* was a term first coined by Mihaly Csikszentmihalyi to denote an optimal experience of intense engagement and effortless action, where personal skills match required challenges. Research on the experience of flow in athletes, popularly referred to as *being in the zone*, has also indicated that flow is associated with transcendent or optimal performance. Flow has several conceptual sources. For example,

flow is seen as a state of intrinsic motivation where the individual is engaging in some activity for its own sake without any regard for external rewards. Flow is also a form of work engagement. Engagement is defined as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Although engagement and flow appear to be similar, they are treated as distinct constructs in the literature. Flow refers to a more acute, short-term experience specifically associated with a particular task or activity, whereas engagement is a more stable and persistent state of mind that is associated with work in general. Research on flow indicates that many work tasks provide opportunities for experiencing a state of well-being.

Positive Institutions

Positive organizational psychology also focuses on characteristics of positive organizations. It addresses issues such as the development of virtuous organizations and the creation of healthy work environments. Specifically positive organizational scholarship has begun to investigate how organizations can effectively support and nurture both their employees and the customers they serve. This line of research emphasizes organizational virtuousness. Virtuous organizations (organizations that express virtues such as compassion, forgiveness, and gratitude) have a positive effect on personal improvement and experienced meaningfulness. Work that allows for the expression of positive emotions and the exercise of individual strengths is associated with knowledge creation and higher levels of organizational functioning. Positive psychology has also broadened the concept of transformational leadership to include authentic leadership. Authentic leaders transcend their own self-interest and are guided by end values that primarily benefit the interests of their constituency. They rely more on moral power than on coercion or rational persuasion. Characteristics associated with authentic leaders include optimism, integrity, honesty, high personal efficacy, future orientation, and resilience. Such leaders give priority to empowering followers and fostering positive deviance. There is also some theoretical and empirical evidence to suggest that transformational leadership influences employee well-being by increasing worker self-efficacy, trust in management, the meaningfulness of work, and occupational and organizational identity.

Both the individual and organizational levels of analysis have provided insights into designing optimum work environments. The aim of redesigning the workplace is to increase worker involvement, improve individual happiness, and promote optimal performance. Research on work design has identified several features of the work environment that maximize subjective well-being at work and encourage active engagement in the job. The elements associated with positive workplaces include the following:

- **Variety:** the degree to which the job requires a variety of different activities. People like to learn new skills and appreciate opportunities to challenge themselves and personally grow.
- **Significance:** the degree to which the job has a substantial impact on the lives or work of other people. Work from which people can derive a sense of purpose and meaning generates higher levels of satisfaction.
- **Autonomy:** the degree to which the job provides an opportunity for control and substantial discretion in scheduling the work and determining the procedures to be used in carrying it out. The opportunity to make decisions about the process and outcomes of a person's job is associated with the development of a sense of competence.
- **Realistic goals:** specific and difficult goals with feedback lead to optimal performance. Both flow and satisfaction are associated with having clear, challenging goals that provide opportunities to use skills.
- **Feedback:** the degree to which the activities of the job provide the individual with direct and clear information about the effectiveness of the worker's performance. Feedback is a crucial component of engagement in learning.
- **Social networks:** the opportunity to work in groups or teams and establish interpersonal contacts. Research in a variety of contexts has shown that group work is associated with better individual well-being. Social networks on the job provide the worker with companionship and social support.
- **Transformational leadership:** a form of positive leadership that contributes to individual well-being. Transformational leadership has been shown to facilitate followers' commitment to organizational goals, enhance workers' feelings of self-efficacy, nurture personal growth, and produce superior levels of performance.

SUMMARY

Positive organizational psychology is an area of scholarship and scientific study that is influenced by

positive psychology's emphasis on strengths and virtues. Its aim is to identify those measurable characteristics of individuals, organizations, and work environments that can be developed and promote active engagement, enhance subjective well-being, facilitate transcendent performance, and lead to positive organizational outcomes.

—Clive Fullagar, Ronald G. Downey,
Andrew J. Weisfeld, and Disha D. Rupayana

See also Intrinsic and Extrinsic Work Motivation; Job Design; Job Involvement; Transformational and Transactional Leadership

FURTHER READING

- Cameron, K. S., Dutton, J. E., & Quinn, R. E. (Eds.). (2003). *Positive organizational scholarship: Foundations of a new discipline*. San Francisco: Berrett-Koehler Publishers.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper & Row.
- Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior*, 23, 695–706.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5–14.
- Sivianathan, N., Arnold, K. A., Turner, N., & Barling, J. (2004). Leading well: Transformational leadership and well-being. In P. A. Linley & S. Joseph (Eds.), *Positive psychology in practice* (pp. 241–255). Hoboken, NJ: Wiley.
- Turner, N., Barling, J., & Zacharatos, A. (2002). Positive psychology at work. In C. R. Snyder & S. L. Lopez (Eds.), *Handbook of positive psychology* (pp. 715–728). New York: Oxford University Press.
- Warr, P. (1999). Well-being and the workplace. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 392–412). New York: Russell Sage.

PRACTICAL INTELLIGENCE

The concept of practical intelligence reflects the idea that there might be some ability besides general mental abilities (*g*), some *street smarts* or *common sense* that predicts how successfully individuals handle situations in their actual lives in the form of appropriate responses, given facts and circumstances as they are

discovered, and considering a person's short- and long-range goals.

This definition of practical intelligence is in some ways different from the usual conception and measurement of *g*. First, unlike tasks assessing *g*, tasks for practical intelligence aim at the individual's own long- and short-range goals and are usually of the individual's own intrinsic interest, rather than being formulated by others. Second, the task is encountered during a situation connected to the individual's ordinary experience; and, because it is quite uncommon in classic assessments of *g* but rather ordinary in real life, those *facts of the situation as they are discovered* may not suffice to make well-informed decisions and may change during exposition to the problem at hand. Finally, although the situation is oftentimes not well-defined, there is more than one possible correct answer and more than one method of correct solution.

APPROACHES TO PRACTICAL INTELLIGENCE

Given the rather wide and situation-specific definition of practical intelligence, the construct has been addressed via different approaches, namely practical know-how, practical mathematics, practical planning, practical presupposition, social judgment, and prototypes of practical intelligence.

Practical know-how refers to solving tasks such as repairing machines or navigating the ocean without *appropriate* information such as formal education, technical manuals, or specialized tools. The most prominent form of practical know-how is tacit knowledge, practical know-how that usually is not openly expressed or stated and must be acquired in the absence of direct instruction. Frequently, tacit knowledge is further classified by its focus (i.e., how to handle oneself, others, and one's task), but measures addressing these different foci usually load onto a common factor.

Practical mathematics refers to *street mathematics*, that is, mathematical calculations undertaken in everyday life that differ from the abstract mathematics formally taught in schools and that are oftentimes conducted in forms of mental shortcuts, such as when searching for the *best buys* in supermarkets or filling orders of different quantities with minimal waste.

Practical planning refers to how people organize their everyday activities and reorganize when something goes wrong. Thus although everyone will have a routine of getting up in the mornings and getting

ready to work, the effectiveness of different strategies used to react to problems, such as a failed alarm clock, may differ.

Practical presupposition refers to concept learning in everyday situations that allows individuals to discover regularities in their environment, such as general ideas about the likely preferences, decisions, and actions of individuals from different groups.

Social judgment can also be treated as an aspect of practical intelligence. Given the social nature of our lives, practical intelligence may be reflected in the attainment of transactional goals and in the individuals' adaptation to their social environments, that is, their success at meeting the requirements of diverse social roles.

Prototypes of practical intelligence refers to a conceptualization introduced by Ulric Neisser, who argued that it was not possible to define intelligence as any one thing. Instead, he suggested defining practical intelligence as the extent to which an individual resembles a prototypical person who would be an ideal exemplar of the target concept.

RESEARCH AND MEASUREMENT

Given the somewhat idiosyncratic nature of practical intelligence, much research has been done in the form of case studies showing how practically intelligent individuals improvise to complete their task by adapting whatever resources are at hand (practical know-how); handle problems arising in their daily routines (practical planning); or solve mathematical problems easily when undertaken in a context with which they are familiar (demanding the right amount of money when selling a certain number of coconuts, each of which costs a certain amount) but not, however, when presented with the same problem in an abstract form, such as "How much is 4 times 35?"

Some of these approaches have also made use of John Flanagan's critical incident technique (CIT), which allows the identification of the strategies that individuals actually use when performing specific tasks and the specific, situationally relevant aspects of this behavior. A frequent measurement approach, however, uses simulations (sometimes based on CITs). These simulations can exhibit high fidelity, that is, they try to replicate the represented situation as realistically as possible and require individuals to respond as if they were in the actual situation, such as

assessment centers, group discussions, and to a certain degree in-basket tests. Yet most prominent, particularly for the assessment of tacit knowledge, are low-fidelity simulations that present a situation to individuals orally or in writing. Individuals have to either describe how they would react in the situation, as in situational interviews, or rate the quality of diverse possible reactions, including situational judgment tests. A special kind of situational judgment test frequently used to assess tacit knowledge is the tacit knowledge inventory; these tests have been developed for management, sales, military leadership, college studies, and academic psychology. These inventories usually use longer and more elaborate scenario descriptions than most situational judgment tests. They are scored by giving points for answers that were more common among experts than novices, by judging the degree to which participants' responses conform to professional rules of thumb, or by computing the (oftentimes squared) difference between participants' responses and an expert prototype. Finally, practical intelligence, particularly involving practical presuppositions, has been tested in the laboratory, such as by giving individuals descriptions of a person (e.g., a father of four versus a student) and a target (e.g., a car with specific features) that was congruent, irrelevant, or incongruent to the person. Participants should indicate how much the person would like the target. In another study children performed considerably worse at predicting the movement of geometric forms on a computer screen with the help of a cursor than when the same algorithm was used in a computer game in which the geometric forms were birds, bees, and butterflies and the cursor a net.

CONCERNS AND DIRECTIONS FOR FUTURE RESEARCH

The concept of practical intelligence has not gone unchallenged. Although some proponents of practical intelligence argue that practical intelligence is different from and superior to *g*, some authors, such as L. S. Gottfredson and colleagues in 2003, conceptually and empirically discredit this argument on the basis that practical intelligence and *g* correlate, and it appears that practical intelligence demonstrates incremental validity above *g* only for tasks that are both simple and well learned—conditions under which the influence of *g* is reduced, anyway.

Consequently, other authors have argued that practical intelligence is nothing else but job knowledge. Finally, research by M. A. McDaniel and colleagues on situational judgment tests suggests that what is measured in practical intelligence may be a function of *g*, job knowledge, and different personality factors such as emotional stability, agreeableness, and conscientiousness.

Besides further analysis of the nomological network of practical intelligence, the use of practical intelligence in personnel selection merits further research. Although practical intelligence tests may have little incremental validity over and above cognitive ability tests, their obvious task-relatedness may increase their face validity to applicants; hence their acceptance.

—Ute-Christine Klehe

See also Assessment Center; Cognitive Abilities; Critical Incident Technique; Job Knowledge Testing; Situational Approach to Leadership

FURTHER READING

- Gottfredson, L. S. (2003). Dissecting practical intelligence theory: Its claims and evidence. *Intelligence*, 31(4), 343–397.
- McDaniel, M. A., Morgeson, F. P., Finnegan, E. B., Campion, M. A., & Braverman, E. P. (2001). Predicting job performance using situational judgment tests: A clarification of the literature. *Journal of Applied Psychology*, 80(4), 730–740.
- Neisser, U. (1976). General, academic, and artificial intelligence. In L. B. Resnick (Ed.), *The nature of intelligence*. Hillsdale, NJ: Lawrence Erlbaum.
- Schmidt, F. L., & Hunter, J. E. (1993). Tacit knowledge, practical intelligence, general mental ability, and job knowledge. *Current Directions in Psychological Science*, 2, 8–9.
- Sternberg, R. J., Forsythe, G. B., Hedlund, J., Horvath, J. A., Wagner, R. K., Williams, W. M., et al. (2000). *Practical intelligence in everyday life*. New York: Cambridge University Press.
- Wagner, R. K. (2000). Practical intelligence. In R. J. Sternberg (Ed.), *Handbook of intelligence* (pp. 380–395). New York: Cambridge University Press.

PREJUDICE

See STEREOTYPING

PRESCREENING ASSESSMENT METHODS FOR PERSONNEL SELECTION

Given that most organizations have many more job applicants than they have job openings, employers must be able to quickly and efficiently screen out those applicants who not only fail to meet the minimum qualifications but are also unlikely to be successful on the job if hired. Prescreening assessment methods provide cost-effective ways of selecting out those applicants who are unlikely to be successful if hired. Thus, these methods take a different approach from the more detailed and involved personnel selection methods that focus on identifying the most highly qualified candidates.

Prescreening assessment methods, also referred to as *initial screenings*, *preemployment inquiries*, or *background evaluations*, encompass a wide range of popular procedures used at the beginning stages of the personnel selection process. Common prescreening assessment methods include application forms, résumés, weighted application blanks (WABs), training and experience evaluations (T&Es), reference checks, letters of recommendation, honesty and integrity testing, and drug testing. An underlying rationale across prescreening assessment methods is that past behavior is the best predictor of future behavior. Thus the assumption is that if applicants have done it in the past, they are likely to repeat it in the future. These behaviors can range from negative or deviant behaviors, such as engaging in illegal drug use or stealing from former employers, to prosocial or positive behaviors, such as taking on leadership roles or assisting coworkers with assignments before being asked.

PRESCREENING ASSESSMENT METHODS

U.S. employers screen more than 1 billion résumés and applications each year. Unfortunately, most organizations fail to employ systematic procedures to evaluate the information obtained from résumés and applications, negating much of the usefulness of these prescreening methods. However, sophisticated practitioners have developed several procedures, including T&Es and WABs, to systematically evaluate and

weight the various background information provided on application blanks. Because these weights are optimal for a given applicant pool, however, they must be cross validated on a new sample to ensure that they will still be effective when used with future job applicants. Weighted application blanks and T&Es have demonstrated modest relationships with later job performance and thus show some promise as efficient and effective prescreening tools, particularly when the job involves long and costly training, there is high job turnover, and the initial applicant pool is very large. More detailed methods of assessing background information, such as biographical questionnaires, however, typically go beyond mere prescreening. Thus they would be classified as substantive personnel selection, because their primary goal would then become to select the best qualified candidates into the organization, rather than selecting out the weakest candidates, which is typically done with WABs and T&Es.

Reference checks and letters of recommendation are also sometimes used as prescreening devices. Such evaluations typically cover employment and educational history, the personality or character of the applicant, and statements regarding job performance abilities. However, they can be expensive to use in the early stages of the personnel selection process when there are still many more applicants than job openings. Letters of recommendation tend to suffer from leniency bias because applicants predictably choose letter writers who provide a positive evaluation. Some researchers have suggested that letters of recommendation actually tell you more about the letter writer than the applicant. In addition, there is little evidence that they are predictive of later job performance. Checking references of past employers is essential for many jobs, if only to verify the validity of past employment claims. Unfortunately, past employers are often reticent to provide additional evaluative information for fear of an accusation of defamation of character. Nevertheless, prospective employers can be sued for negligent hiring if they knowingly (or unknowingly) select a job applicant who later engages in illegal or inappropriate behavior at work. As a result, many organizations will at least attempt to contact previous employers and others who know the job applicant to verify information provided or clarify inconsistencies in the application materials.

Billions of dollars are lost each year in the retail industry because of employee theft. In addition, scores of employees are injured at work or endanger

the public and their coworkers because of illegal drug use. Thus honesty and integrity tests and drug tests are often used as prescreening assessment methods to screen out applicants who are likely to either steal from the organization or engage in illicit drug use. Honesty tests typically take one of two forms. Overt honesty tests assess applicants' attitudes toward theft and admissions of theft. Alternatively, personality based honesty tests evaluate counterproductive work behavior in general, of which theft is just one part. As a result, overt integrity measures are typically clear purpose tests; applicants administered personality based integrity measures, however, rarely know what the test is assessing. Although use of overt integrity measures may increase perceptions of invasion of privacy, such concerns may be diminished by the greater face validity of these measures. Although both forms of honesty tests have shown some promise in predicting future job performance, their effectiveness in reducing inventory loss is still largely unknown.

Meanwhile, most research on the effectiveness of drug testing has focused on the accuracy of the tests themselves (i.e., reducing false positive or false negative test results) or applicants' reactions to issues of invasion of privacy and procedural justice (i.e., applicants' perceptions of how the drug testing is implemented), rather than how well the tests predict job performance or reduce job-related accidents, illnesses, or sick time. As a result, the effectiveness of drug screening procedures to improve workplace performance or reduce illicit drug use among those employees who are eventually hired is still unclear.

Reducing Misinformation

Because most of the information provided on preemployment screening methods is self-report (i.e., provided directly by the job applicants themselves), embellishment, if not outright falsification, of information is common. Thus employers must take steps to make sure that the information provided by applicants is as accurate as possible. How can they best achieve this? One option is to have applicants sign a statement that all the information they provide is accurate to the best of their knowledge and that knowingly providing false information will immediately eliminate them from further consideration for the job. Additionally, using reference and background checks (as discussed earlier) can also help to verify information by providing others' assessments, in addition to the job

applicant's own assessment. The extent to which the organization requests verifiable and objective information, such as degrees earned or GPA, versus unverifiable and subjective information, including how an applicant felt about the college experience, can also reduce falsification of self-reported application information. Sometimes just the written or oral threat that the organization will follow up on the information provided in the application materials is enough to significantly reduce falsifications and embellishments. Some employers have even gone so far as to include *lie scales* in their weighted application blanks and training and experience evaluations. Such scales typically include bogus job skills or experiences that would identify the applicant as lying if they report having that bogus skill or experience.

Legal Issues

Even though prescreening assessment methods focus more on selecting out the poorly qualified candidates, as opposed selecting in the best candidates, they are still required to meet state and federal fair employment guidelines and laws. As a result, development and use of any prescreening assessment method should follow established professional guidelines, such as the *Uniform Guidelines on Employee Selection Procedures* and the *Principles for the Validation and Use of Personnel Selection Procedures*. This would typically entail conducting a job analysis and a study to determine the validity of using certain prescreening methods for a given job. The validity of a prescreening measure will rely not only on the type of information gathered but also on the scoring method used to examine that information. Researchers have determined, for example, that the validity of T&Es can vary widely based on the scoring procedure used. Further, given the job-specific nature of many prescreening measures, it is possible that the composition and validity of these measures may be less generalizable across jobs or organizations than selection methods such as structured interviews or cognitive ability tests. These unique characteristics of prescreening measures further reinforce the need for conducting thorough validation studies prior to implementation.

Failure to follow recommended validation procedures will make it difficult to defend the use of any prescreening assessment procedure that is challenged in a court of law as being discriminatory. Thus employers must determine if their prescreening

devices result in adverse impact, for example, whether some protected groups are hired at a significantly lower rate than other groups because of use of a given prescreening procedure. In addition, employers should determine whether a given procedure is predictive of success on the job, can be justified as needed for business necessity, or results in an invasion of privacy. Only in doing so will employers be on solid legal footing when the need to justify and defend their use of a given prescreening assessment method is challenged in court. Unfortunately, most studies of organizational application forms find that most employers, both private and public, continue to include some illegal or inappropriate items in their prescreening measures. Among the most frequently assessed inappropriate items are inquiries into gender, race, age, disability, marital status, and arrest record.

Although receiving less research attention than other personnel selection measures, prescreening assessment methods continue to be popular because of their ease of administration, widespread acceptability by applicants, and utility for eliminating unqualified applicants. In an age in which organizations can successfully and cost-effectively boost the size of their applicant pools through use of Internet-based recruitment and application procedures, the use of prescreening selection tools may become increasingly necessary. Hence, additional research and continued monitoring of the legality, validity, and practical utility of using prescreening assessment methods is clearly warranted given both their current prominence and future potential to advance the overall selection process.

—Kenneth S. Shultz and David J. Whitney

See also Biographical Data; Employee Selection; Employment Interview; Integrity Testing; Letters of Recommendation; Selection Strategies; Uniform Guidelines on Employee Selection Procedures

FURTHER READING

- Berry, L. M. (2003). Applications and other personal history assessments. In *Employee selection* (pp. 254–287). Belmont, CA: Wadsworth/Thomson Learning.
- Cascio, W. F., & Aguinis, H. (2005). Initial screening. In *Applied psychology in human resource management* (6th ed., pp. 277–307). Upper Saddle River, NJ: Prentice Hall.
- Gatewood, R. D., & Feild, H. S. (2001). Application forms, training and experience evaluations, and reference checks. In *Human resource selection* (5th ed.,

pp. 407–470). Fort Worth, TX: Harcourt College Publishing.

Heneman, H. G., III, & Judge, T. A. (2006). External Selection I. In *Staffing organizations* (5th ed.). Boston: Irwin McGraw-Hill.

PROFIT SHARING

See GAINSHARING AND PROFIT SHARING

PROGRAM EVALUATION

Historically, program evaluation has been used as a tool for assessing the merits of educational and governmental programs, where public funding demands a demonstration of accountability. The basic tenet underlying program evaluation that makes it so useful in this context is its reliance on methods that integrate science and practice to produce reliable and actionable information for decision makers. During the past decade, program evaluation has also become increasingly recognized as a useful tool for helping for-profit organizations implement and enhance human resource (HR) programs to achieve key business outcomes. Successful companies understand that survival and growth in the marketplace cannot occur without programs that are designed to improve competitive performance and productivity, engage employees in the organization's mission, and create an environment where people want to work. Recognizing the impact that HR programs have on employees and the company's bottom line, organizations need practical tools to accurately and efficiently evaluate program quality, so they can take the necessary actions to either improve or replace them.

The field of program evaluation is based on the commonsense notion that programs should produce demonstrable benefits. Evaluation is a discipline of study that concentrates on determining the value or merit of an object. The term *program* in this article refers to the object of the evaluation and includes such organizational functions as recruitment and staffing, compensation, performance management, succession planning, training, team building, organizational communications, and health and work–life balance.

Evaluations can help organizations identify how a program can be improved on an ongoing basis or

examine its overall worth. The first approach, called *formative evaluation*, is usually conducted while the program is being formed or implemented and will generally lead to recommendations that focus on program adjustments. The specific findings might be used to identify program challenges and opportunities and provide strategies for continuous improvement. Formative evaluations seek to improve efficiency and ensure that the program is responsive to changing organizational needs.

An evaluation that is conducted to examine a program's overall worth is called a *summative evaluation* and will generally be performed when an organization is attempting to determine if the program should be replaced, rather than modified. This approach focuses on the program's outcomes and their value to the organization. The specific findings are used to address accountability or the overall merits of the program. Some decisions to replace a program or major parts of the program are easy because of major program deficiencies. However, most such decisions will be more difficult because of the need to weigh multiple strengths and weakness of the program as well as other considerations such as resource constraints such as budget, staff, and time.

A SIX-PHASE APPROACH TO PROGRAM EVALUATION

There are a variety of approaches for conducting an evaluation, but most proceed through a similar sequence of steps and decision points. We have grouped these steps and decision points into a six-phase approach for executing a successful evaluation:

1. Identifying stakeholders, evaluators, and evaluation questions
2. Planning the evaluation
3. Collecting data
4. Analyzing and interpreting the data
5. Communicating findings and insights
6. Using the results

Although other approaches and actual HR program evaluations may over- or underemphasize some steps within these phases or accomplish a step in an earlier or later phase, any evaluation will need to address the activities covered within each of the six phases.

Deviations from these six phases may be related to the nature of the specific HR program being evaluated, characteristics of the organization, composition of the evaluation team, or a variety of resource considerations.

Phase 1: Identify Stakeholders, Evaluators, and Evaluation Questions

Phase 1 requires three major sets of decisions that will have implications throughout the HR program evaluation. The identification of stakeholders is a critical first step toward ensuring that the evaluation is appropriately structured and that the results will be relevant. Stakeholders are those individuals with a direct interest in the program, because either they depend on or are directly involved in its execution in some way. An organization's leaders, the HR and legal departments, as well as other internal groups are often important stakeholders in an HR program evaluation. External stakeholders such as stockholders and customers might also need to be considered because of their potential investment in the targeted program. Accounting for stakeholders' different perspectives from the start of a program evaluation can bring two important benefits: increased buy-in to the process and decreased resistance to change. Sometimes representative groups of stakeholders also serve on an advisory panel to the evaluation team to provide guidance throughout the process and assist with needed resources.

Another decision to be made in phase 1 involves identifying the evaluators. Although a single evaluator can conduct evaluations, we and other professionals generally recommend that a team be formed to plan and execute the evaluation process. A team approach speeds up the process and increases the likelihood that the right combination of skills is present to generate valid findings and recommendations. Using a single evaluator may limit the choice of evaluation methods to those that feel most comfortable, rather than identifying the most appropriate methods. Also, more than one explanation can often be given for a finding, and the ability to see patterns and alternative interpretations is enhanced when a team conducts an evaluation.

Identifying evaluation questions constitutes a third type of critical decision made in phase 1. An essential ingredient to valid findings and recommendations is identifying well-focused, answerable questions at the beginning of the project that address the needs of the stakeholders. The way the evaluation questions are posed has implications for the kinds and sources of

data to be collected, data analyses, and the conclusions that can be drawn. Therefore, the evaluation team must arrive at evaluation questions that not only address the needs of the stakeholders but that are also answerable within the organizational constraints that the team will face.

In many cases, stakeholder groups, evaluators, and evaluation questions will be obvious based on the nature of the HR program and the events that led to its evaluation. Any number of events can precipitate a decision to conduct an HR program evaluation. These events can vary from a regularly scheduled review of a program that appears to be working properly, such as a review of the HR information system every three years, to the need for a program to be certified, which could be a safety inspection in a nuclear power plant, to a major revamping of a program caused by a significant or high-visibility event such as a publicized gender discrimination case.

Phase 2: Plan the Evaluation

Phase 2 focuses on designing the HR program evaluation, developing a budget, and constructing the timeline to accomplish the steps throughout the next four phases of the evaluation. A good evaluation design enhances the credibility of findings and recommendations by incorporating a sound methodological approach, minimizing time and resource requirements, and ensuring stakeholder buy-in. A well-executed evaluation requires a good deal of front-end planning to ensure that the factors likely to affect the quality of the results can be addressed. Failure to spend the time necessary to fully plan the evaluation can result in a good deal of rework, missed milestones, unmet expectations, and other problems that make findings and recommendations difficult to sell to upper management and other stakeholders.

An often-overlooked aspect of the planning phase is the need to develop a realistic budget that is reviewed and approved by the sponsors of the evaluation. The evaluation team's budget should include, among other things, staffing, travel, special equipment, and space requirements. The extent of the evaluation plan will depend on the size and scope of the HR program being evaluated and the methods used in the analysis. The goal is to obtain credible answers to the evaluation questions through sound methodology and by using only those organizational resources that are absolutely required.

Phase 3: Collect Data

In most HR program evaluations, data collection will require more time than any other phase. The credibility of the evaluation's conclusions and recommendations rests largely with the quality of the data assembled, so a good deal of attention needs to be paid to *getting it right*. It is critical that this phase be carefully planned so that the data adequately answer the evaluation questions and provide the evidence needed to support decisions regarding the targeted program.

The tasks performed for this phase are concentrated on four primary sets of overlapping activities, which include

- ensuring that the proper data collection methods have been selected to properly evaluate the HR program,
- using data collection strategies that take into account organizational resource limitations,
- establishing quality control measures, and
- building efficiency into the data collection process.

A program evaluation will only be as good as the data used to evaluate its effectiveness. The ultimate goal is to deliver the most useful and accurate information to key stakeholders in the most cost-effective and realistic manner.

In general, it is wise to use multiple methods of data collection to ensure the accuracy, consistency, and quality of results. Specifically, a combination of quantitative methods such as surveys and qualitative methods such as interviews will typically result in a richer understanding of the program and more confidence in the accuracy of the results.

Phase 4: Analyze and Interpret Data

Statistical data analyses and interpretation of the results are an integral part of most HR evaluation programs. The evaluation plan and goals should dictate the types of statistical analyses to be used in interpreting the data. Many evaluation questions can be answered through the use of simple descriptive statistics, such as frequency distributions, means and medians, and cross-tabulations. Other questions may require more sophisticated analyses that highlight trends and surface important subtleties in the data. The use of advanced statistical techniques may require specialized professional knowledge unavailable among the evaluation team members. If so, the team may need to obtain outside assistance. The evaluation team is ultimately

responsible for using statistical procedures that will generate practically meaningful interpretations and address the evaluation questions.

Simpler is often better in choosing statistical procedures because the evaluation team must be able to explain the procedures, assumptions, and findings to key stakeholders who are likely to be less methodologically sophisticated than the team members. The inability to explain and defend the procedures used to generate findings—particularly those that might disagree with a key stakeholder's perspective—could lead to concerns about those findings, as well as the total program evaluation effort.

Phase 5: Communicate Findings and Insights

Phase 5 focuses on strategies for ensuring that evaluation results are meaningfully communicated. With all the information produced by an evaluation, the evaluation team must differentiate what is essential to communicate from what is simply interesting and identify the most effective medium for disseminating information to each stakeholder group. Regardless of the group, the information must be conveyed in a way that engenders ownership of the results and motivation to act on the findings.

Each stakeholder group will likely have its own set of questions and criteria for judging program effectiveness. As such, the evaluation team needs to engage these groups in discussions about how and when to best communicate the progress and findings of the evaluation. Gaining a commitment to an ongoing dialogue with stakeholders increases ownership of and motivation to act on what is learned. Nurturing this relationship throughout the project helps the evaluation team make timely and appropriate refinements to the evaluation design, questions, methods, and data interpretations.

The extent and nature of these information exchanges should be established during the planning phase of the evaluation (i.e., phase 2). Thereafter, the agreed-on communication plan, with timelines and milestones, should be followed throughout the evaluation.

Phase 6: Use the Results

In reviewing the literature on program evaluation, the chief criticism that emerges is that evaluation reports frequently go unread and findings are rarely used. Although credible findings should be enough

to drive actions, this is rarely a sufficient condition. Putting knowledge to use is probably the most important yet intransigent challenge facing program evaluators. Furthermore, the literature on both program evaluation and organizational development indicates that planned interventions and change within an organization are likely to be met with resistance. The nature and source of this resistance will depend on the program, stakeholders involved, and culture of the organization. By understanding that resistance to change is a natural state for individuals and organizations, the program evaluation team can better anticipate and address this challenge to the use of program evaluation results.

Decisions about whether to implement recommendations (e.g., to adjust, replace, or drop an HR program) will be driven by various considerations. Ideally, the nature of the stakeholder questions and the resulting findings heavily influence how recommendations are formulated. In addition, the evaluation approach, such as formative versus summative, will influence which recommendations are implemented. A primary consideration in the adjust–replace–drop decision is cost. In most cases, the short-term costs will probably favor modification of the existing program, and the long-term costs will probably favor replacement. It should be noted that replacing an HR program is almost always more disruptive than adjusting an existing system. In these situations it is not uncommon for program staff members, users, and other key stakeholders to take a short-term perspective and prefer work-arounds and other program inefficiencies instead of the uncertainty that comes with a replacement program.

The Joint Committee on Standards for Educational Evaluation (founded by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education in 1975) published a set of standards organized around the major tasks conducted in a program evaluation. Anyone embarking on a program evaluation would benefit from a review of these standards. Other useful readings on the subject are listed in the reference section.

—John C. Scott, Nambury S. Raju, and Jack E. Edwards

AUTHOR'S NOTE: The opinions expressed in this entry are those of the authors and do not necessarily reflect the views of the U.S. Government Accountability Office—of which the third author is an employee—or the federal government.

See also Compensation; Organizational Communication, Formal; Organizational Communication, Informal; Recruitment; Succession Planning; Team Building; Training; Work–Life Balance

FURTHER READING

- Davidson, E. J. (2004). *Evaluation methodology basics: The nuts and bolts of sound evaluation*. Thousand Oaks, CA: Sage.
- Edwards, J. E., Scott, J. C., & Raju, N. S. (Eds.). (2003). *The human resources program-evaluation handbook*. Thousand Oaks, CA: Sage.
- Joint Committee on Standards for Educational Evaluation. (1994). *The program evaluation standards: How to assess evaluations of educational programs* (2nd ed.). Thousand Oaks, CA: Sage.
- Morris, L. L., Fitz-Gibbon, C. T., & Freeman, M. E. (1987). *How to communicate evaluation findings*. Beverly Hills, CA: Sage.
- National Science Foundation. (1993). *User-friendly handbook for project evaluation: Science, mathematics, engineering and technology education* (NSF 93-152). Arlington, VA: Author.
- Patton, M. Q. (1996). *Utilization-focused evaluation* (3rd ed.). Thousand Oaks, CA: Sage.
- Rose, D. S., & Davidson, E. J. (2003). Overview of program evaluation. In J. E. Edwards, J. C. Scott, & N. S. Raju (Eds.), *The human resources program-evaluation handbook* (pp. 3–26). Thousand Oaks, CA: Sage.
- Rossi, P. H., & Freeman, H. E. (1993). *Evaluation: A systematic approach* (5th ed.). Newbury Park, CA: Sage.
- Scriven, M. (1991). *Evaluation thesaurus* (4th ed.). Beverly Hills, CA: Sage.
- Wholey, J. S., Hatry, H. P., & Newcomer, K. E. (Eds.). (1994). *Handbook of practical program evaluation*. San Francisco: Jossey-Bass.

PROJECT A

Project A was the name applied by the U.S. Army to its contribution to the Joint-Service Job Performance Measurement/Enlistment Standards (JPM) Project sponsored by the Department of Defense (DoD) in 1982. Lasting until 1989, Project A—which now also comprises the follow-on Career Force project (examining performance during soldiers' second tours of duty and spanning 1990–1994)—is arguably the largest selection and classification project ever conducted. Results from Project A continue to shape the way the Army selects, assigns, trains, and promotes its

soldiers. Project A data remain a rich storehouse of information about individual differences and job performance. Project results and data have also had an impact on the field of industrial/organization (I/O) psychology at large, having sparked theoretical developments regarding models of job performance (contextual performance, determinants of relevant variance), a resurgence in interest regarding personality tests as selection tools, and development of models for setting recruit enlistment standards.

THE JOINT-SERVICE JOB PERFORMANCE MEASUREMENT/ ENLISTMENT STANDARDS PROJECT

The JPM Project was a congressionally mandated multimillion-dollar effort that spanned 1982 to 1994. The impetus for JPM was the discovery of a scoring error that inflated the scores of lower-aptitude recruits on the Armed Services Vocational Aptitude Battery (ASVAB). This miscalibration of ASVAB scores led to the enlistment of approximately 250,000 individuals who otherwise would not have qualified for entrance, and increased congressional concerns about recruit quality.

In response to the miscalibration, the DoD initiated the JPM Project. A primary goal of JPM was to determine if *hands-on* job performance could be measured. If so, the DoD could set enlistment standards on the basis of that job performance information. Previous standards were tied to training success rather than job performance, and the ASVAB was validated against training performance but not against performance on the job in the field.

The DoD encouraged each branch of the armed forces to conduct its own research for JPM. The U.S. Army Research Institute (ARI) sponsored the Army's effort. The Army's approach was ambitious, expanding the predictor and criterion domains by developing new entry-level selection and performance measures. The selection project was named *Project A* to distinguish it from the classification research effort *Project B*.

STUDY DESIGN

Project A included both concurrent and longitudinal validation samples. The concurrent validation (CV) cohort included soldiers who enlisted during the 1983 and 1984 fiscal years. These soldiers completed the new selection and performance measures at the same

time, approximately two years into their first tours of duty (CVI sample). Those soldiers who reenlisted were eligible to complete measures of second-tour (supervisory) performance (CVII sample). Soldiers in the longitudinal validation (LV) cohort enlisted during the 1985 and 1986 fiscal years. They received the Experimental Battery during their first two days in the Army (LVP sample), measures of training performance at the end of technical training for their jobs (LVT sample), and measures of job performance once in their units approximately two years after enlistment (LVI) and during their second tours (LVII).

The project collected data on soldiers from 21 military occupational specialties (MOS). The full complement of performance measures (written test of job knowledge and hands-on tests, in particular) was developed for 10 of these, which were deemed *Batch A* MOS. They tended to be high-density jobs of central importance to Army functioning such as infantryman, light wheel mechanic, and medical specialist. The other 11 *Batch Z* MOS reflected more specialized, lower-density occupations, including ammunition specialist, utility helicopter repairer, and intelligence analyst; they did not have hands-on measures developed for them.

CRITERION MEASURES

To determine whether ASVAB scores predicted job performance, the Army developed numerous performance measures to serve as criteria for its validation and performance modeling studies. Selection studies are only as meaningful as the criteria used, and Project A addressed the traditional criterion problem head-on. This approach of obtaining multiple measures of multiple job behaviors broke with conventional notions that viewed job performance as unitary, hypothesizing instead that job performance was not a single entity but was instead a complex variable to study.

Two broad categories of criterion content were considered: performance elements that are specific to a particular job (assessed by MOS-specific measures), and performance elements that are relevant to all jobs (assessed by Army-wide measures). Criteria were also categorized as *can-do* measures (assessing how well soldiers are able to perform) and *will-do* measures (assessing how well soldiers typically perform from day to day). The criteria included written tests of MOS-specific job knowledge, hands-on performance tests (also known as *work samples*), various anchored

rating scales (MOS-specific performance for Batch A and performance on Army-wide dimensions for all MOS), and data from administrative files such as letters of commendation and counseling statements.

PREDICTOR MEASURES

In addition to evaluating whether ASVAB scores predicted job performance, the Project A research team investigated the degree to which measures of other individual differences could increase the predictive power of this test battery. Measures of spatial ability, perceptual speed and accuracy, psychomotor ability, temperament, vocational interests, and work values—collectively denoted the Trial Battery (CV sample) and Experimental Battery (LV sample)—were developed, administered to thousands of soldiers, and correlated with the various criterion measures. Results were obtained for the Army as a whole and by subgroups of interest (MOS, race/ethnicity, gender).

MAJOR FINDINGS

Results from Project A research and their implications for personnel psychology have filled journals and books. Nevertheless, some of the major findings from the project include the following:

- ASVAB is a valid predictor of performance across Army jobs and across subgroups (race and ethnicity, gender). Soldiers with higher aptitude perform better than lower-aptitude soldiers on many types of performance measures.
- Measures of other ability constructs such as spatial ability, perceptual speed or accuracy, and psychomotor ability also predict performance across jobs but provide little incremental validity to the ASVAB.
- Performance is not unidimensional but is instead a complex multidimensional construct.
- ASVAB scores predict maximal performance (can-do criteria) better than they predict typical performance (will-do criteria).
- Measures of noncognitive constructs, such as temperament, collected under research conditions predict will-do criteria better than ASVAB, and they provide substantial incremental validity to ASVAB.
- Criterion-related validity of ASVAB scores assessed longitudinally was very similar for first- (LVI) and second-tour (LVII) soldiers. Noncognitive measures, however, tended to show declining correlations over time.

- The elements of performance are similar as the soldier gains experience, but leadership emerges as a performance element in the second tour.
- First-tour performance provides more incremental validity than ASVAB when predicting leadership and effort during the second tour, but it provides less incremental validity for can-do performance criteria.

—Rodney A. McCloy

See also Job Performance Models; Selection Strategies; Validation Strategies; Work Samples

FURTHER READING

- Campbell, J. P., & Knapp, D. J. (Eds.). *Exploring the limits in personnel selection and classification*. Mahwah, NJ: Lawrence Erlbaum.
- Project A: The U.S. Army selection and classification project. (1990). *Personnel Psychology*, 43(2), 231–378.
- Zook, L. M. (1996). *Soldier selection: Past, present, and future*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

PROTESTANT WORK ETHIC

The notion of the *Protestant work ethic* has its roots in Max Weber's *The Protestant Ethic and the Spirit of Capitalism*, in which he espoused the idea that the success of capitalism and economic growth throughout Western Europe and North America was partly the consequence of Puritanical values such as a calling to one's work and frugality with one's resources. Today, psychologists use the term *Protestant work ethic* (PWE) to refer to the extent to which individuals place work at the center of their existences, abhor idleness, and value accomplishment. Although there are several measures of the PWE, the most commonly used measure asks respondents the extent to which they agree or disagree (typically using a 1–7 response range) with statements such as the following: "The credit card is a ticket to careless spending," "Most people who do not succeed in life are just plain lazy," and "Our society would have fewer problems if people had less leisure time."

The psychological study of the PWE has centered on two primary questions:

1. What are the antecedents of PWE endorsement?
2. What are the consequences of PWE endorsement?

Research has tended to focus more on the second of these two questions, the one more likely to be of interest to an industrial/organizational (I/O) psychologist. But before examining the consequences of PWE endorsement, we briefly examine its antecedents.

ANTECEDENTS OF PWE ENDORSEMENT

Endorsement of the PWE is related to a general conservative ideology. Indeed, one consistent research finding is that PWE endorsement in the United States is positively correlated with extent of identification with the Republican Party. In addition, PWE endorsement is related to values such as accomplishment, salvation, obedience, and self-control. However, PWE endorsement is distinct from other forms of conservatism. For example, social dominance orientation is the belief in a societal hierarchy of groups based on some group-level characteristic such as ethnic background. Right-wing authoritarianism consists of displaying high degrees of deference to established authority, acting aggressively toward societal outgroups when authorities permit such aggression, and supporting traditional values when authorities endorse those values. The PWE is related more to the notions of ambition, delay of gratification, and equitable distribution of rewards. Thus although PWE endorsement has its roots in conservative ideology, it is distinct from general conservative orientation and other forms of conservatism.

CONSEQUENCES OF PWE ENDORSEMENT

It has been reported that hiring managers placed more emphasis on a potential employee's attitude toward work than aptitude for work, and that job interviews are in part intended to gain a sense of a candidate's attitude toward work. In another survey more than half of those managers queried believed that people's attitudes toward their work were more important than even native intelligence! Thus a number of studies have investigated the relationship between PWE endorsement (as a proxy for work attitudes) and work-related variables. In large part, these studies tend to buttress the importance of one's attitude toward work. For example, several studies indicate that PWE endorsement is positively correlated with work motivation, job-growth satisfaction, job involvement, organizational commitment, organizational citizenship behaviors, persistence in a task, and conscientiousness.

In addition to beneficial work-related outcomes, several studies have indicated that PWE endorsement is positively related to psychological well-being across different operationalizations of psychological well-being. However, two cautions of this replicated result are warranted. First, it is less clear if this finding is applicable to individuals in non-Western cultures. Second and related, there is minimal evidence for why PWE endorsement is positively correlated with psychological health. It may be that because hard work is a traditional Western and certainly American value, adhering to the pervasive cultural norm is the *third variable* responsible for this finding. Evidence for this contention comes from one study in which it was found that among overweight women, PWE endorsement was predictive of lower levels of psychological health, presumably because being overweight carries with it a stigma of being lazy. Thus although PWE endorsement has been found to be predictive of greater psychological health, there appear to be certain boundaries on this result. Employees who endorse the PWE, but are not performing up to their own or their supervisor's standards, may be at risk for reduced levels of psychological well-being.

It is also important to note that PWE endorsement also appears to be related to prejudice against groups of people who violate the core value of PWE endorsement, that is, hard work. Indeed, if an employee who strongly endorses the PWE is working with fellow employees who are not *pulling their weight*, we might expect major impediments in such professional relationships. Likewise, for supervisors with strong PWE orientations, it might be particularly irksome to perceive that some employees are not offering their best efforts in the workplace. Even if the work itself is at least satisfactory, PWE-oriented supervisors may be biased against such employees in terms of performance appraisals and the distributions of other rewards.

WHAT DO WE NEED TO KNOW ABOUT PWE ENDORSEMENT?

Much like the constructs of *intelligence* and *extraversion*, there is wide interindividual variation in PWE endorsement. Interestingly, research strongly suggests physiological differences in why some individuals are more intelligent or more extraverted than others. Might there be a physiological disposition for PWE endorsement? The answer to this question might foster research on the PWE from investigators in a variety of disciplines.

Most of this entry is based on research that has tended to treat the PWE as a unifaceted construct. However, as several researchers have demonstrated, existing measures of the PWE construct are in fact multifaceted, much as Max Weber himself conceived of the PWE. In an extensive analysis of the seven existing PWE scales, Adrian Furnham found that they tended to operationalize five different facets of the PWE. Specifically, they tapped into the importance of hard work in one's life, antileisure attitudes, religion and morality, independence from others, and asceticism. Research within personality psychology has found utility in examining smaller, more precise facets of personality as opposed to larger, more general facets of personality. Future research in the PWE arena might benefit from similarly addressing how different facets of PWE endorsement are differentially predictive of the outcomes summarized in this chapter. A relatively new measure of different PWE facets might greatly facilitate such investigations.

—Andrew N. Christopher

See also Work Motivation; Work Values

FURTHER READING

- Christopher, A. N., & Mull, M. S. (2005). *Conservative ideology and ambivalent sexism*. Manuscript submitted for publication.
- Feather, N. T. (1984). Protestant ethic, conservatism, and values. *Journal of Personality and Social Psychology*, 46, 1132–1141.
- Furnham, A. (1990). A content, correlational, and factor analytic study of seven questionnaire measures of the Protestant work ethic. *Human Relations*, 43, 383–399.
- Miller, M. J., Woehr, D. J., & Hudspeth, N. (2002). The meaning and measurement of work ethic: Construction and initial validation of a multidimensional inventory. *Journal of Vocational Behavior*, 60, 451–489.
- Quinn, D. M., & Crocker, J. (1999). When ideology hurts: Effects of belief in the Protestant work ethic and feeling overweight on the psychological well-being of women. *Journal of Personality and Social Psychology*, 77, 402–414.

PSYCHOLOGICAL CONTRACT

A psychological contract is a belief based on commitments expressed or implied, regarding an exchange

agreement between two parties, as commonly used, between an individual and an employer. People typically are motivated to fulfill the commitments they have made to others, consistent with their own understanding of what those commitments entail. In employment, psychological contracts can vary considerably across workers and between firms. They can be as limited to highly economic or transactional terms, such as an hourly wage for a temporary worker who ships packages over the holidays, or as complex and broad as the generous support and mutual investment characteristic of high involvement work. Employers in turn have their own psychological contracts with individual workers.

FEATURES OF THE PSYCHOLOGICAL CONTRACT

The dynamics of the psychological contract are shaped by its defining features.

Voluntariness

Psychological contracts motivate people to fulfill their commitments because they are based on the exchange of promises in which the individual has freely participated. Commitments made voluntarily tend to be kept. A worker who agrees to work for a firm for a set time period is likely to be internally conflicted on receiving an outside offer shortly after being hired. That worker is more likely to decline the offer than a colleague who had made no such commitment to the employer.

Perceived Mutuality

An individual's psychological contract reflects the person's own understanding of the commitments made with another. Individuals act on that subjective understanding as if it were mutual, regardless of whether that is the case in reality.

Incompleteness

At the outset of employment, initial psychological contracts tend to be incomplete and need to be fleshed out over time. Neither worker nor employer can spell out all the details of an employment relationship that will last a period of time. Because of bounded rationality, neither party can recall all relevant details to

be shared with another. Moreover, changing circumstances mean that not all contingencies can be foreseen. As a result, psychological contracts tend to become more elaborate and detailed over the course of the employment relationship.

Multiple Contract Makers

A variety of information sources shape how workers interpret their psychological contract with an employer. Employers are represented by several parties including the top management team; human resource representatives; and in particular, a worker's immediate superior, often the most influential agent in shaping employee psychological contracts. Informal sources such as coworkers can influence how individuals interpret the terms of their psychological contract as well as the extent to which the contract has been fulfilled. Human resource practices such as development programs and performance appraisal systems can signal promised benefits and required contributions. In particular, early experiences with an employer, from recruitment to early socialization and initial assignments to particular bosses and coworkers, can have pervasive effects over time on worker psychological contracts. When contract makers convey different messages, they erode the mutuality of the psychological contract.

Reliance Losses

When a party relies on the psychological contract as a guide to action, losses result if the other party fails to fulfill its anticipated commitments. Losses mean that benefits a party has relied on failed to materialize; and they are the basic reason why psychological contract violation and change generate adverse reactions, including anger, outrage, termination, and withdrawal of support. Efforts that both workers and employer take to manage their psychological contract with the other typically focus on fulfilling commitments as well as on managing losses when existing commitments are difficult to keep. Psychological contracts are a subset of a broader array of beliefs and expectations workers and employers may hold, where expectations that are not promise based are not relied on to the same extent as more general expectations regarding worker and employer behavior. Non-promise-based aspects of employment that workers find satisfying, such as the quality of their workspace or the camaraderie of

colleagues, can eventually be viewed as part of the promised status quo—and generate negative reactions comparable to contract violations.

Automatic Processes

Once a psychological contract is formed, it creates an enduring mental model of the employment relationship. This mental model provides a stable understanding of what to expect in the future and guides efficient action without a lot of need to be refreshed or practiced. Having a psychological contract as a mental model of the employment relationship helps employer and worker function despite having incomplete information regarding the other party's intentions or expectations. Subsequent information tends to be interpreted in light of the preexisting psychological contract. For the most part, this is functional because new performance demands can be incorporated into existing understandings of a person's work role. But when existing psychological contracts are in conflict with new employment conditions, a more elaborate change process is required.

TYPES OF PSYCHOLOGICAL CONTRACTS

Psychological contracts can take many forms depending on the nature of the worker's job, the employer's human resource strategy, and the motives the worker has in contracting with a particular employer. Promises can be very limited in nature, as in the case of the simple economic transaction temporary work entails. Or promises workers and the employer make to each other can involve a host of relational commitments including loyalty and mutual concern. Although the myriad details of a psychological contract can be as unique as each individual, there are general patterns that differentiate how workers and employers behave toward each other.

A relational psychological contract includes such terms as *loyalty*, worker and employer commitment to meeting the needs of the other, and *stability*, an open-ended commitment to the future. Workers with relational contracts are more likely to willingly work overtime, whether paid or not, to help coworkers on the job, and to support organizational changes their employer deems necessary. Although workers with a relational contract are likely to be particularly upset when it is violated, the commitment to their employer created by such contracts often manifests in worker

attempts to seek redress or remedy to maintain the relationship. Failure to remedy the situation typically leads to turnover or, should the employee remain, to reduced contributions and erosion of the employment relationship. Employers with relational contracts absorb more of the risk from economic uncertainties, often protecting workers from economic downturns. An archetypal employer with a relational contract might keep workers employed during severe economic downturns. Employers in turn offer the individual workers they particularly value more relational contracts than they do other workers who contribute less.

A transactional psychological contract includes such terms as *narrow duties* and *limited* or *short-term duration*. Workers with transactional contracts are likely to adhere to its specific terms and seek employment elsewhere when conditions change or when the employer fails to live up to the agreement. Transactional contracts characterize workers whose contributions are less critical to the firm's comparative advantage and employers operating in highly unstable markets such as entertainment and fashion. Both worker and employer are likely to immediately terminate a transactional arrangement that fails to meet their needs. Transaction contracts assign more risk to workers from the economic uncertainties the employer faces because the worker often has fewer alternatives (being less able to seek credit for future services). With transactional contracts workers tend to perform in ways consistent with the contributions they are paid to make. Employers receive a specific level of contribution and incur no future obligations to these workers. Such arrangements work well when workers are individual contributors, whose performance deliverables can be explicitly established and monitored, and where there is little need to coordinate with others. Transactional contracts are less functional when they are a by-product of violation of or poorly managed change in relational contracts where either worker or employer has lost trust in the other, resulting in a warier, arms'-length arrangement.

The emergence of a hybrid (*balanced*) form of psychological contract in recent years combines the open-ended time frame and mutual concern of relational agreements with the performance demands and renegotiation of the transactional contract. Balanced contracts state commitments on the part of the employer to develop and provide career advantage to workers, in the firm as well as in future employability elsewhere if need be, while anticipating flexible

contributions and adjustment to changing economic conditions on the part of workers. Balanced contracts entail shared risk between worker and employer and anticipate renegotiation over time as economic conditions of the firm and worker interests and needs change.

Psychological contracts are related to, yet distinct from, objective conditions of work such as employment status (e.g., full-time, temporary). Part-time workers and newcomers can have highly relational agreements with an employer, and many full-timers and veterans report only limited commitments between themselves and their employer. It is necessary to drill down into the beliefs workers and managers hold and the information sources they rely on (their manager, coworkers, and events they witnessed) rather than relying on general assumptions regarding broad job categories.

Mutuality is important to the effective functioning of an employment relationship. A major feature of a psychological contract is the individual's belief that an agreement is mutual, and a common understanding exists binding the parties involved to a particular course of action. Agreement between worker and employer on what each owes the other is critical to the employment relationship's success from each party's perspective. Psychological contracts are more likely to be kept when the parties agree as to their terms. Creating mutuality is the gold standard in employment relations. When both parties agree on their joint obligations, worker attitudes and job performance are higher than where their beliefs are mismatched. Nonetheless, parties tend to have different perceptions of how well each fulfills their side of the bargain. Employers tend to rate themselves more highly on fulfilling their end of the deal than workers rate their employer. Similarly, workers rate themselves on average as having fulfilled their end of the bargain to a greater degree than their employer has. This pattern conforms to the well-established availability bias, where parties to a relationship are better able to recall their own contributions than they are those of their partners. Biases in perceptions of contributions do create problems in an important aspect of mutuality: agreement on what workers owe the employer in payback for the employer's contributions to them.

Violation where an employer or worker believes that the psychological contract has been willfully breached by the other generates a long list of dysfunctional outcomes. Anger, quitting, and lower

performance, particularly in terms of discretionary contributions such as citizenship behavior, are the more overt manifestations of psychological contract violation. More subtle can be the mistrust, emotional withdrawal, and sabotage that also accompany violation, particularly in circumstances where the violated party continues in the relationship. In such cases erstwhile relational contracts can turn transactional as the aggrieved party monitors each interaction for signs of exploitation or abuse. Although more relationally oriented employment relations may withstand threats to the psychological contract, breaches of significant important or drastic changes that are poorly managed can create a cycle of escalating violation over time. Incidents that fundamentally breach valued conditions of employment can form the basis of contract violation (e.g., where worker health and safety are affected or employers fail to support workers in providing quality care to clients or service to customers). In the aftermath of violation or poorly managed change, the process of restoring trust can require the formation of a new relationship, finding ways for veterans to begin feeling like newcomers to a new relationship.

But by far the most important aspect of the *employer's side* is the role managers play. Managers, both immediate supervisors and higher-ups, play the central role in shaping a worker's psychological contracts. The presence of a supportive immediate manager can serve to amplify or downplay messages sent by the firm's HR practices regarding the nature of the employment relationship. An individual manager's own psychological contract itself influences the contracts that manager in turn creates with workers.

Actions individual workers take can influence their own psychological contracts. First, their career goals

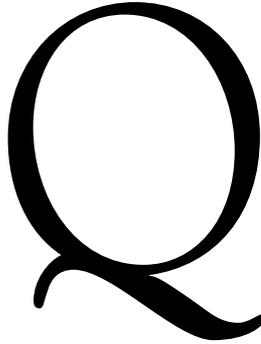
influence the kinds of commitments individuals believe they make to the employer. Second, worker personality plays a role in psychological contracts with more conscientious workers having more relational contracts. Individual workers can negotiate special arrangements with their employer unavailable to their coworkers, resulting in distinct psychological contracts with the employer.

—Denise M. Rousseau

See also Withdrawal Behaviors, Turnover

FURTHER READING

- Dabos, G. E., & Rousseau, D. M. (2004). Mutuality and reciprocity in the psychological contracts of employee and employer. *Journal of Applied Psychology, 89*, 52–72.
- Raja, U., Johns, G., & Ntalianis, F. (in press). The impact of personality on the psychological contract. *Academy of Management Journal*.
- Robinson, S. L., & Morrison, E. W. (1995). Organizational citizenship behavior: A psychological contract perspective. *Journal of Organizational Behavior, 16*, 289–298.
- Robinson, S. L., & Rousseau, D. M. (1994). Violating the psychological contract: Not the exception but the norm. *Journal of Organizational Behavior, 15*, 245–259.
- Rousseau, D. M. (1990). New hire perspectives of their own and their employer's obligations: A study of psychological contracts. *Journal of Organizational Behavior, 11*, 389–400.
- Rousseau, D. M. (1995). *Psychological contracts in organizations: Understanding written and unwritten agreements*. Newbury Park, CA: Sage.
- Simon, H. A. (1997). *Administrative behavior* (4th ed.). New York: Free Press.



QUALITATIVE RESEARCH APPROACH

Qualitative research is an approach to inquiry that refers to a broad umbrella domain of various research traditions and investigative and analytic practices employed by researchers in a wide range of subject disciplines. One way of understanding the variety is to understand qualitative inquiry from the perspective of three broad philosophical paradigms that represent various worldviews composed of values, beliefs, and methodological assumptions and that bring into focus different domains of study. These can be characterized as modernist, interpretive, and postmodern. Practiced from within the modernist paradigm, qualitative inquiry identifies the facts and causes of particular phenomena to test or develop theory in the context of the real world of work; for example, collecting accounts of the circumstances under which people choose to leave their jobs to theorize voluntary turnover. From the perspective of the interpretive paradigm, however, researchers are interested in understanding the relationship between people's subjective reality and their work-related behaviors—that is, what do objects and events mean to people, how do they perceive what happens to them, and how do they adapt their behavior in light of these understandings and perceptions. For example, researchers may explore people's subjective interpretation of competence at work, developing an understanding of how those subjective interpretations affect performance. From the perspective of a postmodern worldview, qualitative inquiry offers the possibility to examine and challenge the realities in which people live and work and the things they take for granted, including the assumptions

of the researcher. For example, researchers may surface implicit gendering reflected in research and theorizing about leadership.

In addition to the variety generated by paradigmatic orientations, qualitative research is also practiced from many different traditions. Within these, research takes a slightly different shape and pursues different outcomes. Consider just a few. For example, researchers doing ethnographic research focus on the detailed examination of social phenomena in a small number of settings; typically, ethnography is carried out in just one social setting. Within that setting the ethnographic researcher simultaneously participates in and observes daily life to learn about its mundane and routine habits of mind and behavior. Action researchers, by comparison, aim to both provide practical advice and acquire knowledge about the dynamics of change in organizations; their research subjects are active participants in the research process. Case study researchers typically gather a variety of data, which can include both qualitative and numerical observations; and they write up a case history of the social systems studied.

Although there is considerable variety in the orientations and traditions of qualitative research, its operational practices are relatively consistent. As a set of operational practices, qualitative inquiry is distinguished by the following conditions in the practice of sampling, the practice of gathering observations, and the practice of analysis. Regardless of data-gathering modes chosen, sampling in qualitative research follows a distinct logic. Generally speaking, qualitative inquiry focuses in depth on relatively small samples that are selected purposefully. The logic and power of purposeful sampling is founded on deliberately searching

out and selecting settings, people, and events that will provide rich and detailed information regarding the research question. For example, a researcher interested in understanding how ethically pioneering decisions are made might seek out research sites where such decisions are common, perhaps a biotechnology firm, and within that setting focus on the decisions surrounding the development and marketing of a new product, perhaps a genetic profiling product, whose ethical implications are unclear. In its selective pursuit of information-rich settings and subjects, purposeful sampling is distinct from probabilistic sampling.

In terms of observation, qualitative inquiry typically takes place in natural settings where researchers are present to the social situations and phenomena they are studying. They focus their attention on ordinary situations, events, and experiences; this access to life at work as it unfolds and as it is experienced by organization members allows researchers to gain an understanding of and theorize everyday realities in the workplace. This is achieved through various data-gathering techniques, which are intensive and time-consuming.

Gathering data through participant observation, researchers enter and become a part of the actual context in which people pursue their work, learning firsthand how they accomplish their work on a daily basis; how they talk, behave, and interact; and how they understand and experience their work. Prolonged engagement with the research site is typical, because researchers often remain present for an annual cycle within the social system they are studying, spending sufficient time there to understand and learn how to conduct themselves according to the norms of the setting. Observations are logged and converted into field notes on a daily basis. Interviews provide another avenue for gaining observations, and these vary in the extent to which they are structured and formalized. For example, interviews can be organized through highly structured and standard interview protocols or semiformal conversation guides; or they can be free-flowing, informal exchanges. Interviews can be one-off events, or subjects can be interviewed multiple times to gain their stable and changing perspectives on events as they unfold. Through interviews, researchers collect people's accounts of their work lives, actions, experiences, perceptions, opinions, and feelings. As a matter of practice, interviews are usually tape-recorded and transcribed verbatim. Documents of

various types, such as e-mails, memos, policy statements, reports, photographs, drawings, and audio and video materials, are also important data sources to understand how work is organized. Within any particular study, researchers often incorporate a number of data-gathering modes to gain a better understanding of the phenomena in which they are interested. For example, although a researcher's primary data-gathering strategy may be participant observation, such as being a participant observer to an organization's product development process, they are also likely interviewing people to gain their perspective on the events observed in, say, a product development meeting, and they may collect any organizational documents relevant to that product's development.

In the act of analysis, qualitative researchers typically work with verbal language (and occasionally visual images) rather than quantitative language as indicators of the phenomenon of interest. Consistent with the outlined data gathering modes, these verbal language texts include field notes, verbatim interview transcripts, diaries, conversation records, and organizational documents of various types. It is not usual for a data set for a given study to amount to more than 1,000 pages of unstructured text to be analyzed. With the involvement of the computer in qualitative research, researchers are able to draw on a number of software packages that aid in the management and organization of their data.

Data analysis typically overlaps with data gathering, and analysis strategies roughly fall into two main groups: categorizing strategies such as coding and thematic analysis and contextualizing strategies such as narrative analysis and case studies. Coding is the main categorizing strategy; through this strategy the data set is fractured and arranged into categories so that similarities and differences between data fragments can be recognized and identified. Through these categories, data are conceptualized, and the conceptual categories are integrated into a theoretical framework. Another form of categorizing analysis progresses by sorting data into broader themes and issues. Coding categories vary in the extent to which they draw on existing theory. In contextualizing strategies, instead of fracturing the data set into discrete elements and developing categories for them, researchers attempt to understand the data in context using various procedures to identify different relationships among elements in the text. For example, through narrative analysis researchers examine the

data for relationships that organize statements and events into a coherent whole. In addition, practices such as displaying data and memoing are central to and support analysis regardless of whether researchers follow categorizing or contextualizing strategies.

A majority of qualitative studies are open-ended in their initial design, and they place minimum theoretical constraint on their data analysis and the expected outcomes of the research. This results in a research process characterized by emergence and flexibility. The term *funnel shaped* is often used to characterize this approach to design in which researchers begin with a general research question and then narrow and refine their paths of inquiry in the course of their study. This means that the activities of collecting and analyzing data, conceptualizing it, and refining research questions are in play simultaneously, influencing each other. Accordingly, data analysis is pursued in a nontheoretically constrained way; this is typical, for example, in the grounded theory approach in which data are analyzed and codes are developed by researchers through the analytic process. This process is challenging because researchers can be overwhelmed by the ambiguities and uncertainties associated with assigning meaning to hundreds of pages of words.

By contrast, some qualitative studies are more deductive in their orientation. Studies are designed and researchers pursue data collection and analysis with predetermined theoretical questions in mind and conceptual categories that they plan to elaborate and refine. For example, the form of analysis practiced in content analysis relies on existing theory to derive coding categories; these preestablished defined categories are applied to the data, and frequency counts of data fragments representing these defined categories can form the basis for quantitative analysis.

Generally speaking, qualitative inquiry results in the development of dynamic process-oriented models explaining how and why things happen as they do. Qualitative researchers' ability to be present to action as it unfolds, whether to developing work team norms or changing team behaviors, allows them to identify precisely how organization members understand their situations; the actions that flow from this understanding; what events lead to what consequences; and to the underlying contextual influences on behavior and events.

—Karen Locke

See also Case Study Method; Content Coding; Focus Groups; Verbal Protocol Analysis

FURTHER READING

- Krippendorff, K. (2004). *Content analysis: An introduction to its methodology*. Thousand Oaks, CA: Sage.
- Maxwell, J. A. (2005). *Qualitative research design: An interactive approach* (2nd ed.). Thousand Oaks, CA: Sage.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.
- Schwandt, T. A. (2001). *Dictionary of qualitative inquiry* (2nd ed.). Thousand Oaks, CA: Sage.
- Seale, C., Giampietro, G., Gubrium J. F., & Silverman, D. (2004). *Qualitative research practice*. Thousand Oaks, CA: Sage.

QUALITY OF WORK LIFE

Discussed since the 1950s, quality of work life (QWL) has been identified as a personal reaction to the work environment and experience such as perceptions of control, satisfaction, involvement, commitment, work–life *balance*, and well-being in relation to someone's job and organization, with no one generally accepted definition of the term. As such, it has been criticized for being a vague *catchall* concept.

Early on, little to no responsibility was placed on the organization for facilitating or hindering QWL. As industrial and organizational researchers began to identify links between employee perceptions of QWL and important organizational level outcomes such as absenteeism, turnover, and in some cases performance, things started to change and organizational interventions began to be designed specifically to improve QWL. Thus the term was popularized in the 1970s and 1980s, because many QWL interventions at the time had a general goal of improving individuals' organizational perceptions and a secondary goal of improving productivity.

These interventions were focused on changes in the objective work environment that improve employees' overall work attitudes. QWL interventions were aimed at empowering workers by increasing control and autonomy, providing increased recognition and rewards in an effort to improve overall well-being and overall positive reactions to work. Types of interventions varied from the provision of employee counseling services to team building and quality circles in the

1970s and job design and enrichment in the late 1970s and 1980s. These interventions further evolved in the 1990s into the provision of alternative work schedules and family-friendly workplace supports such as paid family leave and dependent care support (e.g., the provision of on- or off-site child care). Thus we can see that QWL interventions are aimed at having an impact on individual employees' perceptions of the work environment as being positive, rewarding, and ultimately having an impact on enhanced well-being.

A primary outcome of QWL is job satisfaction. In addition, QWL interventions are expected to have an impact on the objective work context in terms of working conditions that are safe, secure, and provide adequate pay and benefits, leading to improved employee attitudes.

Here we discuss what we see as important outcomes of QWL. When a high QWL exists, we expect to see employees who are satisfied with their jobs; feel valued by their organization; are committed to the organization; and have low levels of conflicts between their work and family roles and a corresponding high level of enrichment, or positive spillover, between work and family. Furthermore, in addition to positive job attitudes and possibly job behaviors, we want to extend the outcomes to general health and well-being. In fact, recent research demonstrates positive relationships between such characteristics as job control and job demands and cardiovascular disease. Other research demonstrates relationships between work-family conflict and depression. Still other research demonstrates improved overall health when employees are happy on the job. Thus although positive job attitudes and behaviors are important, we urge researchers and practitioners not to forget about also improving our understanding of the link between QWL and enhanced physical and psychological health.

These ideas coincide with more recent attention given to the concept of the *healthy workplace*. In fact, the American Psychological Association (APA) has begun to recognize such organizations as *healthy* when they focus on employee well-being through the provision of supportive cultures and climates that value the importance of providing employees with low-stress work environments that contribute to employee health and well-being. The focus of the healthy workplace has moved away from the corporate bottom line toward viewing employees as the most valued resources. Furthermore, efforts by the APA and the National Institute for Occupational

Safety and Health (NIOSH) have led to the development of a new interdisciplinary field that integrates occupational health disciplines and psychology and that is primarily concerned with improving the QWL for employees. Specifically, occupational health psychology is focused on the prevention of stress, injury, and illness in the workplace and the promotion of safety, health, and well-being of workers. Thus it appears that efforts in the science and professional realm have led to further developments in understanding QWL, while the term itself has lost much of its popularity. Rather, more contemporary concepts such as healthy workplaces, health promotion, work-life balance, and organizational well-being are characteristics of what we traditionally know as QWL.

In sum, although the term *QWL* is not commonly used today, the meaning is inherent in many aspects of organizational psychology. QWL is now more explicitly studied and discussed within the specific organizational structures and interventions that positively influence employee attitudes, health, and well-being.

—Leslie B. Hammer and Diana Sanchez

See also Empowerment; Job Satisfaction; Occupational Health Psychology; Stress, Consequences; Work-Life Balance

FURTHER READING

- Loscocco, K. A., & Roschelle, A. R. (1991). Influences on the quality of work and nonwork life: Two decades in review. *Journal of Vocational Behavior*, 39, 182–225.
- Mirvis, P. H., & Lawler, E. E. (1984). Accounting for the quality of work life. *Journal of Occupational Behaviour*, 5(3), 197–212.
- Nadler, D. A., & Lawler, E. E. (1983). Quality of work life: Perspectives and directions. *Organizational Dynamics*, 11(3), 20–30.

QUANTITATIVE RESEARCH APPROACH

Quantitative research approaches increase our knowledge by gathering data that can be manipulated mathematically. This allows us to answer questions about the meanings of psychological concepts, as well as to determine their levels and variability as well as the relationships among them. Quantitative research approaches

may be contrasted with qualitative approaches, which tend to collect data expressed in nonmathematical, symbolic representations sometimes referred to as *thick descriptions*, and place less focus on estimating the strength and form of relationships.

The data associated with quantitative approaches can result from simple measurement operations such as counts or categorizations, or from more complex operations that may involve the creation of measurement scales that function as *psychological yardsticks*. For example, quantitative research approaches have allowed industrial/organizational (I/O) psychologists to develop self-report measures of a construct called job satisfaction (JS), to determine that JS has a variety of different aspects or facets (such as satisfaction with pay, supervisor, or work setting), and to study its relationships with conditions such as organizational culture or leadership that make its general level higher or lower.

A basic tenet of any science is that scientists must collect and analyze data in a manner that can be replicated by others and is open to public inspection and criticism. Really, I/O psychologists are no different; they rely heavily on a wide range of quantitative methods to pursue two broad endeavors. The first of these is to accurately *measure* psychological variables of interest, such as performance, personality, intellectual capacity, work attitudes, and many more aspects of the world of work. The second endeavor consists of the systematic and theory-driven *search for relationships* among variables. Typically, the search for relationships involves testing theory-based hypotheses, the results of which allow for scientific inferences about the presence or absence of the relationships of interest. Next, we briefly describe quantitative approaches to measurement, the rationale for significance testing, and quantitative techniques for assessing relationships.

QUANTITATIVE TECHNIQUES ADDRESSING MEASUREMENT ISSUES

Psychological measurement consists of developing rules that either allow us to classify objects into meaningful categories or identify where aspects of those objects fall on a numerical scale. Importantly, measurement is best when it is theory driven.

Two important characteristics of measures, often addressed using quantitative methods, are reliability and validity. Reliability may be defined in various

ways; however, they all address the extent to which the same (or presumably equivalent) measurement procedures will yield the same results, if repeated. A variety of statistical techniques estimate reliability—including classic test theory–based procedures, such as test–retest correlation and coefficient alpha—and more recently developed methods such as generalizability theory. Closely related are indexes of agreement, which tell us the extent to which multiple observers rate the same object in the same way.

In contrast, validity addresses the issue of whether measures capture the true essence of the intended psychological construct. Again, a variety of quantitative approaches can be used to assess validity. Construct validity questions are often addressed with factor analytic techniques, which help us better understand the patterns of interrelatedness among measures and thus the number and nature of underlying constructs or latent variables. Exploratory factor analysis (EFA) is primarily inductive, providing empirical guides to the dimensionality of a set of measures. Each separate dimension suggests the presence of a different underlying construct; and EFA also estimates the extent to which specific items or measures appear to be influenced by a common underlying factor. Confirmatory factor analysis (CFA) allows a more deductive approach, because the researcher can prespecify a hypothesized latent factor structure. It also permits tests of how well a given factor model fits the data and allows comparisons of alternative models.

Another extremely useful quantitative approach is item response theory (IRT), which relates test item responses to levels of an underlying latent trait such as cognitive ability. This technique helps distinguish good test items that discriminate well between people high or low in a trait from poor items that do not. The IRT technique also enables the development of adaptive tests, allowing researchers to assess an individual's standing on a trait without having to administer the entire measure.

WHY SIGNIFICANCE TESTS ARE USED

Psychological data typically contain a lot of *noise* because measurements generally reflect not only the level of the desired variable but also other extraneous influences such as misunderstandings or impression management attempts by research participants, temporary fluctuations in mood or alertness, and random variability. Focal variables often account for as little

as 5% to 10% of the observed variability in responding. This frequent condition of small to moderate effect sizes means variability caused by the focal variables is not much larger than that possibly expected from sampling error. Statistical significance testing helps researchers determine whether observed differences or associations should be attributed to the variables of interest or could simply be an artifact of sampling variability. Significance tests typically pit two mutually exclusive and exhaustive hypotheses against each other, with the desired result being to find evidence that leads one to reject a *null hypothesis* of no effect.

QUANTITATIVE TECHNIQUES ADDRESSING RELATIONSHIP ISSUES

The quantitative techniques used by I/O psychologists were primarily developed in the late 1800s, 1900s, and into the present century. Research design and quantitative analysis were closely intertwined in their development. We describe some of the most commonly used techniques, which are appropriate when the dependent variable is at least an interval level measurement. These techniques have tended to rely on least-squares estimation procedures and have linear and fixed-model assumptions.

The experimental method is particularly powerful because it allows causal inference. Experiments are studies in which the researcher systematically manipulates conditions in groups that have been created by random assignment and then compares the effects of those manipulations. Variations of experimental methods, called *quasi-experiments*, attempt to preserve at least some of the characteristics of experimental designs while acknowledging that researchers cannot always use random assignment or manipulate key variables.

The most common statistical approach for experimental data analysis is the analysis of variance (ANOVA) model; it was first developed by Sir Ronald A. Fisher, who was interested in studying differences in crop yields associated with different agricultural practices. In general, ANOVA involves the comparisons of mean levels of a dependent variable across different groups created by experimental manipulations. There are many subtypes of ANOVA models, which incorporate mixed and random effects, allow analysis of incomplete design matrices, and control for covariates, among other variations.

There is also a strong tradition of survey and questionnaire research in I/O psychology. Although this approach makes causal inference more difficult, at least some researchers argue that this drawback is compensated for by better generalizability and construct richness. In fact, there are many interesting research questions where experimental designs are impractical or impossible because of ethical or practical issues.

Correlation and regression analysis, as well as related but more complex path and structural equation modeling approaches, are commonly used to analyze survey and questionnaire data. Sir Francis Galton and Karl Pearson were instrumental in developing correlation and regression. Correlation indicates the extent and direction of association between two variables. For example, a positive correlation between job satisfaction and organizational commitment indicates that employees who are more satisfied with their jobs tend to be more committed. Regression analysis determines whether predictor variables such as grade point average (GPA) and personality linearly relate to a criterion such as job performance, and estimates the proportion of variance in the criterion explained by the predictors. Ironically, given the sharp distinction made historically between ANOVA and regression techniques, in the 1950s statisticians began to recognize that they were in fact subtypes of an umbrella statistical model called the general linear model (GLM). The GLM also subsumes other important techniques such as canonical correlation, discriminant analysis, and multivariate analysis of variance.

Finally, important developments in a set of quantitative techniques called meta-analysis have led to advances in many areas of study over the past 25 years. These techniques allow researchers to cumulate the results from multiple studies of a given relationship. Meta-analysis thus more definitively addresses the question of whether a relationship is nonzero, and better estimates its *true* effect size.

CURRENT TRENDS

Quantitative research techniques are becoming increasingly sophisticated and are simultaneously easier to implement with specialized computer software. Researchers are beginning to work more with techniques appropriate for dynamic, nonlinear, and longitudinal models; increase their use of robust or assumption-free statistics and alternative estimation

methods; and critically reexamine aspects of the null hypothesis statistical testing paradigm.

—Rosalie J. Hall and Hsien-Yao Swee

See also Descriptive Statistics; Experimental Designs; Factor Analysis; Generalizability Theory; Inferential Statistics; Item Response Theory; Measurement Scales; Structural Equation Modeling

FURTHER READING

- Bobko, P. (1995). *Correlation and regression: Principles and applications for industrial/organizational psychology and management*. New York: McGraw-Hill.
- Drasgow, F., & Schmitt, N. (Eds.). (2002). *Measuring and analyzing behavior in organizations: Advances in measurement and data analysis*. San Francisco: Jossey-Bass.
- Harlow, L. L., Mulaik, S. A., & Steiger, J. H. (1997). *What if there were no significance tests?* Mahwah, NJ: Lawrence Erlbaum.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Rogelberg, S. G. (Ed.). (2002). *Handbook of research methods in industrial and organizational psychology*. Malden, MA: Blackwell.
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. New York: Houghton Mifflin.

QUASI-EXPERIMENTAL DESIGNS

One of the three basic experimental design types used in empirical research in industrial/organizational (I/O) psychology and related disciplines is quasi-experimentation. Quasi-experimental designs are different from both randomized experimental designs and nonexperimental designs (see relevant entries in this volume). In the process of describing the nature of quasi-experimental designs, we make reference to a number of issues having to do with the validity of inferences stemming from research. These issues are covered in the entry on experimental designs in this encyclopedia.

ATTRIBUTES OF QUASI-EXPERIMENTAL DESIGNS

Quasi-experimental designs have a number of features. Taken together they serve to differentiate such

designs from designs of the experimental and nonexperimental varieties.

Types of Quasi-experimental Designs

There are five major varieties of quasi-experimental designs, as noted by W. R. Shadish, T. D. Cook, and D. T. Campbell (2002). They differ from one another in terms of the use of comparison conditions, the use of pretests, and the degree to which they are time-series based. The term *comparison conditions* is used here to refer to either a no-treatment control condition or a condition that has a different level of the independent variable than the focal condition.

Single-Group Designs Without a Control Condition.

In terms of single-group designs without a control condition, the weakest ones, with respect to the criterion of internal validity, have only a posttest, for example the one-group posttest-only design. Slightly stronger designs have both a pretest and a posttest, such as the one-group pretest–posttest design. Even stronger designs have multiple pretests and posttests. For designs of the latter type, internal validity can be enhanced through such means as introducing treatment at one time period and removing it at a later period as in the removed treatment design. This process can be repeated several times, as with the repeated-treatment design.

Designs With a Control Condition but No Pretest.

A second type of quasi-experimental study uses a control condition but no pretest. One example of such a design is the posttest-only design with a nonequivalent control condition. In general, internal validity is quite problematic with studies that use this design because the researcher typically has no knowledge about any pretreatment differences on a host of variables, making it difficult, if not impossible, to attribute posttest differences to the treatment.

Designs With Control Conditions and Pretests.

A third type of quasi-experimental design uses both pretests and posttests. The simplest example of this is the untreated control condition design with both pretest and posttest measures. The addition of pretests in the treatment and comparison conditions serves to improve internal validity, such as by ruling out selection as a rival explanation of posttest differences on the dependent variable.

Time Series Designs. A fourth type of quasi-experimental design uses time series data to assess how the introduction of a treatment affects measures of dependent variables. For time series designs there must be a large number of observations, such as 50 or more, of such variables prior to and following the introduction of a treatment. In some cases time series designs involve both the introduction of a treatment and its subsequent removal. Internal validity is enhanced to the degree that these changes have expected effects on the dependent variables and the changes cannot be attributed to such confounds as history-based fluctuations. In addition, internal validity can be further enhanced through the addition of a nonequivalent control condition to the basic time series design.

Regression Discontinuity Designs. A fifth type of quasi-experimental design is the regression discontinuity design. In the most basic of such designs, the researcher uses scores on a pretest to assign individuals in a single group to treatment and control conditions. Individuals who have pretest scores at or above a given level are assigned to one condition, such as treatment, and those with scores below that level are assigned to the other condition, such as control. After the treatment, posttest scores are regressed on pretest scores. The effect of the treatment is indexed by a discontinuity in the regression lines for the treatment and control groups.

MANIPULATION OF VARIABLES

In quasi-experiments the values of independent variables (X_1, X_2, \dots, X_j) are manipulated by the researcher. This is important in terms of the criterion of internal validity. More specifically, the fact that the manipulations precede the measurement of dependent variables serves to strengthen inferences about the effects of the manipulated variables on one or more dependent variables.

The simultaneous manipulation of several independent variables is common in randomized experiments that are of the factorial variety. However, it is rare to encounter quasi-experiments with more than one independent variable. This is, at least in part, a function of the fact that most quasi-experiments are conducted in non-special purpose settings (see the Experimental Designs entry for more on setting-related issues). Relative to special purpose settings, in non-special purpose settings, researchers typically have relatively little

control over the number and nature of manipulations to which units, such as individuals or groups, are exposed. In addition, it is often difficult to deliver treatments to units in a uniform manner, reducing statistical conclusion validity. What's more, because individuals other than the experimenter, for example managers, have control over many features of the settings in which quasi-experiments are conducted, the same individuals may behave in ways that serve to reduce the construct validity of treatments. For example, to lessen research-related inequalities, managers may deliver desirable treatments of their own to units in study conditions that are scheduled to receive less desirable research-related treatments than others. This can lead to compensatory equalization-based threats to the construct validity of the study's independent variable(s).

NONRANDOM ASSIGNMENT OF UNITS TO CONDITIONS

A key characteristic that differentiates quasi-experimental designs from randomized experimental designs is that in the case of the former, there is no capacity to randomly assign units to treatment conditions. Rather than being randomly assigned to conditions by the experimenter, the units may be routed to treatment and control conditions through such means as self-selection or assignment by an administrator such as a manager. An important implication of this is that, in most cases, it is difficult, if not impossible, to rule out both selection as a threat to internal validity and selection by treatment interaction as a threat to external validity.

MEASUREMENT OF DEPENDENT VARIABLES

As is true of all other experimental design types, in quasi-experiments, dependent variables are measured. A number of techniques can be used for this purpose (see the Experimental Designs entry for examples). However, it should be added that because most quasi-experiments are conducted in non-special purpose settings, the experimenter often has diminished control over the timing of measurement and the conditions under which it takes place. In addition, many quasi-experiments use data from archival records such as those of the organizations participating in a study. As a consequence, there are often problems with the construct validity of measures of dependent variables.

CONTROL OVER CONFOUNDING OR EXTRANEOUS VARIABLES

As noted earlier, in the case of quasi-experimental research, there is no capacity to randomly assign units to treatment conditions. As a result, there may be pretreatment differences between or among the conditions on variables that are related to the dependent variables of a study. For example, consider a hypothetical study in which a researcher tested the effects of job enrichment on job satisfaction in an organization having two geographically separate production facilities. Individuals in one facility experienced job enrichment, whereas workers in the other served as no-treatment controls. Because workers were not randomly assigned to these facilities in advance of the quasi-experimental study, they might have differed from one another at the pretreatment period on such variables as age, tenure, pay, and job satisfaction, reducing the study's internal validity.

In quasi-experimental research, assumed confounds are controlled through statistical means. For example, in a study using an untreated control condition and a pretest, a researcher might regress posttest scores on pretest scores and measures of a set of assumed confounds. Regrettably, the statistical controls used in quasi-experimental studies are typically a

poor substitute for the control that can be achieved in randomized experiments, as noted by Shadish and colleagues (2002) and Eugene F. Stone-Romero (2002).

—Eugene F. Stone-Romero

See also Experimental Designs; Nonexperimental Designs

FURTHER READING

- Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for field settings*. Boston: Houghton Mifflin.
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton Mifflin.
- Stone-Romero, E. F. (2002). The relative validity and usefulness of various empirical research designs. In S. G. Rogelberg (Ed.), *Handbook of research methods in industrial and organizational psychology* (pp. 77–98). Malden, MA: Blackwell.

QUESTIONNAIRES

See SURVEY APPROACH

R

RACE NORMING

Race norming is the practice of converting individual test scores to percentile or standard scores within one's racial group. In the process of race norming, an individual's percentile score is not calculated in reference to all persons who took the test; instead, an individual's percentile score is determined only in reference to others in the same racial group. After norming scores by percentile in separate racial groups, the lists are combined to make selection decisions. By norming within racial groups, the same raw score for Whites and Blacks can be converted to different percentile scores based on the distribution of scores for each racial group.

For example, suppose that a White candidate and a Black candidate each earn a raw score of 74 points on a test. If the White candidate's test score is converted to a percentile only in reference to other White candidates and the Black candidate's test score is converted to a percentile only in reference to other Black candidates, then the percentile scores earned by the two candidates may not be equal even though they attained the same raw test score. Perhaps the 74-point raw score for the White candidate may be at the 60th percentile of the White distribution of scores, whereas the 74-point score for the Black candidate may be at the 65th percentile of the Black distribution of scores. When the White and Black percentile scores are combined into a common list and selection decisions are made, the candidates who scored the same 74 raw points on the test might be treated very differently. For example, if the organization decides to hire only persons who scored at the 65th percentile and above, then

the Black candidate would be selected and the White candidate would not. In another circumstance, the organization could decide to hire persons with the highest percentile first, which would mean that the Black candidate would be selected prior to the White candidate.

As this example demonstrates, when test scores are race normed, the score required to reach a particular percentile score for a member of one group may be different from the score required for a member of another group to reach that percentile. In effect, the use of separate norms based on race can add points to the scores of persons from a particular racial group. The Civil Rights Act of 1991 made approaches to adjusting test scores based on race illegal.

The adjustment of scores using within-group norming procedures or other techniques is a common practice in work organizations. For example, many civil service exams call for bonus points to be awarded to veterans. Despite the prevalence of score adjustment, the concept of adjusting scores based on race (e.g., race norming) became controversial during the 1980s. At the time, the United States Employment Service (USES) made extensive use of the General Aptitude Test Battery (GATB) for hiring purposes. Research has demonstrated that Whites significantly outperform Blacks and Hispanics on the GATB; therefore, the USES race normed the data by converting test scores to percentiles within racial groups. During the mid-1980s, this practice was challenged by the U.S. Department of Justice, and it eventually became a key issue addressed in the Civil Rights Act of 1991. The act makes it unlawful to adjust or alter the scores of an employment test or to use different cutoff scores based on race, color, religion, sex, or national origin.

The ramifications of this provision, both intended and unintended, have generated much discussion, and experts continue to debate how the provision should be interpreted and implemented.

—Harold W. Goldstein

See also Affirmative Action; Civil Rights Act of 1964, Civil Rights Act of 1991

FURTHER READING

- Gottfredson, L. S. (1994). The science and politics of race-norming. *American Psychologist*, 49(11), 955–963.
- Sackett, P. R., & Wilk, S. L. (1994). Within-group norming and other forms of score adjustment in preemployment testing. *American Psychologist*, 49(11), 929–954.

RATING ERRORS AND PERCEPTUAL BIASES

The appraisal and management of performance is an important concern in organizations. Although interest in and the use of performance appraisals has increased during the last 30 years, the practice of formally evaluating employees has existed for centuries. Despite its widespread use, the performance appraisal process continues to be plagued by both technical and non-technical problems that reduce its effectiveness. Rating errors and perceptual biases in performance ratings are two such problems.

Performance ratings—quantifiable yet subjective assessments of an individual's performance made by supervisors, peers, or others who are familiar with the employee's work behavior—are frequently used to assess work performance. However, performance ratings do not always accurately represent an employee's true level of performance. Differences between an employee's true, veridical, objective level of performance and the performance ratings that he or she receives, which are believed to be caused by perceptual biases, are referred to as *rating errors*. Although such differences are sometimes the result of intentional manipulation of the performance appraisal system because of political or interpersonal motivations, the term *rating errors* generally refers to the unconscious and unintentional biases that influence the rating task. Biases and rating errors can be classified into several categories; the following sections describe

these types of biases and errors, their consequences, and possible remedies.

TYPES OF BIASES AND RATING ERRORS

Distributional Errors

It is not uncommon to find that 80% to 90% of all employees rated by a single rater receive an above-average rating. This often indicates a *distributional error*; wherein the rater misrepresents the distribution of performance across persons they are evaluating. In other words, these errors occur when the distribution of assigned ratings differs from the (assumed) distribution of actual job performance of the group of employees being rated. Such misrepresentations can occur both in terms of the mean level and the variability of ratings provided. The three most common types of distributional errors are leniency/severity, range restriction, and central tendency errors.

Leniency/severity errors occur when the mean of the ratings of all employees rated by a particular supervisor differs substantially from the midpoint of the rating scale. For example, if the mean ratings for all employees rated by a supervisor are very low, then the rater is thought to be overly severe; when the mean ratings are very high, he or she is thought to be overly lenient. This error can be caused by (a) raters having inaccurate or unreasonable frames of reference or expectations for performance; (b) the rater's desire to be liked, hence his or her unwillingness to give negative feedback; or even (c) expectations that other raters will also inflate their ratings. Recent research has shown that rating severity/leniency is a relatively stable characteristic of the rater and can be related to his or her personality. Specifically, individuals who score higher on agreeableness tend to provide more elevated ratings, whereas individuals who score higher on conscientiousness tend to provide lower ratings.

It is also possible for a rater to fail to make adequate distinctions among multiple ratees when rating their performance, an error referred to as *range restriction*. For example, consider a group of employees who vary widely in their levels of performance on one dimension, quality of work. If all of the supervisor's ratings on this dimension are clustered within a small range of scores, the variance of the supervisor's ratings will be lower than the variance of the actual performance levels of the ratees, and hence, range

restriction is said to occur. Raters who commit this error fail to distinguish among ratees on individual performance dimensions, either because of a lack of opportunity to observe the employees or a conscious desire to avoid differentiating among ratees.

A *central tendency error* is a special form of the range restriction error, wherein ratings tend to cluster near the midpoint of the rating scale. This is the most common and perhaps the most harmful type of error found in organizations, as it tends to inflate the ratings of low performers and underestimate those of high performers. This type of error may be caused by a rater's unwillingness to justify high or low ratings to the organization or to the ratee or a rater's desire to treat all employees equally and avoid hostility among ratees.

Although these distributional errors are typically assumed to reduce the accuracy of performance ratings, such a conclusion may be premature, for several reasons. First, the implicit assumption behind distributional errors is that the true underlying distribution of performance is known, which is rarely the case. Second, organizations expend considerable effort through their selection and training systems to ensure that the distribution of performance is, in fact, skewed (e.g., more high performers than low), in which case observed leniency or range restriction may not be an error but a reflection of the actual performance of employees. Thus, comparison of raters based on such errors should be undertaken only after the relevant contextual factors affecting each group of raters and ratees have been considered.

Correlational/Halo Errors

It is not uncommon to find that raters give similar evaluations across multiple performance dimensions when evaluating one employee, even when those dimensions are clearly distinct. This is referred to as a *halo error*, and it is based on the rater's tendency to let the overall evaluation or the evaluation of one dimension color ratings on other dimensions. Consider, for example, an employee who is outstanding in his ability to convince delinquent customers to pay up but performs poorly in terms of identifying new customers and expanding his market. In such a situation, halo error would occur if his excellence in the area of delinquent accounts caused his manager to rate him highly on the other performance dimensions as well. Thus, halo errors occur when raters fail

to differentiate between performance on different dimensions. (Halo errors wherein a negative rating on one dimension adversely affects ratings on other dimensions are sometimes referred to as *horn effects*.) Halo errors are typically caused by the confirmatory biases of raters (wherein raters form initial impressions based on certain performance dimensions and tend to look for confirmation rather than disconfirmation of their judgments in the evaluation of other aspects of performance), the discounting of inconsistent information, or the lack of adequate information about the ratee when making evaluations.

However, like the other errors reviewed here, the existence of halo error should be interpreted with caution. Halo effects may be a function of the actual conceptual similarity among the dimensions being rated (true halo) rather than cognitive biases and errors by raters (illusory halo). It is also possible that all of the dimensions on a performance appraisal scale relate to overall performance, so they are unlikely to be seen as completely independent by raters. In such cases, observed halo may be a reflection of actual performance rather than error.

Other Errors and Biases

Performance appraisal ratings can also be plagued by other specific errors and biases. The *similar-to-me error* refers to the tendency of some raters to rate those who resemble themselves more highly than they rate others. The *first-impression error* occurs when the rater allows early experiences with a ratee to color or distort later information when making performance judgments. *Contrast effects* refer to the tendency of a rater to evaluate ratees relative to others rather than against objective rating standards. For example, if Jane is a stellar performer and her supervisor tends to rate other employees using Jane as the comparative standard, then other employees are likely to be rated lower than they deserve.

The *recency effect* describes the tendency of minor events that have occurred recently to influence ratings more than other events that occurred during the appraisal period. Such errors typically occur when the rater does not keep formal records of performance or critical incidents involving each ratee. The tendency to attribute performance failings to factors that are under the control of the individual and performance successes to external causes is known as *attribution bias*. For example, if a supervisor attributes the

successes of her subordinates to her leadership skills but their failures to their own lack of ability, her performance ratings are affected by attribution bias. Finally, *stereotyping* refers to the tendency to generalize across groups and ignore individual differences. For example, consider Bob, a salesman who is quiet and reserved but whose sales record is one of the best in the company, in contrast to the stereotypical salesman. If his supervisor has an implicit belief that extroverted, outgoing behavior is a prerequisite for being a good salesman, he may rate Bob's performance lower because of that stereotype.

These errors can sometimes occur together in practice, or one error may be the cause of another observed error. For example, the contrast effect error, wherein employees are compared to one stellar employee, could result in observed severity errors.

CONSEQUENCES OF RATING ERRORS

Several negative consequences may befall performance appraisal and management systems characterized by the errors just described. For example, elevated ratings (i.e., the leniency error) reduce the funds available to recognize and reward stellar performance (because the funds must be shared among a larger number of employees), and therefore employees may become dissatisfied with both performance management and reward systems. Besides being a mechanism for allocating rewards, performance appraisals are also used to provide feedback. Employees whose supervisors fail to give them accurate information about performance deficiencies have little motivation (or guidance) to improve. As a result, such employees are likely to be passed over for opportunities they might have had if they had been honestly confronted with the need for change. Employees who receive inflated yet inaccurate ratings may be placed in a situation they are unable to handle, causing them to experience failure. Short-term kindness on the supervisor's part may result in long-term harm to the employee.

Elevated or otherwise inaccurate ratings also make it difficult to substantiate termination decisions, not only in court (if the decision is contested) but also to the remaining employees, who may question the fairness and meaningfulness of performance ratings. Equity theory suggests that individuals are concerned not only with their own situation in an absolute sense ("How much money am I making?") but also with the way their situation compares with others in the

organization ("How does the ratio of my input in the job to the output/reward that I receive compare with that of others?"). A good performer, observing that a lackluster coworker is receiving the same appraisal ratings—and thus the same organizational rewards for a far lower contribution—perceives his or her situation as unfair. Equity theory suggests that as a result of such comparisons, the good performer will act to make the situation equitable by reducing his or her effort or even leaving the organization.

REMEDIAL MEASURES

Approaches to avoiding these rating errors and perceptual biases depend on the format of the rating instrument used. Forced-choice instruments ask the rater to select one item (from a list of four or five statements) that best describes the employee's performance. Because the statements are all similar in desirability (yet differ in their relation to job performance), this format is designed to eliminate the tendency of raters to be lenient, thus minimizing bias. Forced-distribution performance appraisal systems attempt to impose a normal distribution on the ratings by forcing the rater to assign a certain percentage of employees to each performance category. Similarly, paired comparison performance rating methods force raters to make distinctions among ratees by comparing each ratee to every other one, producing an overall rank order of employees. Finally, a commonly used format is the behaviorally anchored rating scales (BARS), which specifies poor, average, and good performance levels using anchors of behavioral exemplars for each performance dimension. This ensures that each employee's performance ratings on different dimensions are accurately rated and differentiated from one another. Although each of these different rating formats has its advantages, each also comes with a corresponding set of disadvantages.

A more recent (and arguably more effective) approach to dealing with rating errors is to train raters in performance appraisal rating methods. For example, rater error training (RET) focuses specifically on reducing errors by making raters aware of them and their possible causes. Despite its effectiveness in reducing rater errors, research has found that RET can actually decrease the accuracy of ratings (recall that errors do not always equal inaccuracy). As a result of using RET, raters seem to replace an erroneous rating strategy (e.g., lenient or haloed ratings) with an invalid

rating bias (avoid rater errors). Thus, merely avoiding rater errors does not seem to ensure accuracy.

The best-known rater training program with the goal of increasing accuracy is frame-of-reference (FOR) training. In FOR training, raters discuss the performance dimensions used in the evaluation system and the behaviors that represent different effectiveness levels on each performance dimension; they also practice making ratings and receive feedback on the accuracy of their practice ratings. Research suggests that FOR training is the single most effective training strategy for improving rater accuracy.

—Deidra J. Schleicher and Vijaya Venkataramani

See also Performance Appraisal; Performance Appraisal, Objective Indexes; Performance Appraisal, Subjective Indexes

FURTHER READING

- Borman, W. C. (1991). Job behavior, performance and effectiveness. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 3, pp. 271–326). Palo Alto, CA: Consulting Psychologists Press.
- Cooper, W. (1981). Ubiquitous halo. *Psychological Bulletin*, 90, 218–244.
- Murphy, K. R., & Cleveland, J. N. (1991). *Performance appraisal: An organizational perspective*. Boston: Allyn & Bacon.
- Murphy, K. R., Cleveland, J. N., Skattebo, A. L., & Kinney, T. B. (2004). Raters who pursue different goals give different ratings. *Journal of Applied Psychology*, 89(1), 158–164.
- Schleicher, D. J., & Day, D. V. (1998). A cognitive evaluation of frame-of-reference rater training: Content and process issues. *Organizational Behavior and Human Decision Processes*, 73(1), 76–101.
- Smither, J. W. (1998). *Performance appraisal: State of the art in practice*. San Francisco: Jossey-Bass.
- Woehr, D. J., & Huffcutt, A. I. (1994). Rater training for performance appraisal: A quantitative review. *Journal of Occupational and Organizational Psychology*, 67, 189–205.

REALISTIC JOB PREVIEW

The primary method of realistic recruitment is the *realistic job preview* (RJP). The RJP is the presentation of realistic, often quite negative information about

an organization to a job candidate. This information is given to job candidates during the selection process to help them make an informed job choice, should a job offer be made. Another realistic recruitment strategy is the use of certain recruitment sources (e.g., employee referrals) that communicate realistic information to job candidates while avoiding others that do not (e.g., newspaper ads). Finally, four selection methods that communicate realistic information to job candidates are briefly discussed here; their primary intended purpose is selection rather than recruitment.

The RJP contains accurate information about job duties, which can be obtained from interviews with subject-matter experts or from a formal job analysis. The RJP also contains information about an organization's culture, which can be obtained from surveys, interviews with current employees, and exit interviews. There are four criteria for selecting information for the RJP: (a) It is important to most recruits; (b) it is not widely known outside the organization; (c) it is a reason that leads newcomers to quit; and (d) it is related to successful job performance after being hired. Because it is necessary to tailor the RJP to both the job and the organization, the RJP is not so much a specific technique but a general approach to recruitment. Furthermore, organizations may differ in the particular means used to present realistic information to job candidates; for example, organizations may use a brochure, a discussion during the job interview, or a video. Sometimes, a combination of these three specific techniques is used; combining the latter two is probably the best approach.

One important purpose of the RJP is to increase the degree of fit between newcomers and the organizations they join. Two types of fit are affected: (a) the person–job fit and (b) the person–organization fit. Good person–job fit typically results in better newcomer performance and indirectly increases retention. Good person–organization fit typically results in reduced quitting and indirectly increases job performance. To the extent that an RJP affects candidates' job choices, also known as self-selection, it can improve either or both types of fit.

The information in the RJP is communicated to job applicants *before* they enter the organization. Realistic information disseminated after organizational entry is defined as newcomer orientation, which is different from the RJP in several ways. The most important difference is that the primary purpose of newcomer orientation is to help new hires cope with both a new

job and a new organizational culture. Thus, newcomer orientation teaches solutions to common newcomer adjustment problems during organizational entry. In contrast, the RJP presents adjustment problems without solutions, as one purpose of the RJP is to discourage job candidates who are likely to be misfits with the job or organizational culture.

For a long time, the RJP was thought to affect newcomer retention more than job performance, as reported in a 1985 review by Steve Premack and John Wanous. However, a 1998 review by Jean Phillips found a stronger effect of the RJP on job performance while affirming the same effect on the retention of new hires. As of this writing, the Phillips review is the most recent study available.

Some RJP methods are more effective than others. Specifically, the best RJP technique for hiring better performers is the video, in which recruits are shown a role model performing critical job duties successfully. Role models are an effective way to demonstrate the interpersonal and physical skills that are part of most entry-level jobs.

The best RJP method for increasing new hire retention is a two-way conversation between the job candidate and a job interviewer during the job interview. Explaining why this is the case is more complicated. There are four hypotheses. First, the information provided in the RJP helps job candidates choose more effectively among job offers. This process of self-selection is believed to increase person–organization fit. Furthermore, research on cognitive dissonance suggests that when job candidates feel free to accept or reject the job offer, they are more likely to be committed to the choice. Second, the RJP can “vaccinate” expectations against disappointment after organizational entry because the most dissatisfying job and organizational factors have already been anticipated. Third, the information in the RJP can help newcomers cope more effectively with the stress of being in a new environment, called “the work of worry” by Irving Janis. Finally, the RJP can enhance the perceived trustworthiness or supportiveness of the organization to job candidates, increasing their initial commitment to the organization. Support for any one of these hypotheses does not necessarily mean that others are refuted, however; all are viable explanations.

Several guidelines for designing and using the RJP can be derived from the reviews of Phillips and Wanous, which use sophisticated quantitative methods. First, self-selection should be explicitly

encouraged. That is, job candidates should be advised to carefully consider whether to accept or reject a job offer. This is best done during the job interview, and this may be an important reason why it is the best method for increasing new hire retention. Second, the RJP message must be credible. Credibility can be achieved by using actual employees as communicators, whether in a video or a job interview. This may explain why using only a brochure is the least effective of all the methods. Third, the way that typical employees feel about the organization, not just sterile facts, must be part of the RJP. Again, employee feelings are best provided in a video or a job interview. Fourth, the balance between positive and negative information should closely match the realities of the job itself. This requires careful data collection and analysis before developing the RJP. Finally, the RJP should normally be done before rather than after hiring, but not so early that the information is ignored. (An exception might be to position the RJP at the end of executive recruitment, although there is no research on executives.)

Research continues to identify the boundaries of the RJP. First, if the retention rate for new hires is very low, the job is probably so undesirable that an RJP will have no effect on job survival. For example, one study of newly hired self-service gas station attendants revealed that not one of the 325 new hires lasted as long as nine months. In fact, many quit by the end of the first month. In organizations with very high retention, the RJP may not be able to improve on that already high level. Therefore, the RJP is probably most effective when the one-year job retention rate for newcomers is in the range of 50% to 80%. For an organization with a 50% job retention rate (for the first year after being hired), use of the RJP is estimated to increase job retention 56% to 59%.

Second, if the labor market has relatively few job openings, the RJP will have little effect on a job candidate’s job choice because the chance of obtaining multiple job offers is low. Furthermore, a very tight labor market means that new hires tend to stick with a job even if they would prefer to leave it. Third, the RJP appears to be more effective when job candidates have some previous job knowledge or work experience because they can better understand the information that is provided. Fourth, both Phillips and Wanous found that the RJP is more effective at increasing newcomer retention in business organizations than in the military. The primary reason for the

difference in job survival rates is that there are restrictions on attrition from the military.

The impact of the RJP can be translated into dollar terms (utility analysis) by calculating the difference between the number of new hires needed without using RJP versus the number needed when using RJP. Consider an organization that wants to hire and retain 100 new employees. If the job retention rate for the first year is 50%, the organization will need to hire 200 new employees to retain the target goal of 100. If the RJP increases job retention 50% to 56%, the organization would have to hire only 178 people. If the RJP increases job retention 50% to 59%, the organization would have to hire only 169 new people. For fast-food chain restaurants (e.g., McDonald's, Wendy's, Burger King, Pizza Hut) that typically hire more than 100,000 newcomers corporation-wide at a cost of \$300 to \$400 per hire, the dollar savings in recruitment and hiring can be in the tens of millions of dollars.

The RJP may also be relevant for other aspects of human resource management. It could easily be used to prepare managers for international assignments. Although it is intuitively appealing, there is no rigorous research on this topic—a puzzling gap, as the cost of failure in international assignments for executives is far greater than the cost of lower-paying, entry-level jobs, which typify most studies of the RJP.

REALISTIC RECRUITING SOURCES

Besides the RJP, there are other ways that realistic information can be communicated to job candidates. One recruitment strategy is to hire from sources that have higher job retention rates and higher job performance. A rigorous review of this research by Michael Zottoli and John Wanous found that inside sources (referrals by employees and rehires) had significantly better job retention rates than those from outside sources (newspaper ads and employment agencies). Furthermore, inside sources produced better job performers, although the effect on performance was less than that on retention. However, the effects of recruitment source on retention and performance are both significant. Their usefulness in dollar terms can be estimated in the same way as the RJP. Although there are fewer recruitment source studies (25) than RJP studies (40), there seems to be enough evidence that the results of recruitment source research can be taken seriously. Unfortunately, no study has yet examined

organizations that combine the RJP with inside recruitment sources. Thus, the effect of combining these realistic recruitment methods is unknown at present.

Six hypotheses have been offered to explain the link between recruitment source, job survival, and job performance. First, inside recruits have more accurate information, which results in less disappointment among newcomers. Second, having accurate information enables job candidates to make better job choices. Third, inside recruits fit better with the organization because those who referred them know what it takes to succeed. Fourth, candidates from employment agencies or newspaper ads may know more about the full range of job possibilities and thus have higher turnover than candidates referred by other sources. Fifth, source differences may be the result of systematic differences in the types of candidates attracted from each source. Sixth, candidates referred by friends may be treated better by experienced employees and thus have higher retention than other new hires.

A second recruitment source strategy is to set up a company Web site that communicates realistic information to potential job candidates. Unfortunately, there is no rigorous research on real organizational Web sites as of this writing. Studies of students responding to fictitious Web sites are just now beginning to be published. However, the trustworthiness of research using college students reacting to fictitious Web sites has yet to be established.

The Web site of Texas Instruments (TI, www.ti.com) provides one example of how a Web site can be used for realistic recruitment. Job seekers are directed to a section in which a self-scored survey can be taken. The purpose of the survey is to assess both person–job fit (14 questions) and person–organization fit (18 questions), which TI refers to as “job content fit” and “work environment fit,” respectively. Job seekers are asked to rate certain items on a five-point scale ranging from *strongly agree* to *strongly disagree*. After responding to the 32 items, the job seeker is then given an overall score. The score is a simple dichotomy: The candidate either fits or does not fit in at TI. In addition to overall fit, the job seeker is also shown TI's “best answer” to each of the questions. The company is careful to remind job seekers that TI's best answers are not right or wrong—rather, they indicate TI's best estimate of its typical work content and organizational culture. Unfortunately, the company does not indicate how these best answers were determined.

REALISTIC SELECTION METHODS

Although RJP and recruitment sources are the two major concerns in realistic recruitment, there are four selection methods that may also communicate realistic information, complementing the use of the RJP and inside recruitment sources. These methods include (a) probationary employment, (b) structured job interviews (i.e., the situational interview and the behavior description interview), (c) work sample tests (both verbal and motor skills tests), and (d) assessment centers. Research on these four methods has focused on job performance rather than retention. Because these techniques are primarily selection rather than recruitment methods, a detailed analysis is beyond the scope of this entry. As predictors of job performance, however, their validity and utility are both fairly well established.

—John P. Wanous

See also Job Advertisements; Organizational Socialization; Recruitment; Recruitment Sources

FURTHER READING

- Janis, I. L. (1958). *Psychological stress: Psychoanalytic and behavioral studies of surgical patients*. New York: Wiley.
- Meglino, B. M., DeNisi, A. S., & Ravlin, E. C. (1993). Effects of previous job exposure and subsequent job status on the functioning of a realistic job preview. *Personnel Psychology, 46*, 803–822.
- Phillips, J. M. (1998). Effects of realistic job previews on multiple organizational outcomes: A meta-analysis. *Academy of Management Journal, 41*, 673–690.
- Popovich, P., & Wanous, J. P. (1982). The realistic job preview as a persuasive communication. *Academy of Management Review, 7*, 570–578.
- Premack, S. L., & Wanous, J. P. (1985). A meta-analysis of realistic job preview experiments. *Journal of Applied Psychology, 70*, 706–719.
- Thornton, G. C. (1992). *Assessment centers in human resource management*. Reading, MA: Addison-Wesley.
- Wanous, J. P. (1992). *Organizational entry: Recruitment, selection, orientation, and socialization of newcomers* (2nd ed.). Reading, MA: Addison-Wesley.
- Wanous, J. P., & Reichers, A. E. (2000). New employee orientation programs. *Human Resource Management Review, 10*, 435–451.
- Zottoli, M. A., & Wanous, J. P. (2000). Recruitment source research: Current status and future directions. *Human Resource Management Review, 10*, 353–382.

RECRUITMENT

The term *recruitment* refers to a set of organizational activities and practices that are intended to attract new hires to an organization. The goal of recruitment is to generate applicants who are qualified for employment, who will accept employment offers, and who will ultimately succeed on the job. Recruitment is an important complement to employee selection. Recruitment generates a pool of applicants from which organizations can select new employees and influences the likelihood that the most desirable candidates will accept the organization's offer of employment.

Effective recruitment is essential to organizational success. In recent years, scholarly research and the business press have documented the importance of human capital to organizational performance; recruitment is the process by which human capital is drawn to the organization. Indeed, the search for qualified employees is frequently referred to as a *war for talent*, a phrase that clearly conveys the importance of recruitment. Recent research suggests that recruitment can have significant impact on applicant quality, which, in turn, can lead to significant productivity advantages for the hiring organization.

Recruitment has important implications for individual job seekers as well. The hiring process is a two-way street: Employers attempt to attract qualified employees, and individuals attempt to find satisfying work. Ideally, recruitment leads individuals to make job choices that meet their personal needs.

Recruitment is a process that unfolds over time. It comprises three phases. First, the organization must generate applicants. It must identify a pool of potential employees and persuade a reasonable number of individuals in that pool to apply for work in the organization. Second, it must maintain applicant interest as the candidates proceed through the organization's (sometimes lengthy) screening processes. Finally, the organization must persuade the most desirable applicants to accept job offers.

Recruitment outcomes also unfold over time. In the short run, organizations might assess what are known as *prehire outcomes*, such as the quantity, quality, and diversity of applicants or the length of time required to fill a position. In the longer term, organizations might assess long-term or *posthire outcomes*, such as the performance and longevity (retention) of the recruits. Similarly, individual job seekers initially might attend

to whether or how quickly they obtained employment; later, they might focus on how satisfying the employment is.

GENERATING APPLICANTS

Some have argued that the first phase of recruitment, the generation of applicants, is the most important phase. If the right individuals are not in the applicant pool to begin with, then no amount of attention to maintaining applicant interest or persuading successful candidates to join the organization will result in the right hires. Certainly, this phase requires the organization to make a number of critical strategic decisions, including where to search for applicants and how to communicate with potential applicants. Fortunately, there is a reasonable body of research evidence to support these strategic decisions.

RECRUITING SOURCES: WHERE TO LOOK

One of the most frequently studied aspects of recruitment is source selection. Applicants may be sought from a variety of sources, both formal and informal. Formal sources typically involve a third-party intermediary that assists in the recruitment process, such as an employment agency, a college placement office, or a newspaper or online advertisement service. Informal sources typically involve direct contact between the potential employee and the employer and include such techniques as direct applications and referrals.

A significant body of research on recruitment source effects has accumulated over the years. The most consistent finding of this research is that informal sources (referrals in particular) tend to have positive effects on posthire outcomes. Specifically, individuals who are hired by means of referral from existing employees tend to have greater longevity in their new positions than those who are hired from other sources. Two theoretical frameworks have been proposed to explain these effects. First, it has been suggested that different recruiting sources yield individuals with different characteristics. These individual differences then translate into different posthire outcomes. Second, it has been proposed that applicants recruited from different sources have access to different information. Individuals with greater advance knowledge may be better positioned for long-term success on the job. Unfortunately, research testing the power of these two models has been somewhat inconclusive.

EARLY RECRUITMENT COMMUNICATIONS

Once an applicant pool has been identified or targeted, the organization must communicate with potential applicants to persuade them to apply. Quite often, this initial communication comes in the form of advertisements, flyers, or brochures. More recently, employer Web sites have become an important aspect of early recruitment. For each of these areas, research has investigated the role of design as well as the role of content in attracting applicants.

Design of Materials

In terms of printed material, research suggests that applicants are attracted to firms whose recruitment materials are informative, and both the amount and the specificity of the information seem to make a difference. In most cases, applicants seem to devalue positions about which important information is not made available. One explanation for this reaction is that the failure to provide sufficient information may be seen as a signal of undesirable organizational attributes. Firms that provide less informative materials may be seen as less concerned about applicants' (and by attribution, employees') needs.

Recruitment materials are also more effective when they are distinctive and vivid. To attract attention, materials need to stand out from the group in some way, either through physical representation or the presentation of unusual information. For example, materials that promise uncommon benefits (such as pet insurance) may be more effective than materials that promise more conventional benefits.

Content of Materials

Research on the portrayal of specific job or organization attributes in early recruitment communication has demonstrated that applicant preferences (and reactions to specific content in ads) vary as a function of their personal characteristics. Rather than specifying absolute or universal rules about desirable attributes, studies in this area have demonstrated that applicants respond to attributes through the lens of their own values and preferences. In other words, a person-organization or person-job fit perspective prevails. For example, individual differences in demographic characteristics, values, and personality have been shown to predict attraction to job attributes such as

pay system, work system (i.e., individual versus team based), and diversity policies (affirmative action versus equal employment opportunity).

Internet Recruitment

Although most research on early recruitment communications has focused on traditional (usually print) media, the impact of Internet-based recruitment has not been ignored. Studies of applicant reactions to employer Web sites reached similar conclusions to those for print media—that is, both content and design matter. Applicants prefer Web sites that provide useful information and that are easy to navigate. In addition, the interactive nature of Web sites allows applicants to more easily identify the extent to which specific positions and organizations match their personal qualifications and needs.

ORGANIZATIONAL IMAGE

Applicants sometimes have knowledge of an organization even before the organization begins its targeted recruitment. In particular, large organizations may be familiar to many individuals. It is common for individuals to have loosely structured general impressions of a company—in other words, to hold some image of what the company is like. These general impressions or organizational images may be formed by corporate advertising, the way the firm is depicted in the media, personal experience with the company or its products, and many other factors. A number of studies have documented the impact of organizational image on applicant attraction. In particular, several studies suggest that firms that are viewed as socially responsible are attractive to potential applicants. What is less clear is whether organizations actively manipulate their images in an effort to be attractive to prospective employees.

MAINTAINING STATUS

In many cases, there is a significant time lapse between a candidate's initial application and the organization's decision whether to hire that applicant. The goal of recruitment during this phase is to maintain the applicant's interest in the organization while the screening process runs its course. Every interaction between the applicant and the organization during this period can influence the applicant's interest and, as a result, has important recruitment aspects. In this

section, the impact of recruiters and interviewers, as well as applicant reactions to other selection devices, are reviewed.

Recruiters

In many hiring processes, the initial application is followed by an interview. In most cases, the first interview has a dual nature: It serves as a selection device but also provides an opportunity for recruitment. Most existing research on the role of the early interview in recruitment focuses on the characteristics and qualities of the individual conducting the interview (i.e., the recruiter).

Research has consistently demonstrated that applicants prefer recruiters who are warm and informative. Furthermore, they form more favorable views of the organization and are more attracted to its jobs when recruiters are warm and informative. Two theories have been proposed to explain the impact of reactions to recruiters. First, the interview is, to a great extent, an opportunity for recruiters to convey information about the organization, and warm and informative recruiters may simply do a better job of communicating with applicants. Second, recruiters may serve as signals for unobserved organizational characteristics. Applicants may presume that the recruiter is representative of the organization and its employees—that is, organizations whose recruiters are warm are likely to have a friendly, collegial culture; organizations whose recruiters are informative have a culture that respects employees' need for information.

Research has also attended to the demographic characteristics of recruiters, but here the results are more ambiguous. Recruiter gender, age, experience, and functional area were found to have significant effects on applicant attraction in some studies but no effects in others. Likewise, the degree of demographic similarity between the recruiter and the applicant was found to have an impact in some studies but no impact in others.

Applicant Reaction to Selection Devices

Because the recruitment and selection processes occur simultaneously, an organization's approach to selection will likely influence how an applicant feels about the organization and its methods, and therefore it is likely to influence whether the applicant will accept the job if one is offered. Two rationales have been offered to explain these reactions. First, applicant reactions may

be a function of privacy concerns; some selection techniques, such as drug testing and certain psychological tests, may be viewed as overly intrusive. Second, applicants may respond based on their desire for and perceptions of justice; some techniques are seen as more fair, either in process or outcome, than others.

Literature in this area has focused primarily on the question of justice. Rather than identifying lists of techniques that are viewed as just or unjust, most research has focused on aspects of the selection process that may be perceived as just or unjust. The timeliness of feedback, the job-relatedness of the selection device, and the degree to which procedures are explained to applicants are examples of elements that enhance the perceived justice of selection techniques and thus are likely to lead to maintenance of applicant status. It is also clear that the context in which selection and recruitment occur can make a difference. For example, the impact of specific selection techniques on attraction to the organization can vary as a function of job type, characteristics of the organization, and applicant characteristics (in particular, race).

Realism

During the maintenance phase of recruitment, organizations supplement their initial recruitment communications with additional information. Decisions regarding the nature of the information that is added are critical. One of the most frequently studied aspects of recruitment is the impact of realistic communications. Organizations can use realistic job previews (RJPs) to present a balanced and true representation of the job and the organization. Such previews are carefully designed to include both positive and negative aspects of the work. This approach can be contrasted with the more traditional sales-oriented approach, in which organizations strive to present jobs in a uniformly positive light.

Numerous theories have been developed to support the realistic approach. The first is the *met-expectations theory*, which suggests that providing realistic information prevents applicants from developing inflated expectations of what the job is like and therefore makes them less likely to suffer disappointment on the job. Second, the *ability-to-cope perspective* suggests that giving applicants advance notice of negative aspects of the job gives them time to develop coping strategies. Third, RJPs may create an atmosphere of honesty that is appreciated by applicants. Finally, RJPs may operate through self-selection: Candidates who react negatively to the

unattractive aspects of the job can remove themselves from consideration.

The cumulated evidence suggests that RJPs are associated with positive posthire outcomes. In particular, applicants who receive realistic recruitment communications exhibit lower turnover and higher performance. These effects are moderated, however, by design factors such as timing (when the realistic information is provided) and medium (the method used to communicate—for example, written versus verbal).

CLOSING THE DEAL: INFLUENCING JOB CHOICE

During the final phase of recruitment, organizations must persuade their most attractive applicants (those to whom job offers have been made) to join the company. This stage is critical because significant investments in both recruitment and selection processes are lost if candidates reject offers. Unlike the other two phases of recruitment, research on this final phase focuses on the thought processes of applicants as they make decisions about which job to choose. Substantially less research has focused on the activities of the organization at this final stage.

Job Choice Research: Content Issues

One of the most significant debates in the job choice literature focuses on what content is attended to in job choice—that is, which characteristics or attributes of jobs and organizations are most likely to lead to a positive job choice outcome. By and large, this debate has centered on the validity of two methods of assessing attribute preference: direct estimation and policy capturing. In the *direct estimate* technique, applicants are provided with a list of job attributes (e.g., high pay, opportunities for advancement, pleasant working conditions) and asked to rate or rank the importance of each of these factors. The underlying assumption is that more important attributes will play a greater role in job choice. However, this approach has been criticized as lacking in context. For example, it does not allow for variation in levels or for trade-offs among attributes. In addition, the direct estimation technique has been faulted for requiring more self-insight than applicants might have.

Policy capturing provides a methodological alternative to direct estimation. In policy-capturing studies, applicants are provided with a set of job descriptions across which attribute levels are systematically varied.

They are then asked to rate the attractiveness of the job. Statistical regression is used to identify the degree to which specific attributes influenced attraction to the job.

It has become increasingly clear that, methodological issues aside, neither of these approaches is likely to yield a single set of universally attractive attributes. Instead, research using both techniques has identified differences in attribute preferences as a function of demographic status, individual values, and personality traits.

Job Choice: Process Issues

Research on the job choice process offers consistent support for expectancy-based decision-making models. The expectancy perspective suggests that applicants will estimate the probability of obtaining certain outcomes if a specific job is chosen (e.g., attributes such as good benefits or pleasant coworkers), weight those probabilities by the value or attractiveness of each attribute, sum across attributes, and then select the job that obtains the highest total weighted attribute score.

Consistent findings notwithstanding, some have argued that job choice is not as rational as the expectancy model suggests. For example, some recent research suggests that interactions that occur during the final job offer negotiations can have an impact on job choice, above and beyond their impact on attribute levels (e.g., through their effect on perceptions of justice). However, relatively little research on this topic has been conducted.

—Alison E. Barber

See also Job Advertisements; Job Choice; Job Search; Realistic Job Preview; Recruitment Sources

FURTHER READING

- Barber, A. E. (1998). *Recruiting employees: Individual and organizational perspectives*. Thousand Oaks, CA: Sage.
- Breaugh, J. A. (1992). *Recruitment: Science and practice*. Boston: PWS-Kent.
- Breaugh, J. A., & Starke, M. (2000). Research on employee recruitment: So many studies, so many remaining questions. *Journal of Management*, 26(3), 405–434.
- Carlson, K. D., Connerly, M. L., & Mecham, R. L. (2002). Recruitment evaluation: The case for assessing the quality of applicants attracted. *Personnel Psychology*, 55(2), 461–490.
- Phillips, J. M. (1998). Effects of realistic job previews on multiple organizational outcomes: A meta-analysis. *Academy of Management Journal*, 41(6), 673–690.

Ryan, A. M., & Ployhart, R. F. (2000). Applicants' perceptions of selection procedures and decisions: A critical review and agenda for the future. *Journal of Management*, 26(3), 565–606.

Rynes, S. L. (1991). Recruitment, job choice, and post-hire consequences: A call for new research directions. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 2, pp. 399–444). Palo Alto, CA: Consulting Psychologists Press.

RECRUITMENT SOURCES

Recruitment sources are one of the most frequently studied aspects of employee recruitment. Recruitment sources are the avenues that organizations use to reach applicants. Evidence suggests that the choice of recruitment source(s) is a strategic decision, in the sense that there are relationships between recruitment sources and employment outcomes. However, the exact nature and reasons for those effects remain ambiguous.

Traditional recruitment sources include employee referrals, employment agencies (including campus placement offices and executive search firms), newspaper and radio advertisements, employee referrals, and unsolicited applications (known as walk-ins). Newer recruitment sources that are growing in popularity include job or career fairs and Internet-based recruitment through electronic job boards or the organization's own Web site.

Recruitment sources can be either formal or informal. Formal sources typically involve a third-party intermediary that assists in the recruitment process, such as an employment agency, a college placement office, or a newspaper or online advertisement service. Informal sources typically involve direct contact between the potential employee and the employer and include such techniques as direct applications, referrals, and the rehiring of former employees.

INITIAL RESEARCH ON RECRUITMENT SOURCES

A significant body of research on recruitment source effects has accumulated over the years. Initial research was primarily descriptive in nature and explored the relationship between recruitment sources and posthire outcomes such as employee satisfaction, retention, and absenteeism. The most consistent finding

of this research is that informal sources (referrals in particular but also walk-ins and the rehiring of former employees) tend to have positive associations with posthire outcomes: lower turnover and, in some cases, better work attitudes and job performance.

Recruitment scholars soon began to propose and test explanations for these findings. The two most commonly studied explanations are the *individual differences hypothesis* and the *realistic information hypothesis*.

First, regarding individual differences, it has been suggested that different recruitment sources yield individuals with different characteristics. These individual differences ultimately lead to different posthire outcomes. For example, employee referrals might be an effective hiring source because employees choose to refer only individuals who, in their judgment, would be effective employees. This method of screening would produce a group of applicants that is superior to other groups on important job qualifications.

Second, regarding realistic information, it has been proposed that applicants recruited from different sources have access to different information. In particular, individuals recruited through informal sources may have access to more extensive, more specific, or more accurate information about the new job. Having that information might provide greater role clarity and more realistic expectations for those applicants, which, in turn, could lead to better adjustment and therefore better posthire outcomes.

Research on the validity of these explanations has yielded mixed support. In support of the individual differences hypothesis, associations have been found between recruitment sources and individual characteristics such as age, education, experience, and physical abilities. In support of the realistic information hypothesis, informal sources have been associated with greater amounts of realistic information. However, these findings are not universal. Furthermore, relatively few studies have been able to verify that the relationship between recruitment sources and posthire outcomes is mediated by these intervening variables. Some studies found only a modest, if any, relationship between recruitment sources and posthire outcomes.

CONTINGENCY PERSPECTIVES ON RECRUITMENT SOURCE EFFECTS

The inability of the most popular explanations of recruitment source effects to fully explain the relationship between recruitment sources and employment

outcomes has led to speculation about contingency factors. Based on a limited number of studies, there appears to be some merit to the argument that the proposed processes hold in some cases or situations but not in others. For example, one study found differences in source effects across racial and ethnic lines: Employee referrals were associated with lower turnover for White applicants, but employment agencies yielded the lowest turnover among Blacks. Another study found that the use of employee referrals in Mexico was associated with higher turnover, the opposite of the effect observed in U.S.-based research. A full range of contingency factors for recruitment source effects has not yet been specified.

RECRUITMENT SOURCES AND DIVERSITY

Despite the observed advantages of informal recruiting sources, heavy reliance on these sources does raise concerns. Several studies found differences in recruitment source use by gender and by race and ethnicity, with White males more likely to use informal recruitment sources than are women or people of color. Therefore, organizations that rely on informal recruitment to reduce turnover may be trading opportunities to diversify their workforce. A complete assessment of recruiting source effectiveness should incorporate a variety of recruiting goals, something that is not always done in recruiting source research.

THE INTERNET AS A RECRUITMENT SOURCE

A recruiting source that is growing in popularity and in research attention is the Internet. Descriptive research suggests that Web sites are already among the most commonly used recruitment sources across a wide variety of jobs, and their use is expected to grow. Recruiters cite perceived benefits of online recruitment that include low cost and high speed. It is also possible through Web-based recruiting to provide rich, detailed information that is comparable to the information that applicants recruited through informal sources might receive.

A disadvantage of Web-based recruiting is that the large quantity of applications generated may not be particularly high in quality. Also, because of the “digital divide” in access to computers by race and ethnicity, it has been suggested that this source may have negative implications for diversity.

In fact, recent research suggests that Internet-based recruiting may provide a compromise between formal

and informal sources. One study indicated that online recruiting yields applicants who are more diverse than those recruited through informal means (but less so than those recruited by formal means) and is more successful in recruiting qualified applicants than traditional formal methods (but less so than informal recruitment sources).

—Alison E. Barber

See also Job Search; Realistic Job Preview; Recruitment

FURTHER READING

- Barber, A. E. (1998). *Recruiting employees: Individual and organizational perspectives*. Thousand Oaks, CA: Sage.
- Carlson, K. D., Connerly, M. L., & Mecham, R. L. (2002). Recruitment evaluation: The case for assessing the quality of applicants attracted. *Personnel Psychology, 55*(2), 461–490.
- Chapman, D. S., & Webster, J. (2003). The use of technologies in the recruiting, screening, and selection processes for job candidates. *International Journal of Selection and Assessment, 11*(2/3), 113–120.
- Linnehan, F., & Blau, G. (2003). Testing the impact of job search and recruitment source on new hire turnover in a maquiladora. *Applied Psychology, 52*(2), 253–271.
- McManus, M. A., & Ferguson, M. W. (2003). Biodata, personality, and demographic differences of recruits from three sources. *International Journal of Selection and Assessment, 11*(2/3), 175–183.

REINFORCEMENT THEORY OF WORK MOTIVATION

The *operant conditioning* or *reinforcement theory* of B. F. Skinner is one of the major psychological theories concerned with motivation at work. Unique in the social sciences, it identifies two of its major concepts according to the time at which they occur: (1) antecedents, such as communicating company policy, providing training, and setting goals, which typically precede the targeted behavior; and (2) consequences that take place after performance, such as compliments for a job well done, acknowledgment of the receipt of work, feedback on the quality of the task done, and graphs showing performance plotted over time, as well as the avoidance of such distasteful events as unwarranted criticism, punching in on a time clock, or the processing of complaints or grievances.

The action that occurs (or does not occur) *after* the behavior of interest is considered the driving force in motivation.

HISTORY

Although Skinner had formulated the basic principles of operant conditioning by the 1940s, they were not widely applied outside university laboratories until the 1960s. Initially, reinforcement theory, also referred to as *applied behavior analysis*, was used in the wards of institutions for the mentally retarded. Behavior analysts designed programs for use with patients and, soon thereafter, with staff.

The same principles were used regardless of whether the setting was a school or a package delivery company. After truck drivers and dockworkers at Emery Air Freight, for example, were positively reinforced, they worked together more efficiently and harmoniously. During boot camp at Fort Ord, California, a token-economy program was introduced in which soldiers could exchange points for such coveted backup reinforcers as early dismissal and time off with pay. As a result, the soldiers not only maintained their morale but also met the rigorous standards of their superiors.

Industrial and organizational psychologists such as Walter R. Nord and Lyman W. Porter identified the behavioral approach as an innovative advance in the understanding of motivation during the early 1970s. Since then, hundreds of studies have been conducted in work settings and published in the *Journal of Applied Psychology*, *Organizational Behavior and Human Decision Processes*, *Academy of Management Journal*, and *Journal of Applied Behavior Analysis*, as well as the *Journal of Organizational Behavior Management*. Conducted by authors at the universities of Kansas, Florida State, and Western Michigan, as well as members of organizations in the public and private sectors, these experiments encompass multiple aspects of performance—productivity, attendance, safety, and service—with individuals, groups, and entire organizations.

USING REINFORCEMENT THEORY TO PROMOTE SUBSTANTIAL AND SUSTAINED IMPROVEMENTS AT WORK

Consequences Are Primary

The basic tenet of reinforcement theory is that behavior is shaped and maintained by its consequences. In

planning a program aimed at increasing safety, for example, behavior analysts identify what consequences *follow* the behavior of interest. They ask a number of questions: What happens when workers behave safely? Do coworkers applaud safe acts, behaviors, or performance? (The terms are used interchangeably here.) Does management recognize workers for performing as desired? Similar queries are made about the undesired consequences: What happens when workers perform unsafely? Do employees incur injuries? Are there penalties for acting unsafely? In other words, what are the consequences of safe and unsafe acts? When consequences are found to be sparse, rarely favorable, and at times unrelated to the desired behavior—not an atypical situation in many organizations—behavior analysts arrange for positive, contingent, and frequent consequences to follow the desired performance.

Evidence of the Effectiveness of Positive Reinforcement

Reviews of the literature (e.g., Johnson, Redmon, & Mawhinney, 2001; Stajkovic & Luthans, 1997) attest to the efficacy of positive reinforcement, the most prevalent organizational change strategy. Judith L. Komaki and her colleagues examined the literature from 1969 to 1998 and found successful improvements in a variety of work settings. Of a total of 72 meticulously controlled experiments, 58 studies supported positive reinforcement, 10 showed mixed support, and only 4 did not show any support—a success rate of 93%. The changes, on average, were not ephemeral; almost half of the studies lasted 26 weeks or longer, and in over 40%, the longest intervention was at least 12 weeks or longer.

Types of Positive Consequences Used in Work Settings

In setting up a positive reinforcement program, behavior analysts typically use one or more of the following consequences:

- *Organizational*: Events that are indigenous to work settings, such as promotions, bonuses, and special training opportunities, are offered. For example, benefits such as free gasoline and free monthly passes on the bus system were made available as incentives for reducing accidents among workers in a regional transportation authority. Letters of recommendation

were among the consequences successfully used by advisers to reinforce master's degree students' progress toward completing their theses.

- *Activity*: Another class of consequences is derived from the Premack principle (named after researcher David Premack), which states that any higher-frequency activity can be used as a positive consequence for a lower-frequency activity. For example, when calls to renewal customers were found to have a higher frequency than calls to new customers, the former were made contingent on the latter. Making the opportunity to sell five renewal contracts dependent on the higher-frequency activity resulted in more new sales calls.
- *Generalized*: Generalized consequences derive their potency from the fact that they can be exchanged for backup reinforcers. Examples include cash, frequent flyer coupons, and trading stamps. The latter, exchangeable for household and recreational items, were given to miners who had not suffered a lost-time injury during the month. In another instance, coupons were traded in at a job-training center for the opportunity to select a clerical assignment.
- *Social*: Typically expressed by individuals, social consequences include commendations, compliments, criticism, reviews, and recognition for a job well done. For example, a hospital supervisor commented to a staff member, "I'm pleased to see you interacting with clients, but I'm sure Mary is even more pleased."
- *Informational*: As the name suggests, information is provided about performance. This information can be conveyed in notes to employees written by supervisors, in the form of a graph of baseline and intervention levels, or by listing, as one Louisiana official did, what had been done after a hurricane: "We're feeding more people. . . . We're recovering more people. . . . We're clearing more roads. . . . We're building more power lines. . . . Every day, more victories."

Antecedents Play a Secondary Role

Confronted with problems involving the workforce, the most common recommendation is "to inform or exhort," both of which are antecedents. Although antecedents serve valuable educational or cuing functions (e.g., clarifying expectations for performance, specifying the relationship between behavior and its consequences, and signaling occasions on which consequences are likely to be provided), when they are used alone, the evidence for their efficacy is meager. Field experiments addressing how consequences add to the effectiveness of antecedents

consistently show that antecedents alone do not result in substantial and sustained improvements in ongoing behaviors, and only when consequences accompany antecedents do they occur. Because of the essential role of consequences in motivation, the delivery of one or more consequences is the mainstay of virtually all reinforcement programs.

EXPLANATORY POWER OF REINFORCEMENT THEORY

Illuminating Why We Do What We Do

Reinforcement theory also clarifies why people sometimes do the perplexing, often paradoxical things they do—for example, why managers who purportedly believe in merit promote based on seniority, or why professors who profess about the importance of education neglect their teaching.

Normally, positive reinforcement is exercised in a constructive, planned way. But it can also be used, often inadvertently, to produce unwanted results. For example, the head of a public relations firm could not understand why her staff kept postponing work. Yet the year before, when the staff had been under pressure to produce an anniversary report, she had given permission to set all other work aside and hire temporary staff at company expense. When the report was finally completed, she gave everyone a bonus. Despite the agency head's well-meaning intentions, she may have inadvertently reinforced her staff for procrastinating. Positive reinforcement may explain why some professors spend less time on teaching than research: because their promotion depends heavily on what appears in journals rather than in the classroom.

The principle of *negative reinforcement*, which involves escaping from or avoiding negative or aversive consequences, such as nagging, censure, or litigation, may explain why a manager would promote someone with only an adequate record rather than an exemplary employee with less seniority—to avoid complaints of favoritism or bias. The same principle sheds light on why people often remain quiet in the face of corruption—to avoid censure—and why some lieutenants choose to remain at their rank—to avoid the increased scrutiny, responsibility, and restrictions that come with being promoted to captain.

The consequences for performing as desired sometimes can be punishing. For example, the head of a major research laboratory bemoaned the lack of

creativity of the engineers in his group. When asked about the consequences, however, he could readily point to a host of inherently negative consequences—their time-consuming, seemingly fruitless literature searches; difficulty communicating concepts that were, as yet, incomprehensible to their peers; and inordinate amounts of time expended before having anything to show for their efforts. All of these aversive events helped to explain why some engineers shunned such endeavors, preferring the tried and true.

The principle of *punishment by removal*, technically called *response cost*, wherein a positive reinforcer is withdrawn as a consequence of a behavior, sheds light on how some preferred behaviors can be unintentionally discouraged. For example, even when their lives are in danger, fighter pilots are often reluctant to call for help. Such an admission, as Tom Wolfe graphically points out in his book *The Right Stuff*, triggers a very public chain of events, some punishing—fire trucks trundling out to the runway, incoming flights being held up, the bureaucracy gearing up to investigate—and at least one punishment by removal—the pilot's peers questioning the pilot's mettle and hence dampening the idea that the pilot had “the right stuff.”

Although punishment or negative reinforcement are not recommended as the primary way of changing behavior, decision makers need to be sensitive to their use of these consequences, eliminating the punishing ones whenever possible and redesigning the flow of the work to enable naturally or specially arranged favorable consequences.

Shedding Light on What Effective Leaders Do

The theory of operant conditioning has inspired the challenging but rarely researched question of what effective leaders really do to motivate others. Komaki predicted in her operant model of effective supervision that first-rate managers are more likely to provide consequences. Because consequences must be related to what employees actually do, she conjectured that effective supervisors frequently monitor or inquire about performance, particularly by directly sampling the work. The original rationale was a logical one: Managers who monitor are more likely to have dependable and up-to-date information with which to provide contingent consequences. Later, she found that supervisors who monitor are more likely than

those who provide antecedents to have subordinates who discuss their performance, which, in turn, increases the likelihood of back-and-forth exchanges between the two.

In every one of seven field studies, Komaki and her colleagues found that effective managers monitor, provide consequences, or do both. The consequences may be as brief as a simple “thanks,” or even an “okay” while sampling the work. Neutral consequences (e.g., “Yep. That’s all right,” or as an officer handed a sergeant a report, “You need a statement from the driver to complete that report.”) separated effective police sergeants from lackluster ones in a study by Neil Brewer and colleagues. Investment bankers, identified as exemplary in motivating others, actually thanked the bearer of bad news, acknowledging employees for bringing thorny issues to their attention. Furthermore, top-notch sailboat skippers were found to use a particular sequence during races in which monitors routinely precede consequences in what is referred to as an *AMC sequence*, where A stands for an antecedent (an order or instruction), M for monitor, and C for consequence. Exemplary leaders can perform these AMC sequences quickly.

Besides inspiring a leadership model and providing a way of explaining why people do what they do, reinforcement theory shows how a judiciously arranged set of consequences can result in enhanced performance from day to day and season to season.

—Judith L. Komaki

See also Organizational Behavior Management

FURTHER READING

- Brewer, N., Wilson, C., & Beck, K. (1994). Supervisory behavior and team performance amongst police patrol sergeants. *Journal of Occupational and Organizational Psychology*, 67, 69–78.
- Johnson, C. M., Redmon, W. K., & Mawhinney, T. C. (Eds.). (2001). *Handbook of organizational performance: Behavior analysis and management*. New York: Haworth.
- Komaki, J. L. (1998). *Leadership from an operant perspective*. London: Routledge.
- Komaki, J. L., Coombs, T., Redding, T. P., & Schepman, S. (2000). A rich and rigorous examination of applied behavior analysis research in the world of work. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology 2000* (pp. 265–367). Sussex, UK: Wiley.

Porter, L. W. (1973). Turning work into nonwork: The rewarding environment. In M. D. Dunnette (Ed.), *Work and nonwork in the year 2001* (pp. 113–133). Monterey, CA: Brooks/Cole.

Skinner, B. F. (1978). *Reflections on behaviorism and society*. Englewood Cliffs, NJ: Prentice Hall.

Stajkovic, A. D., & Luthans, F. (1997). A meta-analysis of the effects of organizational behavior modification on task performance, 1975–95. *Academy of Management Journal*, 40(5), 1122–1149.

RELIABILITY

Reliability can be defined as the extent to which scores of a measure are free from the effect of measurement error. Measurement error is reflected in random deviations of the scores observed on a measure from respondents’ true scores, which are the expected values of respondents’ scores if they completed the measure an infinite number of times. Mathematically, reliability is quantified as the ratio of true score variance to observed score variance or, equivalently, the square of the correlation between true scores and observed scores. Based on these indexes, reliability can range from zero (no true score variance) to one (no measurement error).

Reliability is important for both practical and theoretical purposes. Practically, it enables estimation of the standard error of measurement, an index of accuracy of a person’s test score. Theoretically, reliability contributes to theory development by allowing researchers to correct for the biasing effect of measurement error on observed correlations between measures of psychological constructs and by providing researchers with an assessment of whether their measurement process needs to be improved (e.g., if reliability is low).

SOURCES OF MEASUREMENT ERROR

Multiple sources of measurement error can influence a person’s observed score. The following sources are common in psychological measures.

Random Response Error

Random response error is caused by momentary variations in attention, mental efficiency, or distractions

within a given occasion. It is specific to a moment when a person responds to an item on a measure. For example, a person might provide different answers to the same item appearing in different places on a measure.

Transient Error

Whereas random response error occurs within an occasion, transient error occurs across occasions. Transient errors are produced by temporal variations in respondents' mood and feelings across occasions. For example, any given respondent might score differently on a measure administered on two occasions. Theoretically, such temporal differences are random, and thus not part of a person's true score, because they do not correlate with scores from the measure completed on other occasions (i.e., they are occasion specific).

Specific Factor Error

Specific factor error reflects idiosyncratic responses to some element of the measurement situation. For example, when responding to test items, respondents might interpret item wording differently. Theoretically, specific factors are not part of a person's true score because they do not correlate with scores on other elements (e.g., items) of the measure.

Rater Error

Rater error arises only when a person's observed score (rating) is obtained from another person or set of persons (raters). Rater error arises from the rater's idiosyncratic perceptions of a ratee's standing on the construct of interest. Theoretically, idiosyncratic rater factors are not part of a person's true score because they do not correlate with ratings provided by other raters (i.e., they are rater specific).

TYPES OF RELIABILITY COEFFICIENTS

Reliability is indexed with a reliability coefficient. There are several types of reliability coefficients, and they differ with regard to the sources of observed score variance that they treat as true score and error variance. Sources of variance that are treated as error variance in one type of coefficient may be treated as true score variance in other types.

Internal Consistency

This type of reliability coefficient is found most frequently in psychological research (e.g., Cronbach's alpha, split-half). Internal consistency reliability coefficients, also known as *coefficients of equivalence*, require only one administration of a measure and index the effects of specific factor error and random response error on observed scores. They reflect the degree of consistency between item-level scores on a measure. Because all items on a given measure are administered on the same occasion, they share a source of variance (i.e., transient error) that may be unrelated to the target construct of interest but nonetheless contributes to true score variance in these coefficients (because it is a shared source of variance across items).

Test-Retest

Test-retest reliability coefficients, also known as *coefficients of stability*, index the effects of random response error and transient error on observed scores. Test-retest coefficients reflect the degree of stability in test scores across occasions and can be thought of as the correlation between the same test administered on different occasions. Because the same test is administered on each occasion, the scores from each occasion share a source of variance (i.e., specific factor error) that may be unrelated to the target construct of interest but nonetheless contributes to true score variance in these coefficients (because it is a shared source of variance across occasions).

Coefficients of Equivalence and Stability

Coefficients of equivalence and stability index the effects of specific factor error, transient error, and random response error on observed scores. These coefficients reflect the consistency of scores across items on a test and the stability of test scores across occasions; they can be thought of as the correlation between two parallel forms of a measure administered on different occasions. The use of different forms enables estimation of specific factor error and random response error, and the administration on different occasions enables estimation of transient error and random response error. Therefore, this coefficient can be seen as a combination of the coefficient of equivalence and the coefficient of stability. Hence, the coefficient of

equivalence and stability is the recommended reliability estimate for most self-report measures because it appropriately accounts for all three sources of measurement error, leaving none of these sources of variance to contribute to the estimate of true score variance.

Intrarater Reliability

Intrarater reliability coefficients—a type of internal consistency coefficient that is specific to ratings-based measures—index the effects of specific factor error and random response error on observed score variance. These coefficients reflect the degree of consistency between items rated by a given rater on one occasion. Because the items are rated by the same rater (intrarater) on the same occasion, they share two sources of variance (i.e., rater error and transient error) that may be unrelated to the construct of interest but nonetheless contribute to true score variance in these coefficients (because they are shared sources of variance across items).

Interrater Reliability

Like intrarater reliability coefficients, *interrater reliability coefficients* are also specific to ratings-based measures. However, interrater reliability coefficients index the effect of rater error and random response error on observed score variance. They reflect the degree of consistency in ratings provided by different raters and can be thought of as the correlation between ratings from different raters using a single measure on one occasion. Because the same ratings measure is administered to different raters (interrater) on the same occasion, the ratings share two sources of variance (i.e., specific factor error and transient error) that may be unrelated to the target construct of interest but nonetheless contribute to true score variance in these coefficients (because they are a shared source of variance across raters).

ESTIMATING RELIABILITY COEFFICIENTS

Methods for estimating the coefficients just described are provided by two psychometric theories: *classical test theory* and *generalizability (G) theory*. Researchers who adopt a classical test theory approach to the estimation of coefficients often calculate Pearson correlations between elements of the measure (e.g., items,

raters, and occasions) and then use the Spearman-Brown prophecy formula to adjust the estimate for the number of items, raters, or occasions across which observations on the measure were gathered. Conversely, researchers who adopt a G-theory approach focus on first estimating components of the reliability coefficients (i.e., true score variance, or *universe score variance* in G-theory terms, and error variance) and then form a ratio with these estimates to arrive at an estimated reliability coefficient (generalizability coefficient in G-theory terms).

FACTORS AFFECTING RELIABILITY ESTIMATES

Several factors can affect the magnitude of reliability coefficients that researchers report for a measure. Their potential impact on any given estimate must be considered in order for an appropriate interpretation of the estimate to be made.

Measurement Design Limitations

The magnitude of a reliability coefficient depends partly on the sources of variance that are treated as error. Unfortunately, not all measurement designs allow estimation of all types of reliability coefficients. Thus, even though a researcher may wish to consider a source of variance in his or her measure as error, it may not always be possible to account for it in the measurement design. For example, researchers cannot index the amount of transient error variance in observed scores if the measure (or at least parts of it) was not administered on multiple occasions. In such a case, the researcher may have to report a reliability coefficient that overestimates the true reliability of the measure.

Constructs Being Measured

Items measuring different constructs may be differentially susceptible to sources of measurement error. For example, items for broader constructs (e.g., conscientiousness) are likely to be more strongly affected by specific factor error than items for narrower constructs (e.g., orderliness). Similarly, items measuring stable personality constructs (e.g., the Big Five) may be less susceptible to transient error than items measuring affect-related constructs.

Heterogeneity of the Sample

It is well-known that range restriction attenuates correlations between variables. Because reliability coefficients can be interpreted as the square of the correlation between observed scores and true scores, they, too, are subject to range restriction. Reliability estimates tend to be higher when they are obtained from a sample of persons who vary greatly on the construct being measured and lower if the persons in the sample do not vary greatly on the construct.

Test Length

Scores on a measure are typically formed by summing or averaging responses across items. Because specific factor errors associated with items are uncorrelated, their contributions to the observed score variance when summed or averaged diminish in proportion to the number of items included in the measure. Hence, all else being equal, the more items on the measure, the higher its reliability.

—Huy Le and Dan J. Putka

See also Classical Test Theory; Generalizability Theory; Validity

FURTHER READING

- Feldt, L. S., & Brennan, R. L. (1989). Reliability. In R. L. Linn (Ed.), *Educational measurement* (3rd ed., pp. 105–146). New York: American Council on Education.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Schmidt, F. L., & Hunter, J. E. (1996). Measurement error in psychological research: Lessons from 26 research scenarios. *Psychological Methods, 1*, 199–223.
- Schmidt, F. L., Le, H., & Ilies, R. (2003). Beyond alpha: An empirical examination of the effects of different sources of measurement error on reliability estimates for measures of individual differences constructs. *Psychological Methods, 8*, 206–224.
- Traub, R. E. (1994). *Reliability for the social sciences: Theory and applications*. Thousand Oaks, CA: Sage.

RETIREMENT

Retirement is a general term that has traditionally referred to older adults' disengagement from the

workforce. As an area of research inquiry, it is a broad concept that has been studied by a number of disciplines, including economics, gerontology, and organizational behavior, as well as developmental and industrial and organizational psychology. Appropriately, these fields have offered many different perspectives on the concept of disengagement. Some frame it in terms of the amount of participation in the workforce (i.e., the number of hours worked), whereas others frame it in terms of the receipt of pensions as a source of income rather than paid work. Still other fields focus on disengagement as a form of commitment to and reliance on work as a source of personal identity and fulfillment. These differing viewpoints—and the theoretical perspectives that underlie them—are all valuable because each provides important insights into the concept and process of retirement. However, such divergent perspectives can make the systematic study of retirement challenging for students and researchers.

RETIREMENT TRENDS

Increasing interest in the topic of retirement on the part of researchers, students, policymakers, organizational decision makers, and the general public has been fueled by at least three demographic trends. The first and most notable of these trends is the gradual aging of the nearly 80 million people born between 1946 and 1964, commonly known as the baby boomers. At present, this group represents approximately 50% of the U.S. population in the prime working years (between ages 25 and 64). As this cohort continues to age over the next decade, the percentage of adults between 55 and 64 (when retirement is a realistic option) will increase by approximately 65%. As a result, the baby boomers will no doubt redefine the concept of retirement, as they have so many other concepts as they have moved through their life course.

The second demographic trend is the decline in workforce participation of older adults, namely men, during the second half of the 20th century. The workforce participation rate for men between the ages of 55 and 64 was 87% in 1950 but just 67% in 2000. For men over the age of 65, the workforce participation rate dropped from 46% in 1950 to a mere 17% in 2000. However, this decreasing trend appears to have leveled out somewhat since approximately 1985. For women between the ages of 55 and 64, workforce participation rates increased from 27% in 1950 to 52% in

2000. The workforce participation rate for women over the age of 65 also increased, from 8% in 1950 to 11% in 2000. Similar trends have been observed in most developed countries. As a result, the divergent trends for men's and women's late-life workforce participation rates will no doubt redefine the concept of retirement for generations to come.

The third demographic trend is the increasing longevity of the population in developed countries. In 1950, for example, the average 65-year-old could expect to live 13.9 more years; however, by 2002, that number had increased to 18.2 years (approximately 22% longer). Given this trend toward increased longevity, the way we define and study retirement will need to change to accommodate the fact that we may now spend upwards of one third of our lives or more in retirement.

Taken together, these trends indicate that more workers will be experiencing retirement and will do so for a longer period of time than ever before. The sheer magnitude of this phenomenon raises a number of social, organizational, and individual concerns. At the societal level, the most prominent issue is the looming strain that will be placed on public (e.g., Social Security) and private pension systems by the large number of retiring baby boomers. Thus, public policymakers will need to make many difficult yet crucial decisions in the near future about how we can best address the projected shortfalls in pension systems, particularly Social Security.

At the organizational level, both public- and private-sector employers will be faced with the loss of well-trained, highly experienced employees and, in some sectors, potential labor shortages as the massive baby boomer cohort begins to retire in earnest in 2010. Thus, employers will be faced with the decision of where and how to spend depleted resources. Should they work to retrain older workers? Provide incentives to keep older, more experienced workers from contemplating retirement? Develop mentoring programs to tap the wisdom of older workers who are quickly approaching retirement? Restructure jobs to make them more appealing and accommodating to older workers? Choosing among these options will be challenging for organizational decision makers.

RETIREMENT AND THE INDIVIDUAL

For individuals, the questions center predominantly on deciding whether and when to retire, how to

finance retirement, and quality of life after retirement. These highly personal decisions are becoming more and more complex for those approaching retirement.

Research on decisions about whether and when to retire shows that these choices appear to be influenced by a number of factors. At the individual level, demographic variables such as age, health, and wealth show some of the most consistent relationships with the decision to retire. Older workers, those whose health limits their ability to work, and those who can financially afford to stop working (because they are eligible to receive Social Security or private pension income) are more likely to retire.

Familial variables and gender are also related to retirement decisions. For example, married couples generally tend to coordinate the timing of their retirements. Those having higher quality of marital and family life appear to find retirement more attractive. Gender is also related to retirement decisions, but this relationship is more complex and likely influenced by the presence of dependents (including a spouse or aging parents) in the home. For example, women tend to retire when there are dependents in the home, presumably to engage in caregiving, whereas men tend to continue working, presumably to meet the financial demands created by having dependents in the home. In addition to these factors, lower commitment to aspects of the work role and a positive attitude toward retirement are also related to the decision to retire.

Research on quality of life after retirement suggests that, contrary to the once-popular belief, most retirees do not experience retirement as a stressful crisis. Rather, most retirees adjust to retirement fairly well. Studies examining adjustment to retirement suggest that it is influenced by many of the same factors that influence the retirement decision. For example, those with better financial situations and better health tend to be more satisfied with retirement. Those who have engaged in more retirement planning also tend to have higher satisfaction with retirement. With regard to gender, men and women with similar circumstances appear to experience retirement similarly. However, when their circumstances differ, there are often important differences between the sexes. For example, women may have fewer financial resources, and therefore they are less able to afford the retirement lifestyle they prefer. Beyond these factors, people with more social contacts and social support are more likely to experience a higher quality of life in retirement. Contrary to popular belief, less than 10% of retirees

move out of state, presumably to warmer climates and more affordable locations, after retiring.

EVOLVING CONCEPTIONS OF RETIREMENT

At one point in time, retirement meant a complete disengagement from the workforce. However, recent trends suggest this definition of retirement is inaccurate. Indeed, in 2000, 38% of men and 33% of women receiving income from private pensions were also employed. In one survey of adults between the ages of 36 and 54, 55% reported that they planned to work part-time and 32% planned to work full-time after they retire. This continued paid work during retirement is sometimes referred to as *bridge employment*, *phased retirement*, or *blurred retirement*. This transitional phase between full-time work and complete retirement allows older workers to try out retirement and determine whether it is a good fit for them. Given the trend toward increased longevity, this transition phase is likely to become more prevalent and lengthen considerably over time. However, as past research has shown, not all individuals (particularly less-educated and minority workers) have equal opportunity to engage in such a transitional phase. Thus, policymakers need to consider how best to provide transitional retirement to as many individuals as possible, regardless of their means or demographic background.

Retirement is a rapidly evolving phenomenon. We must keep in mind that retirement is a continuous process of preparation, transition, and adjustment. Demographic factors are altering the way we define, view, and experience retirement. The idea that an individual can work for the same company for 30 to 40 years and then retire at age 65 with a gold watch and enjoy a life of leisure is quickly becoming extinct, if it ever really existed at all. Instead, we are seeing what scholars refer to as the “widening trajectory” of the life course. That is, we are observing a wider array of what is considered normative in terms of retirement. As a result, scholars, researchers, and students will be challenged in studying the retirement concept and experience.

Organizational decision makers will be challenged to determine how best to meet staffing and training needs. Policymakers must also determine how best to meet the needs of the public, and individuals on the front lines may be at a loss as to how to determine when, how, or even whether they should retire, given

the increasing lack of normative standards to rely on. Only through continued diligent scholarship, study, and research will we be able to keep pace with the moving target that is known as retirement.

—Gary A. Adams and Kenneth S. Shultz

FURTHER READING

- Adams, G. A., & Beehr, T. A. (Eds.). (2003). *Retirement: Reasons, processes, and results*. New York: Spring.
- Beehr, T. A. (1986). The process of retirement: A review and recommendations for future investigation. *Personnel Psychology*, 39, 31–55.
- Feldman, D. C. (1994). The decision to retire early: A review and conceptualization. *Academy of Management Review*, 19, 285–311.
- Henretta, J. C. (2001). Work and retirement. In R. H. Binstock & L. K. George (Eds.), *Handbook of aging and the social sciences* (5th ed., pp. 255–271). San Diego: Academic Press.
- Kim, J. E., & Moen, P. (2001). Moving into retirement: Preparation and transition in late midlife. In M. E. Lachman (Ed.), *Handbook of midlife development* (pp. 487–527). New York: Wiley.
- Moen, P. (1996). A life-course perspective on retirement, gender, and well-being. *Journal of Occupational Health Psychology*, 1, 131–144.
- Talaga, J. A., & Beehr, T. A. (1989). Retirement: A psychological perspective. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 185–211). Chichester, UK: Wiley.

RIGHTSIZING

See DOWNSIZING

ROLE AMBIGUITY

Role ambiguity, or the extent to which one’s work responsibilities and degree of authority are unclear, is one of the most widely studied variables in the field of occupational stress. Because it represents a subjective judgment of one’s work situation, role ambiguity is typically assessed using employees’ self-reports. Some researchers refer to role ambiguity by its polar opposite, *role clarity*.

Employees who experience role ambiguity feel uncertainty about which behaviors are and are not appropriate. They may wonder, for example, whether they are engaging in inappropriate work behaviors. On the other hand, they may wonder whether they are failing to engage in appropriate work behaviors. Most employees find both of these situations distressful.

Much of the research on occupational stress has focused on identifying work stressors; role ambiguity and a related variable, called *role conflict* (i.e., the extent to which an employee faces incompatible work demands), are the most commonly studied stressors. A *stressor* is any aspect of the work environment that requires an employee to adapt and has the potential to cause poor health. In addition to role ambiguity, other stressors include having a heavy workload or being mistreated by a supervisor. The negative health consequences produced by a stressor, such as depression, anxiety, or physical symptoms, are called *strains*.

Role theory provides the theoretical basis for the study of role ambiguity. According to role theory, each employee has a unique set of rights and responsibilities within the organization. Formal roles are the set of official behaviors that employees perform as part of their job description and are maintained by organizational policies. The formal role of a teacher, for example, includes grading tests and assigning homework. In addition, informal roles develop as part of the everyday social dynamic of the organization. Although these roles are not enforced by written policies, they are maintained by informal social interactions. For teachers, for example, informal roles might include planning and organizing staff parties. Role ambiguity is generally operationalized as uncertainty concerning formal roles.

CAUSES OF ROLE AMBIGUITY

According to leadership theories, good leaders help employees clarify their responsibilities and then create situations in which those responsibilities can be effectively executed. By this standard, effective leaders create work situations for their subordinates that are free of role ambiguity. When role ambiguity does arise, effective leaders work to minimize it. Leadership theories also suggest that effective leaders show concern for the personal welfare of their subordinates. To the extent that supervisors care about employee well-being, they are likely to work toward reducing role ambiguity and other stressors.

Empirical evidence supports the notion that effective leader behavior is associated with low levels of role ambiguity. Leader initiating structure (i.e., the extent to which leaders engage in behaviors aimed at clarifying employee responsibilities) and leader consideration (i.e., the extent to which leaders show concern for employees), for example, are two leadership variables that are associated with low role ambiguity. Furthermore, employees are likely to experience little role ambiguity when their leaders provide opportunities for employee participation and create a formalized work environment. In short, role ambiguity is indicative of poor management practices. Indeed, many survey items measuring role ambiguity make specific reference to one's supervisor.

In addition to the negative behaviors of supervisors, employees who report high levels of role ambiguity generally report having unfavorable work environments. Some of the environmental factors associated with role ambiguity are lack of autonomy, feedback, and task identity. In other words, role ambiguity is most likely to occur in simple, unenriched jobs. Furthermore, employees who report high levels of role ambiguity also generally report high levels of role conflict.

Individual differences may predispose individuals to experience role ambiguity. Individuals who have an external locus of control (i.e., those who believe they have little control over their lives), who are high in neuroticism, who are high in need for clarity, or who have low self-esteem, for example, are especially likely to report high levels of role ambiguity.

CONSEQUENCES OF ROLE AMBIGUITY

Perceptions of uncertainty are at the core of many workplace stressors, and role ambiguity is no exception. Uncertainty can result in many negative consequences. Indeed, several studies have shown that role ambiguity is related to manifestations of poor mental and physical health. For example, role ambiguity is associated with anxiety, burnout, depression, and physical illness.

In addition to these negative health consequences, role ambiguity is associated with both negative employee attitudes and ineffective job behaviors. Meta-analyses, for example, have found that role ambiguity is associated with the following attitudes:

- Overall job dissatisfaction
- Dissatisfaction with work tasks
- Dissatisfaction with supervision

- Dissatisfaction with coworkers
- Low organizational commitment
- Low job involvement
- High turnover intention
- Absenteeism

The correlation between role ambiguity and dissatisfaction with supervision is especially strong, suggesting that employees perceive management as the source of role ambiguity.

Important methodological issues surround the study of role ambiguity. Most of the research examining the causes and consequences of role ambiguity has used cross-sectional designs. This makes it difficult to draw strong conclusions about the causal relationships between role ambiguity and its potential causes and consequences.

TREATMENTS FOR ROLE AMBIGUITY

Organizations have several options at their disposal for treating role ambiguity. Because ineffective leadership is a root cause of role ambiguity, the most promising treatments are likely to involve leaders. These treatments may include the following actions:

- Training managers to identify when their own behaviors might lead to role ambiguity and encouraging them to modify these behaviors
- Selecting managers who are likely to engage in high levels of initiating structure and consideration
- Redesigning jobs to be more complex
- Introducing efforts aimed at reducing role conflict

Given the negative consequences associated with role ambiguity, one might expect that organizations would be highly motivated to minimize the levels of role ambiguity experienced by their workers. However, as organizations focus more on the bottom line, unfavorable working conditions and their negative effects on employees are often overlooked.

—Nathan A. Bowling

See also Role Conflict; Role Overload and Underload; Stress, Consequences; Stress, Coping and Management; Stress, Models and Theories

AUTHOR'S NOTE: The author wishes to thank Terry A. Beehr for his helpful suggestions concerning earlier versions of this entry.

FURTHER READING

- Beehr, T. A., Walsh, J. T., & Taber, T. D. (1976). Relationship of stress to individually and organizationally valued states: Higher order needs as a moderator. *Journal of Applied Psychology, 61*, 41–47.
- Fisher, C. D., & Gitelson, R. (1983). A meta-analysis of the correlates of role conflict and ambiguity. *Journal of Applied Psychology, 68*, 320–333.
- Jackson, S. E., & Schuler, R. S. (1985). A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior and Human Decision Processes, 36*, 16–78.
- Kahn, R. L., & Byosiore, P. (1992). Stress in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 3, pp. 571–650). Palo Alto, CA: Consulting Psychologists Press.
- Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations*. New York: Wiley.

ROLE CONFLICT

Role conflict occurs when employees experience incompatible work demands. It is a widely studied variable in the occupational stress literature, where it is considered to be a stressor. A *stressor* is any part of the work environment that requires an adaptive response from employees and has the capacity to produce poor health. In addition to role conflict, other stressors include role ambiguity (i.e., the extent to which one's role requirements are unclear), mistreatment at work, and unreasonable workload. The negative health outcomes produced by stressors, such as anxiety, depression, and physical symptoms, are called *strains*. Role conflict is associated with a number of strains.

Role theory provides the theoretical basis for the study of role conflict. According to role theory, each employee has a unique set of work roles. Each role has its own unique rights and responsibilities. Employees simultaneously occupy multiple roles, both within and outside the organization. A midlevel manager who is married, for example, would have the roles of supervisor, subordinate, and spouse. Role conflict is especially likely to exist among individuals who occupy several different roles.

TYPES OF ROLE CONFLICT

Researchers have distinguished several forms of role conflict. One form of conflict occurs when employees

experience incompatibility between their values and their job responsibilities. For example, a convenience store employee who personally objects to gambling but sells lottery tickets as part of his or her job experiences this form of conflict. A second type of role conflict involves incompatibility between employees' job responsibilities and their abilities, time, and resources. Examples of this form of conflict include not having enough time to complete one's work tasks or not having the training or equipment necessary to complete one's work. Similar situations are sometimes referred to as role overload (i.e., having too much work or work that is too difficult) and organizational constraints (i.e., any aspect of the work environment that interferes with job performance).

These two types of conflict are examples of *intra-role conflict*, which occurs when incompatibility exists within a single role. On the other hand, *interrole conflict* occurs when two or more roles are incompatible with each other. One form of interrole conflict occurs when individuals must behave in a particular way in one role that is inconsistent with the way they must behave in another role. For example, a business executive might be required to act authoritatively toward subordinates, but would be expected to act differently when socializing with friends. Conflict between work and family life is another form of interrole conflict.

WORK-FAMILY CONFLICT

Work-family conflict is a form of interrole conflict that occurs when the role requirements of work and family are incompatible with each other. Researchers further distinguish between work-to-family conflict and family-to-work conflict. Work-to-family conflict occurs when one's work roles interfere with the successful execution of one's family roles. If a mother misses her son's school play because she has to attend a work meeting, for example, she experiences family-to-work conflict. Family-to-work conflict, on the other hand, occurs when one's family role interferes with the successful performance of one's work role. This occurs, for example, when a father consistently misses work to care for an ill child. Of these two forms of conflict, work-to-family conflict is likely to produce greater health consequences.

Work-family conflict researchers also distinguish between time-based, strain-based, and behavior-based conflict. Time-based conflict occurs when the amount of time needed to satisfy the role requirements of one

domain do not allow enough time to meet the role requirements of another domain. For example, working excessive hours can prevent employees from spending sufficient time with their families. Strain-based conflict occurs when the demands of one role produce illness that interferes with performance in another role. Caring for a sick spouse, for example, might produce high levels of stress, making it difficult to perform effectively at work. Finally, behavior-based conflict occurs when work roles and family roles require behaviors that are inconsistent with each other. For example, a bill collector is expected to act aggressively at work when interacting with debtors but must act nurturing when caring for his or her children.

WORK-SCHOOL CONFLICT

Individuals who attend school while working often experience an additional form of role conflict: work-school conflict. Work-school conflict occurs when one's work and school responsibilities conflict with each other. An employed student, for example, might spend time working instead of studying for an exam. A further distinction is made between work-to-school conflict and school-to-work conflict. Work-to-school conflict occurs when work responsibilities interfere with school responsibilities, whereas school-to-work conflict occurs when school responsibilities interfere with work responsibilities. Workload and number of hours worked are likely to be positively associated with work-school conflict. In addition to producing the negative consequences discussed later, work-school conflict is also likely to have a negative impact on school performance.

CAUSES OF ROLE CONFLICT

Role conflict is largely the result of ineffective managerial behaviors. Research has found, for example, that leader consideration (i.e., the extent to which supervisors care about the well-being of their subordinates) and leader initiating structure (i.e., the extent to which supervisors clarify employees' roles) are both negatively associated with role conflict. Role conflict is also likely to be high when supervisors fail to provide employees with opportunities for participation.

Ineffective organizational policies are a direct cause of some forms of role conflict. Indeed, some survey questions measuring role conflict specifically refer to incompatible organizational guidelines.

Conflict can arise, for example, from incompatible requests from supervisors or from differing and incompatible performance standards across supervisors. Such forms of conflict are most likely to occur when organizational policies allow employees to report to multiple supervisors.

Role conflict is also likely to occur in simple, unenriched jobs. Specifically, the following job characteristics are negatively associated with role conflict:

- Feedback
- Task identity (i.e., the extent to which a job requires one to complete an entire piece of work, such as assembling a product from start to finish)
- Skill variety (i.e., the extent to which a job requires one to use a variety of different skills)

Finally, role conflict is likely to result from any situation that causes one to simultaneously occupy several roles, both within and outside the workplace. Being employed with multiple jobs, having a family, and being a student can all result in one having many roles.

CONSEQUENCES OF ROLE CONFLICT

Most workplace stressors include a component of uncertainty. Role conflict likely leads employees to feel uncertain about their ability to effectively satisfy their role requirements. This uncertainty leads to a number of negative consequences. Indeed, research has found that role conflict is associated with several indicators of mental and physical health. Some of the negative health consequences potentially produced by role conflict include depression, anxiety, burnout, and physical symptoms. In addition, role conflict is linked with a number of negative job attitudes and ineffective work behaviors:

- Overall job dissatisfaction
- Dissatisfaction with work tasks
- Dissatisfaction with supervision
- Dissatisfaction with coworkers
- Dissatisfaction with pay
- Dissatisfaction with promotional opportunities
- Low organizational commitment
- Low job involvement
- Turnover intention
- Poor job performance

However, most of the research examining the causes and consequences of role conflict has used

cross-sectional designs. Thus, it is difficult to draw firm conclusions concerning causal relationships in this research.

TREATMENTS FOR ROLE CONFLICT

Because role conflict is largely the result of ineffective leadership behaviors, many of the treatments for role conflict require the involvement of supervisors. Supervisors, for example, could be trained to identify behaviors that encourage role conflict and could be trained to modify those behaviors. Likewise, one form of role conflict occurs when employees receive incompatible demands from two or more supervisors. This type of conflict could be eliminated by requiring employees to report to only one supervisor.

Some forms of role conflict are the direct result of organizational policies. Not having the required training or equipment to effectively satisfy one's role requirements, for example, might be the result of organizational policies. Changing such policies could eliminate these forms of role conflict. Some role conflict occurs because employees' personal values are incompatible with the role requirements of their jobs. This type of conflict speaks to the importance of hiring only job applicants who have a good fit with the job requirements.

Given that role conflict is associated with a number of negative outcomes, one might suspect that organizational leaders would adopt many of these suggestions in an effort to reduce role conflict. This has not been the case, however, as organizations have given more attention to treating the symptoms than to the causes of role conflict.

—Nathan A. Bowling

See also Occupational Health Psychology; Role Ambiguity; Stress, Consequences; Stress, Coping and Management; Stress, Models and Theories

AUTHOR'S NOTE: I wish to thank Terry A. Beehr for his helpful suggestions concerning earlier versions of this entry.

FURTHER READING

Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review*, 10, 76–88.

- Jackson, S. E., & Schuler, R. S. (1985). A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior and Human Decision Processes*, 36, 16–78.
- Kahn, R. L., & Byosiére, P. (1992). Stress in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 3, pp. 571–650). Palo Alto, CA: Consulting Psychologists Press.
- Karkel, K. S., & Frone, M. R. (1998). Job characteristics, work-school conflict, and school outcomes among adolescents: Testing a structural model. *Journal of Applied Psychology*, 83, 277–287.
- Kossek, E. C., & Ozeki, C. (1998). Work-family conflict, policies, and the job-life satisfaction relationship: A review and directions for organizational behavior-human resources research. *Journal of Applied Psychology*, 83, 139–149.

ROLE OVERLOAD AND UNDERLOAD

In any organizational setting, a role represents a set of behavioral expectations that are assigned to one organizational member. In typical organizations, it is rarely the case that each employee has one clearly defined role that is recognizable and distinct from the roles of other organizational members. Rather, in most organizations, employees may hold multiple roles, the roles of different employees may overlap and occasionally conflict, and roles may change from time to time.

Because of the complexity of organizational roles, they can be a source of stress for employees. In fact, much has been written in the stress literature about role conflict and role ambiguity. Much less has been written, however, about the sheer amount of role demands that an employee may have. This entry will focus on two role stressors that have to do with the amount of role demands an employee possesses. *Role overload* occurs when employees simply have too much to do—in other words, their roles become too big. *Role underload*, on the other hand, occurs when employees have too little to do—in other words, their roles become too small.

HOW DO ROLES DEVELOP?

To understand role overload and underload, it is helpful to consider how roles develop in organizations.

Most people enter organizations with at least some idea of what their role will be. People may be hired to be teachers, bank tellers, college professors, or tax accountants, and based on their knowledge of these jobs, they are likely have some idea of what the role responsibilities will entail. In addition to these expectations, new employees often receive formal job descriptions and communicate with their immediate supervisor regarding role and performance expectations. Other employees (both peers and subordinates) may also communicate their expectations regarding a new employee's role.

All of the sources of role-related information for an employee are known as that person's *role set*. Within an employee's role set, some members are obviously more important than others (e.g., supervisor), but an employee must pay attention to all members. In an ideal world, the members of an employee's role set would regularly meet to discuss the messages they are conveying and to make sure they are reasonable. Organizations, however, are not ideal, so it is possible that an employee may receive too many or too few role demands, or the demands of different members of the role set may be in conflict. The focus here will be role demands that are too big or too small.

ROLE OVERLOAD: WHY DO ROLES BECOME TOO BIG?

Role overload occurs when an employee's role simply becomes too demanding or too big. What exactly does it mean when a role becomes "too big" for the person occupying it? Role overload may occur in a strictly quantitative sense. That is, the person who occupies a role may simply have more items on his or her to-do list than can be accomplished in the available period of time. Most people, either at work or at home, feel overloaded in this fashion from time to time.

It is also possible for role overload to occur in a more qualitative sense. In this case, an employee may have enough time to accomplish his or her tasks, but the tasks may be too difficult to handle. One example of qualitative overload has to do with the inability to perform any task that is even remotely mechanical. For example, if something in the house is broken and needs to be repaired, one might become qualitatively overloaded.

From a role theory perspective, there are several different explanations for role overload. In many cases, there is little or no communication between the

members of an employee's role set. An employee's supervisor, coworkers, subordinates, and in some cases, customers all make demands on an employee without necessarily knowing the demands of other members of the role set. This is particularly true when members of an employee's role set exist both within and outside the organization.

Another reason may have to do with the role itself. Some roles are inherently bigger than others regardless of what organizations do. In most organizations, roles that involve the supervision of others tend to be larger than roles that do not have any supervisory responsibilities. Likewise, roles that require employees to regularly interact with people outside the organization (called boundary-spanning roles) tend to be bigger than roles in which all of the members of the role set are located within the organization.

Temporary circumstances may also lead to role overload. Suppose, for example, that a work group consists of four employees, and one employee quits. In most organizations, the departing employee will eventually be replaced, but this typically takes some time. In the meantime, other members of the work group may be asked to pick up the slack and take on the work left by the departing employee. When organizations conduct layoffs, it is typical for the roles of layoff survivors to become larger than they were before the layoff.

A final reason that role overload may occur is poor organizational or job design. For example, an organization may assign one clerical person to a work unit consisting of 25 people. It is almost inevitable that the clerical person in this scenario will experience at least some form of role overload.

CONSEQUENCES OF ROLE OVERLOAD

The vast majority of research on role stress has focused on role conflict and role ambiguity. In fact, there is so much research on these role stressors that more than one meta-analysis has been conducted to summarize the literature. What these meta-analyses have shown is that both role stressors are associated with negative psychological (e.g., job dissatisfaction, anxiety), physical (e.g., self-reported symptoms, sick days), and behavioral (e.g., decreased performance, increased absenteeism) outcomes.

The little research that has focused on role overload mirrors the findings for role conflict and role ambiguity. The differences are in the areas of physical symptoms

and performance. On balance, role overload is more strongly related to physical symptoms and physical exhaustion than are other role stressors. This makes a great deal of sense, considering the nature of role overload and the fact that most research has measured role overload from a quantitative perspective.

The other difference is that, in contrast to other role stressors, role overload may be *positively* related to performance in some cases. In many cases, those who are the most competent and skilled are asked to take on more tasks and responsibilities than others within the organization. It may also be a result of the nature of the job in some cases. A person selling real estate, for example, will be much busier and overloaded during periods in which his or her sales commissions are highest.

When considering the effect of role overload, it is important to consider that the impact of role overload may vary from employee to employee. People who manage their time very well, those who have a great deal of help and support from others, and those who simply do not view being overloaded as negative probably do not respond to this stressor as negatively as others. Admittedly, though, more research needs to be done on individual difference moderators of the effect of role overload and other stressors.

WHAT ABOUT ROLE UNDERLOAD?

Little research has examined role overload, and even less has examined role underload. Intuitively, though, it makes sense that if people can have too much to do, they can have too little to do as well. Like role overload, role underload can likely be viewed from both a quantitative and a qualitative perspective. An employee who is experiencing quantitative underload simply has too few tasks to do, and thus may experience periods of idleness or boredom on the job. Though many workers may wish they occasionally had a day when they had too few tasks to accomplish at work, most would probably become bored if this were the case every day.

When an employee is qualitatively underloaded, he or she has enough things to do, but the nature of the work tasks are below his or her capabilities. Most people have experienced qualitative underload at some point in their working lives. Many college students, for example, hold part-time or summer jobs at which they are required to perform tasks (e.g., washing dishes, waiting tables) that are likely far

below their intellectual capabilities. It is also the case that when the job market is tight, workers are often forced to accept jobs for which they are overqualified, and thus they may be subject to some degree of qualitative role underload.

As the examples in the previous paragraph suggest, role underload may be attributable to circumstance in some cases. It is also possible, however, that organizations may deliberately design jobs to be as simple as possible, and these jobs have high potential for role underload. Research on job design has shown that simplifying jobs may increase efficiency and decrease an organization's labor costs because skill requirements are reduced.

What is the impact of role underload? Though there is little research on role underload, research on job design suggests that in general, it should result in negative affective reactions such as job dissatisfaction. For example, employees who hold low-complexity jobs (very similar to role underload) tend to report much lower job satisfaction than employees who hold more complex jobs. However, responses to role underload may differ from employee to employee. Some people may find it very difficult to have too little to do, whereas others may be less bothered or even enjoy it. Readers can probably think of people they know who vary on this dimension.

SUMMARY AND CONCLUSIONS

This entry has described two important sources of stress in organizational settings—role overload and role underload. Both of these stressors have been studied far less than other role stressors, but there is some evidence

that they may lead to negative outcomes for employees. Employees, however, may vary as to how they respond to role overload or underload. Given the causes of both stressors, organizations can take steps to reduce them through job redesign and job enrichment.

—Steve M. Jex

See also Empowerment; Job Characteristics Theory; Job Satisfaction; Occupational Health Psychology; Role Ambiguity; Role Conflict; Stress, Models and Theories

FURTHER READING

- Barling, J., Kelloway, E. K., & Frone, M. R. (Eds.). (2005). *Handbook of work stress*. Thousand Oaks, CA: Sage.
- Beehr, T. A., Jex, S. M., Stacy, B. A., & Murray, M. A. (2000). Work stressors and coworker support as predictors of individual strain and job performance. *Journal of Organizational Behavior, 21*, 391–405.
- Parker, S., & Wall, T. (1998). *Job and work design: Organizing work to promote well-being and effectiveness*. Thousand Oaks, CA: Sage.
- Shirom, A., Westman, M., Carel, R. S., & Shamai, O. (1997). Effects of work overload and burnout on cholesterol and triglyceride levels: The moderating effects of emotional reactivity among male and female employees. *Journal of Occupational Health Psychology, 2*, 275–288.
- Sparks, K., Cooper, C., Fried, Y., & Shirom, A. (1997). The effects of hours of work on health: A meta-analytic review. *Journal of Occupational and Organizational Psychology, 70*, 391–408.
- Stellman, J. (Ed.). (1997). *Encyclopaedia of occupational health and safety*. Geneva, Switzerland: International Labour Office.

S

SAMPLING TECHNIQUES

For describing or testing hypotheses about a population, sampling a small portion of the population is often preferable to taking a census of the entire population. Taking a sample is usually less expensive and less time-consuming than taking a census and more accurate because more effort and care can be spent ensuring that the right data are gathered in the right way. Data collected appropriately can be used to make inferences about the entire population.

Sampling techniques can be categorized into nonprobability samples and probability samples. A *probability sample* is selected in a way such that virtually all members of a population have a nonzero probability of being included, and that probability is known or calculable. A *nonprobability sample* is gathered in a way that does not depend on chance. This means that it is difficult or impossible to estimate the probability that a particular unit of the population will be included. Moreover, a substantial proportion of the population is typically excluded. The quality of the sample, therefore, depends on the knowledge and skill of the researcher.

In general, probability samples are preferable to nonprobability samples because results can be generalized to the entire population using statistical techniques. Such generalization is typically invalid with nonprobability samples because the exclusion of portions of the population from sampling means the results are likely to be biased. People who volunteer to participate in a study, for example, may be different from those who do not; they may differ in age, gender,

occupation, motivation, or any number of other characteristics that may be related to the study. If the study concerns attitudes or opinions, volunteer participants may have different and often stronger feelings about the issues than nonparticipants.

Nonprobability samples, however, have their advantages and uses. They are relatively easy and inexpensive to assemble. They can be valuable for exploratory research or when the researcher wants to document a range or provide particular examples rather than investigate tendencies or causal processes. Moreover, techniques have recently been developed for obtaining unbiased results from certain kinds of nonprobability samples.

Two concepts are important to sampling in general: the target population and the sampling frame. The *target population* is the population to which the researcher wants to generalize the findings. One important characteristic of the population is the kind of entities its members are, known as the *unit of analysis*. The cases in the sample correspond to this unit of analysis. Examples of a unit of analysis are the individual, the organizational department, the organization, or some geographical unit, such as the state. The unit of analysis is characterized by a set of attributes on which the researcher gathers data. These are the variables the researcher scores for each case in the sample. For example, a researcher might explore individual characteristics such as age or years of education. Usually, the target population is circumscribed by some characteristic or combination of characteristics. It may be employees of a particular firm, or there may be a geographical limitation, such as residents of a particular city. Constraints on gender, ethnicity,

age-group, work status, or other characteristics may be specified as well. A target population, for example, might be permanent, full-time female employees of a particular company.

The *sampling frame* is the complete list of all units from which the sample is taken. For the target population of permanent, full-time female employees, for example, the sampling frame might be a list of permanent, full-time female employees from all of the company's locations. For telephone surveys, a list of phone numbers is a typical sampling frame, perhaps for particular area codes or in conjunction with block maps.

PROBABILITY SAMPLES

Sample Designs

For probability samples, there are four common designs: the simple random sample, the systematic sample, the stratified sample, and the cluster sample. A *simple random sample* is drawn in such a way that every combination of units of a given size has an equal probability of being drawn. If there are n individuals in the sample and N in the population, for example, each individual's probability of being included is n/N . The simple random sample is optimal for estimating unbiased population characteristics as precisely as possible. The most commonly used statistical techniques assume and work best with simple random samples. A simple random sample can be drawn by applying a table of random numbers or pseudorandom numbers generated by a computer to the sampling frame. Unfortunately, for many target populations, it is difficult and costly to draw a simple random sample. Hence, researchers use sample designs that approximate simple random samples.

One such design is a *systematic sample*, which is drawn in such a way that every unit in the target population has the same probability of being selected, but the same is not true for every combination of units of a given size. A systematic sample might be used when the sample frame is a long, noncomputerized list. To carry it out, determine a sampling interval (I) based on the desired sample size (n): $I = N/n$. Choose at random a starting case, from the first through the I th units in the list. Then from that starting case, select every I th unit. A systematic sample will approximate a simple random sample unless there is some sort of periodicity in the sampling frame, which then will lead to bias in the results.

A more controlled sampling design is the *stratified sample*, which is undertaken to ensure a specified proportional representation of different population groups in the sample. If the target population is 10% Hispanic, for example, a simple random sample drawn from the population may be more or less than 10% Hispanic. A stratified sample ensures that 10% of the sample—or some other desired proportion, say 20%—will be Hispanic. Stratified samples may be classified into proportionate and disproportionate samples. A *proportionate* stratified sample ensures that the composition of the sample mirrors the composition of the population along some variable or combination of variables. To carry it out, divide the target population into subgroups according to the desired aspect—Hispanic and non-Hispanic, for example. Then take a simple random sample from each subgroup, with the same probability of selection for each subgroup.

In a *disproportionate* stratified sample, the proportion of different subgroups in the sample is set to differ from that in the target population. Typically, the composition of the sample overrepresents subgroups that form only a small proportion of the population. The purpose is to improve estimates for that subgroup and improve comparison between subgroups. For example, suppose the sample size is to be 500 and the target population is 5% Hispanic. A simple random sample would include about 25 Hispanic individuals, which is too small to obtain precise estimates for that subgroup. If better estimates are desired, the proportion of Hispanics in the sample can be raised, say to 20%, which will ensure that 100 Hispanic individuals are selected, thus producing more precise estimates for the subgroup and allowing Hispanic and non-Hispanic individuals to be compared more accurately. Analysis of the entire sample should be conducted using weights to adjust for the overrepresentation of some subgroups, a simple option in most major statistical packages for computers.

Cluster sampling is a common method for face-to-face data collection such as surveys. The data are gathered from a small number of concentrated, usually spatially concentrated sets of units. A few departments of an organization may be sampled, for example, or a few locations if an organization has multiple locations. Cluster sampling may be chosen to reduce costs or because there is no adequate sampling frame from which a simple random sample or systematic sample could be drawn.

Sample Size

One question that commonly arises in research is how large a sample is necessary. Collecting data is costly, and it may be better to concentrate on gathering higher-quality data from a smaller sample, if possible. Several methods for estimating the necessary sample size exist. One method is simply to use sample sizes that approximate those of other studies of high quality. Some references contain tables that give appropriate sample sizes.

Two formulas may be of assistance. Let p denote the proportion of the population with a key attribute; if the proportion is unknown, $p = .5$ (which assumes maximum variability) may be used. Let e denote the sampling error or level of precision, expressed as a proportion. Thus, $e = .05$ means $\pm 5\%$ precision. Finally, suppose a confidence level of 95% is desired. The sample size, n_o , may be estimated by

$$n_o = \frac{1.96p(1-p)}{e^2}.$$

If the key variable takes on more than two values, the best method may be to dichotomize it—that is, transform it into a variable that takes two values—and then estimate p . Otherwise, $p = .5$ may be used, which gives a conservative estimate of sample size. For smaller populations (in the thousands, for example), wherein population size is denoted by N , the formula

$$n_o = \frac{N}{1 + e^2 N}$$

may be used.

Other considerations may also affect the determination of the necessary sample size. If the researcher wishes to analyze subgroups of the target population separately or compare subgroups, then the sample must be large enough to represent each subgroup adequately. Another concern is nonresponse. Inevitably, not all units in the selected sample will provide usable data, often because they refuse or are unable to participate but also because of respondent error. Here, too, the sample must be large enough to accommodate nonresponses and unusable responses. Finally, money and time costs are a constraint in sampling and should be considered in planning the study so that the sampling can be completed as designed.

NONPROBABILITY SAMPLES

Haphazard, convenience, quota, and purposive samples are the most common kinds of nonprobability samples. *Convenience samples* comprise units that are self-selected (e.g., volunteers) or easily accessible. Examples of convenience samples are people who volunteer to participate in a study, people at a given location when the population includes more than a single location, and snowball samples. A snowball or respondent-driven sample is one in which the researcher begins with certain respondents, called “seeds,” and then obtains further respondents through previous respondents. A *quota sample* is one in which a predetermined number of units with certain characteristics are selected. For a *purposive sample*, units are selected on the basis of characteristics or attributes that are important to the evaluation. Many focus groups are samples of this kind.

Recently, advances have been made in obtaining unbiased results for populations from which probability samples cannot be drawn directly, typically because no adequate sampling frame is available. A *hypernetwork method* can be applied to a target population of objects or activities that are linked to people—for example, art objects or arts-related activities. A probability sample of the individuals can then be used to obtain a probability sample of organizations providing those objects or activities. Another method again uses the techniques of social network analysis to obtain unbiased estimates from respondent-driven samples. This method is especially helpful in estimating characteristics of hidden populations, such as the homeless or drug users in a particular location.

—Joseph M. Whitmeyer

See also Descriptive Statistics; Experimental Designs; Focus Groups; Inferential Statistics; Longitudinal Research/Experience Sampling Technique; Nonexperimental Designs; Quantitative Research Approach; Quasi-experimental Designs; Statistical Power

FURTHER READING

- Cochran, W. G. (1977). *Sampling techniques*. New York: Wiley.
- Kish, L. (1965). *Survey sampling*. New York: Wiley.
- McPherson, M. (2001). Sampling strategies for the arts: A hypernetwork approach. *Poetics*, 28, 291–306.
- Miaoulis, G., & Michener, R. D. (1976). *An introduction to sampling*. Dubuque, IA: Kendall/Hunt.

Salganik, M. J., & Heckathorn, D. (2004). Sampling and estimation in hidden populations using respondent-driven sampling. *Sociological Methodology*, 34, 193–240.

SCIENTIFIC MANAGEMENT

Scientific management is the umbrella term for practice and research that advocates making organizations more efficient by systematically working to improve the efficiency of workers. The work of individuals associated with this movement, such as Frederick Winslow Taylor, Frank and Lillian Gilbreth, and Henry Gantt, lives on in the current management approaches of statistical process control and Total Quality Management. Because scientific management arose at the same time as the field of industrial and organizational psychology—during the first decades of the 20th century—there was competition between the disciplines (as noted in critiques by Kurt Lewin, Charles Myers, and Morris Viteles). This entry approaches the scientific management school of thought from four points: (a) the genesis and growth of the school, (b) the key concepts of scientific management, (c) the role of scientific management in shaping the history and trajectory of industrial and organizational (I/O) psychology, and (d) the field's current status and importance in the world of work. Although Taylor's work often dominates the discussion of scientific management, the role of other researchers—especially the Gilbreths—should be acknowledged to avoid bias and to better show the linkages to I/O psychology.

GENESIS AND GROWTH OF SCIENTIFIC MANAGEMENT

Frederick Winslow Taylor is considered the founder and dominant figure in this school of thought, which is often referred to as Taylorism. Considered alongside his collaborators and contemporaries, Taylor looms large. Arthur Bedaeian and Daniel Wren, based on an order of merit ranking procedure, credited Taylor with the most influential management book of the 20th century, *Principles of Scientific Management*, although multiple books from the human relations movement make the list. Edwin Locke and others have provided flattering treatments. Taylor's treatment in his *Principles* viewed management as systematic process and moved the field beyond the familial and craft leadership that was predominant in American industry. The

scientific management approach offered stability in an era when traditional methods and assumptions were changing as a result of the confluence of progress, immigration, engineering, and education. Historian Robert Wiebe described the interval between 1877 and 1920 as a time in which many individuals and movements sought order in a country that was buffeted in a choppy sea of forces, such as industrialization and urbanization. The bureaucratic worldview coincided with a concept called *psychotechnology* in Europe.

Taylor blazed a trail as a consulting engineer and offered insights to industrialists and managers, much as Walter Dill Scott offered insights to advertising executives. After earning an engineering degree at Stevens Institute of Technology (site of the Taylor archives), he worked at the Midvale Steel Company, where he formulated his thinking. The expression of scientific management theory in *Shop Management* in 1903 and *Principles of Scientific Management* in 1911 earned Taylor widespread praise from factory owners but condemnation from trade unionists. Misunderstanding flourished on both sides. Taylor's biggest success was achieved at Bethlehem Steel, where his methods claimed to achieve a 200% increase in productivity after two years with only a 50% increase in wages. Careful historiographic research by Charles Wrege and his colleagues, however, shows problems with some of Taylor's claims about "Schmidt the laborer" (see Further Reading).

KEY CONCEPTS OF SCIENTIFIC MANAGEMENT

Taylor and his contemporaries advocated the study of the way workers perform tasks (most notably, time studies), collection of the informal job knowledge possessed by workers (i.e., knowledge management), and investigations aimed at improving the way tasks are performed in order to increase efficiency (defined as reductions in time). The next step is to convert the results of these studies into new methods of performing tasks with written, standardized work rules and operating procedures. Some attention is paid to the selection of workers, so that they have the skills and abilities to match the needs of the task, and to training, so that workers can perform their tasks according to the established rules and procedures. Taylor also addressed the need to establish a fair or acceptable level of performance for each task and to develop a pay system that provides higher rewards for performance above the acceptable level.

Although the two approaches are often treated synonymously, Taylor's time studies were not the same as motion studies. Time studies do not include the discrete movements that the Gilbreths labeled "Therbligs" and included in their motion studies. Although there were later attempts to connect motion study to time study, Gilbreth pointed out that Taylor conducted no motion studies. The discipline of industrial engineering integrated the techniques of the early giants as codified in a handbook prepared by H. B. Maynard.

The key concepts of this paradigm include *soldiering* or restriction of output (at two levels), conducting time studies of workers to study and improve work processes, creating "functional foremen," cost accounting, and paying the person rather than the position. Soldiering is a term used for workers completing no more than the amount of work that the informal work group enforces through social rules (i.e., no rate busting—rates are established and enforced by formal organizational work rules). A goal of scientific management is to find the most efficient rate and structure the work so that any and all minimally qualified workers can meet the established rate. Time-study rate systems are based on the fastest worker for each job in the organization. This worker's movements on the job are systematically examined, unnecessary movements eliminated, and a rate established for the job based on this time study. All workers are made accountable to the established rate.

The concept of the *functional foremen* was posited in opposition to the military management model, with supervision focusing on some aspect of work rather than the supervision (i.e., discipline) of people. Functional foremen were the forerunners of the production expediter and quality control or assurance clerk positions. Cost accounting is also known as task management, in which time clocks and time cards are the most salient feature and routing cards are used to track associated work products. Such a system allows the cost of labor per product to be tracked, archived, reported, and used for reward systems. Paying the person and not the position is the basis for pay-for-performance and per-piece rate pay systems.

ROLE OF SCIENTIFIC MANAGEMENT IN SHAPING I/O PSYCHOLOGY

The role of scientific management was a counterfoil to early I/O psychology, although it did provide a legacy of an objective, measurement-driven framework with an emphasis on the economic bottom line.

Hugo Munsterberg, among others (such as Harold Burt and Viteles), advocated fitting the worker to the work and focusing scientific methods on the appropriate design of each. The success of scientific management in some organizations provided the impetus in business for I/O psychologists to focus on field application versus basic laboratory science. The human relations movement and basic research findings in social psychology offered counterarguments to a strictly applied focus (e.g., scientific management principles) for the young field. Kurt Lewin's critique of Taylorism in 1920 argued that psychologists and efficiency experts should work together to make work both more productive and more satisfying. Steven Hunt's recent critique asked rhetorically whether organizational citizenship behaviors would detract from performance in Taylorist jobs—a question that may be countered, how many jobs are Taylorist?

CURRENT IMPACT OF SCIENTIFIC MANAGEMENT

Current management disciplines, tools, and approaches influenced by the school of scientific management include statistical process control in production techniques, Total Quality Management methods, program evaluation and review technique charting methods, critical path method, benchmarking, and business process redesign. Workforces within U.S. government entities (e.g., military, bureaucracies) continue to *not* be influenced by scientific management, and little progress in this direction is anticipated in the future.

—Scott A. Davies and James T. Austin

See also Hawthorne Studies/Hawthorne Effect; History of Industrial/Organizational Psychology in North America; Human Relations Movement

FURTHER READING

- Hunt, S. T. (2002). On the virtues of staying "inside of the box": Does organizational citizenship behavior detract from performance in Taylorist jobs? *International Journal of Selection and Assessment*, 10, 152–159.
- Kanigel, R. (2005). *The one best way: Frederick Winslow Taylor and the enigma of efficiency*. Cambridge: MIT Press.
- Maynard, H. B. (Ed.). (1956). *Industrial engineering handbook*. New York: McGraw-Hill.
- Taylor, F. W. (1911). *Principles of scientific management*. New York: Harper & Brothers.

- Wiebe, R. (1967). *The search for order, 1877–1920* (Reprint ed.). Westport, CT: Greenwood Press.
- Wrege, C. D., & Hodgetts, R. M. (2000). Frederick W. Taylor's 1899 pig iron observations: Examining fact, fiction, and lessons for the new millennium. *Academy of Management Journal*, *43*, 1283–1291.

SCIENTIST-PRACTITIONER MODEL

According to the scientist-practitioner model, psychologists are both practitioners who apply knowledge and scientists who base their activities on sound research in the profession. Some individuals may function more fully as scientists, conducting research and publishing their findings, whereas others may devote their lives to its application, but each has a keen respect for the other. The scientist-practitioner model is an aspirational goal for psychologists as well as a prescription for how psychologists should be trained.

The model can be traced back to the end of World War II, when the Veterans Administration (VA) and the United States Public Health Service (USPHS) encouraged the training of mental health professionals to work with returning veterans. At the same time, more people were seeking graduate education in psychology to meet this need. This put quite a strain on the small number of psychology departments that were training clinical psychologists. Throughout the 1940s, small working groups within the American Association of Applied Psychology (AAAP) addressed these issues, primarily under the direction of David Shakow, and developed outlines for training programs for doctoral-level clinical psychologists. The early drafts recommended that students first gain a sound grounding in scientific psychology, followed later by coursework and internships in more applied practice skills. The hope was to upgrade the skills of future clinical psychologists as well as the reputation of psychology.

The AAAP merged with the American Psychological Association (APA), and with encouragement from the VA and the USPHS, a committee was formed to address the training of psychologists, including standards for educational institutions. This committee visited doctoral training institutions to accredit those that met the standards. To address many remaining concerns, a conference was held during the summer of 1949, when 73 psychologists and key stakeholders

from the VA and USPHS gathered in Boulder, Colorado. By the end of the meeting, several resolutions had been adopted that defined psychologists as people who are trained in both scientific research and practice. The conference had another lasting impact: Programs that adhere to the scientist-practitioner model are often identified as “Boulder model” programs. Even today, the APA accreditation standards insist that training programs reflect the principle that the practice of psychology is based on the science of psychology; in turn, the practice of psychology influences the science of psychology.

Although the Boulder conference primarily focused on clinical training, the scientist-practitioner model soon found its way into other applied areas. When the Industrial and Business Section of the AAAP became Division 14 of the APA, its first two goals were to (a) ensure high standards of practice and (b) promote research and publication in the field. Many years later, when Division 14 incorporated to become the Society for Industrial and Organizational Psychology, its mission statement prominently included promoting both the science and practice of industrial and organizational psychology. Later, the guidelines for education and training at the doctoral level focused on producing students who could be both generators of knowledge and consumers of knowledge. To this end, most, if not all, doctoral students take coursework in research design and statistics, in addition to classes in specific industrial and organizational topics, and their program of study culminates with a significant research project, the dissertation.

Although the scientist-practitioner model is pervasive, it is not universally accepted as either a standard for training or a description of the activities of most psychologists. Some graduates of psychology programs believe training overemphasizes research at the expense of practice. These concerns were voiced in 1973 at a conference in Vail, Colorado, leading to the development of an alternative model: the scholar-professional. In this view, psychologists are highly trained practitioners who are consumers rather than generators of research. Programs that adopt the Vail model often grant a PsyD degree in lieu of the PhD.

—William D. Siegfried, Jr.

See also American Psychological Association, Association for Psychological Science; Society for Industrial and Organizational Psychology

FURTHER READING

- Baker, D. B., & Benjamin, L. T. (2000). The affirmation of the scientist-practitioner: A look back at Boulder. *American Psychologist, 55*(2), 241–247.
- Ellis, H. C. (1992). Graduate education in psychology: Past, present, and future. *American Psychologist, 47*(4), 570–576.
- Society for Industrial and Organizational Psychology. (1999). Guidelines for education and training at the doctoral level in industrial-organizational psychology. Retrieved March 9, 2006, from <http://www.siop.org/phdguidelines98.html>

SELECTION: OCCUPATIONAL TAILORING

The most effective and appropriate selection procedures vary for different types of work and in different types of organizations. Two major considerations should guide this occupational tailoring. The first consideration is the work behavior of the people hired: What is required by the work itself, and what work-related outcomes does the organization want to achieve with the selection procedures? This consideration addresses the effectiveness of the selection procedure at bringing about desired work behaviors. The second consideration is the fit of the selection procedures with other human resource (HR) processes and systems and with the organization's culture. This consideration addresses the extent to which selection procedures complement existing HR processes and systems and are consistent with the organization's culture when it comes to the treatment of job candidates and employees.

These two considerations are often separate and independent. For example, highly technical work usually implies selection procedures that gauge acquired technical knowledge through degree and grade point average requirements and job knowledge assessment. In contrast, an organization may have a culture and recruiting strategy that emphasizes close recruiting relationships with selected technical schools and relies on faculty referrals to identify technically skilled candidates. In such a setting, a job knowledge test may be an inappropriate selection procedure even if it is the most effective procedure for ensuring that the organization hires candidates with the required level of technical skill. The tailoring of selection procedures requires a careful evaluation of both sets of considerations.

CONSIDERATIONS OF WORK BEHAVIOR

The evaluation of work behavior should begin with a consideration of the work behavior outcomes that the organization wants to achieve with the selection procedure. The organization's desired work outcomes may have a direct bearing on the information about the work that is relevant to the choice of selection procedures. Continuing the example of highly technical work, if an organization is satisfied with the technical expertise of its new hires but wants to select more loyal employees who will stay with the company, the analysis of the work would focus less on technical content and more on work context that influences employees' decisions to leave or stay.

Organizations may have any number of desired outcomes, including productivity, helpfulness, schedule adherence, retention, customer satisfaction, accountability, creativity, safety and security, and dependability. In general, the organization's desired outcomes can be organized into two major categories: work proficiency and contextual behavior. *Work proficiency* refers to the extent to which employees perform their work tasks quickly, accurately, and consistently and achieve the desired objectives of the work activity. *Contextual behavior*, on the other hand, refers to employee behavior that is valued by the organization but is not considered a specific task or element of the work itself. Examples include helping others, staying in the organization, showing up on time, not stealing, and being accountable for results.

The distinction between an organization's interest in work proficiency and its interest in contextual behavior is important to occupational tailoring because, with few exceptions, any selection procedure is likely to be more relevant to one type of interest than the other. To understand the relationship between selection procedures and organization interests, selection procedures may be classified into five major categories: (a) ability and aptitude; (b) personality, disposition, and temperament; (c) values, interests, and attitudes; (d) acquired skills and knowledge; and (e) work-related experience, training, and education.

Contextual Behavior

In organizations that place high value on contextual behavior, the selection procedures that are most likely to help create these outcomes assess personality, disposition, and temperament (Category 2) and values,

interests, and attitudes (Category 3). The particular attributes that are most likely to create the desired outcome may be understood through an evaluation of the context surrounding the work and the organization. For example, staying in a customer service job with significant time pressure, highly repetitive volume, and rule-bound job procedures may require personality attributes associated with optimism and dependability. In contrast, staying in a sales job that requires many self-initiated customer contacts with a high percentage of negative outcomes but with significant payoffs for positive outcomes may require high levels of achievement orientation and independence. In general, with the exception of conscientiousness, the effectiveness of attributes in Categories 2 and 3 depends on the specific contextual features of the work. Conscientiousness is, by far, the most generally effective personality attribute and leads to a wide range of positive work behaviors across many types of work.

An important contextual consideration is the extent to which the work situation is a strong determiner of employee work behavior. When the work context is strong, there is little opportunity for personal interests, values, dispositions, and motives to influence work behavior, at least within the range of ordinarily acceptable behavior. For example, telemarketing work often requires that employees adhere to carefully worded scripts, spend closely monitored amounts of time on calls, and leave their desks at prescribed times and durations. Under those strong conditions, attributes such as creativity are unlikely to have much impact on demonstrated work behavior. In general, in order for selection procedures in Categories 2 and 3 to affect desired contextual behaviors, the work situation must be weak enough to enable the targeted attributes to influence the employee's behavior. The implication for occupational tailoring, particularly as it relates to contextual behavior, is that different selection procedures are likely to be effective for strong and weak situations.

Work Proficiency

In organizations that emphasize the importance of work proficiency, the most effective selection procedures assess some combination of ability and aptitude (Category 1), acquired skills and knowledge (Category 4), and work, training, and education experience (Category 5). In this case, a thorough analysis of the work content may be necessary to identify the

particular selection procedures that are most likely to be effective.

A major consideration in the maximization of work proficiency is that some relevant attributes are highly work specific, such as acquired skills and knowledge (Category 4) and physical and psychomotor abilities (a subset of Category 1), whereas the relevance of general mental ability (GMA, a subset of Category 1) is not work specific but is effective at maximizing proficiency across a wide range of types of work. One of the most well-established results in industrial and organizational psychology is that GMA is an important determiner of work proficiency across virtually all types work. Only the cognitive complexity of the work has much influence on the effectiveness of GMA. The more complex the work, the more effective GMA is at enabling work proficiency.

An analysis of work content should indicate the extent to which work-specific acquired skills and knowledge are required for early work proficiency. Therefore, it is important to design some component of the selection procedure to evaluate the target acquired skills and knowledge. Almost always, these selection procedures should be tailored to the work. The same is true for work requirements relating to physical and psychomotor abilities. An appropriate analysis of the work content should identify the specific physical or psychomotor abilities required for work proficiency.

In the design of selection procedures intended to maximize work proficiency, a major decision point is whether GMA assessments will be used, and if so, whether tailoring the GMA assessment will have any benefit for the effectiveness of the selection procedure. To be sure, there is a wide variety of mental ability tests ranging from the most general, measuring abstract reasoning, complex problem solving, and mechanical aptitude, to the most specific, measuring arithmetic facility, clerical coding speed, and spelling and vocabulary. Whatever combination of GMA procedures is used for whatever type of work, the most effective GMA-based selection procedures assess a broader composite of mental abilities. This can be achieved by assessing one or two general abilities (such as abstract reasoning or problem solving) or by assessing three or four narrow mental abilities and relying on a composite of those narrow assessments. Often, the tailoring decision is based on the organization's interest in having the selection procedure appear reasonable and job-relevant to candidates.

Overlap Between Work Proficiency and Contextual Behavior

The overlap between considerations of contextual behavior and work proficiency should be evaluated. When successful work proficiency and desired contextual behavior have the same underlying determinants, the same selection procedure may be effective at achieving both purposes. For example, an organization's interest in minimizing turnover may be addressed by the use of a selection procedure designed to maximize work proficiency if the primary cause of turnover is poor work proficiency. However, other than the broadly beneficial effects of conscientiousness, the attributes that are most likely to affect contextual behavior tend to be different from the attributes that are most likely to affect work proficiency.

CONSIDERATIONS OF ORGANIZATION FIT

In addition to considerations of the work itself, appropriate selection procedures should be tailored to fit two aspects of the organization: (a) existing HR processes and systems and (b) the organization's culture relating to the treatment of job candidates and employees.

Existing HR Processes and Systems

Training and recruiting processes are closely connected to selection processes. In most cases, recruiting creates a candidate pool that completes the selection procedures. A recruiting process that focuses on identifying candidates with certain attributes, such as degrees or grade point averages, minimizes the need for a selection process designed to assess precisely the same acquired knowledge. In general, it is unnecessarily inefficient for both recruiting processes and selection processes to target the same attributes among candidates.

New hire training processes rely on new hires having certain sets of attributes. For example, training may assume some amount of preexisting job knowledge or job experience. Selection procedures should be tailored to be consistent with the assumptions made by the new hire training process. Of course, optimal planning would consider both together and determine the most cost-effective manner for the organization to achieve the level of acquired skills and knowledge among new hires. In general, training is likely to be more expensive per new hire than selection. This

tends to produce HR strategies that maximize the scope of selection to minimize the cost of training. However, organizations that have unique requirements for acquired skills and knowledge, such as a product line that is unique to the industry, may find that selection procedures are simply not cost-effective when the target skill or knowledge is rare. In this case, training may take on the role of developing the needed, unique skills and knowledge.

Organizational Culture

Finally, some attention should be paid to a frequently overlooked consideration in the tailoring of selection procedures. Many organizations have strong cultures relating to the treatment of employees and job candidates. The design of selection procedures should carefully consider the imperatives of the organization's culture. For example, an organization may place very high value on enabling employees to realize job progression through successful job performance. In such an environment, a selection procedure that governs employee progression and assesses the personal attributes, abilities, or skills and knowledge related to successful performance may not be consistent with a culture that values demonstrated work performance as the key to progression. Other cultures, such as highly entrepreneurial, risk-seeking environments, may have a built-in disdain for standardized practices associated with selection procedures, particularly testing. In such environments, selection procedures are sustainable only if they do not significantly inhibit the self-reliance of hiring managers. In general, selection procedures represent a strong culture for making crucial people decisions. They should be tailored to match the overarching organizational culture that shapes other HR processes and systems.

—Jerard F. Kehoe

See also Employee Selection; Selection Strategies

FURTHER READING

- Kehoe, J. F. (Ed.). (2000). *Managing selection in changing organizations: Human resource strategies*. San Francisco: Jossey-Bass.
- Tippins, N. (2002). Issues in implementing large-scale selection programs. In J. W. Hedge & E. D. Pulakos (Eds.), *Implementing organizational interventions: Steps, processes, and best practices*. San Francisco: Jossey-Bass.

SELECTION STRATEGIES

SELECTION AND ASSESSMENT CONSULTING

Selection strategies differ from organization to organization in any number of ways. Some rely mostly on tests, others on interviews. Some are computer or Web based, others paper-and-pencil tests. Some automatically select candidates out, whereas others inform decisions that select candidates in—and so on. Selection strategies are the result of many design decisions, and it is safe to say that no two strategies are the same.

The purpose of this entry is to describe different selection strategies and evaluate the effectiveness of those strategies in different employment situations. These descriptions and evaluations will be limited to the manner in which information from the selection procedures is used to make selection decisions. This entry will not address strategies relating to delivery methods or types of assessment procedures. Rather, the focus will be on describing and evaluating the different strategies that organizations use to make selection decisions.

FRAMEWORK

This entry is organized into two major sections. The first section will identify and describe the most common types of selection decision-making strategies. This section is primarily descriptive and highlights key differences among the strategies. The second section will evaluate these strategies based on their fit with each of several types of employment context. The employment context is defined based on three considerations: (a) employment volume (high/low), (b) mode of employment processing (continuous/episodic), and (c) the organization's culture for accountability (systems accountability/manager accountability). The decision-making strategies will be evaluated based on their fit with each of the eight combinations of volume, mode, and accountability. Although this approach is somewhat artificial—actual employment contexts are not likely to be exact invariant combinations of volume, mode, and accountability—it has the advantage of being systematic and reveals key principles that can be applied to any employment context.

This essay will not evaluate strategies based on considerations of legal risk. Certainly, legal risk is an

important consideration in the design of any selection strategy. The primary means of controlling legal risk is the documentation of validation evidence. However, legal risk can also be influenced by the extent to which selection decisions are not precisely prescribed and uniformly applied to all candidates. Although the latter considerations certainly relate to decision-making strategies, legal risk often depends on subtle and nuanced aspects of the situation and the particular charge, making it difficult to offer general guidelines beyond the principles of validity, adverse impact, and consistency of application, which may be applied to any decision-making strategy.

SELECTION DECISION-MAKING STRATEGIES

Some of the strategies described here are typically mutually exclusive, such as multiple hurdles and compensatory scoring, whereas others are not, such as compensatory scoring and profile matching. The descriptions offered here summarize the relationships among the most commonly used strategies. The first two strategies, *multiple hurdles* and *compensatory scoring*, are typically viewed as mutually exclusive, although hybrid strategies are beginning to emerge. The third and fourth strategies, *cut scores* and non-cut-score-based *judgment methods*, are deliberately defined as mutually exclusive to clarify their most important differences. The fifth strategy, *banding*, is a class of methods introduced primarily to manage legal risk in certain types of situations but not equally applicable in all employment contexts.

Multiple Hurdles

A major consideration in designing a selection strategy is the cost-effective management of candidate flow. One common approach to this issue is the strategy of multiple hurdles. According to this strategy, selection procedures are administered in sequential steps. After each selection procedure is administered, it is then scored. At each step, candidates whose scores fall below an established threshold are eliminated. Candidates who are not eliminated proceed to the next step, where the next selection procedure is administered and scored and additional candidates are eliminated.

Two methods of multiple hurdles can be considered. The first and most common method, the *independent method*, eliminates candidates based only on scores from the selection procedure administered at

the current step in the series. The second method, the *accumulative method*, eliminates candidates at each step based on scores from all of the previously administered procedures and the current procedure. For example, consider a multiple hurdles strategy in which Step 1 is a problem-solving test, Step 2 is a work sample exercise, and Step 3 is an employment office interview. At Step 2, the independent method would eliminate candidates based solely on scores from the work sample exercise, whereas the accumulative method would eliminate candidates based on some combination of both the problem-solving score and the work sample score.

The primary advantage of the multiple hurdles strategy is that it minimizes administration cost and time by not administering later selection procedures to candidates who performed poorly on earlier procedures. Typically, this advantage is maximized by administering the selection procedures in order of cost from lowest to highest. Its primary disadvantage is that it sacrifices some predictive accuracy at each decision step by considering information from only some (usually one) of the selection procedures that the organization views as relevant to the job. The accumulative method mitigates this disadvantage somewhat.

Compensatory Scoring

When organizations prefer to maximize the predictive power of each selection decision, all candidates are administered a common set of selection procedures. A composite score is then created for each candidate that combines information from the entire set of selection procedures. This composite score is then used in some decision method to select among the candidates.

In virtually all applications of compensatory scoring, only one composite of selection procedures is used as the basis for making selection decisions. This common practice reflects an assumption that there is only one model or type of successful employee. All selection decisions seek to choose employees who fit that particular model of success. In contrast, some organizations recognize that different employees are successful and valued in different ways. Some employees may be successful because they are accurate and fast producers; others may be successful because they are able to engage others in achieving objectives. Still others may be successful because they are reliable employees who show up every day, perform well enough, and are loyal to the organization. An organization that

values different models of success may prefer to use more than one composite of the same predictors and choose candidates who are predicted to be successful by at least one of the valued models. Little research has examined this possibility of simultaneous, separate composites to determine how much gain could be realized compared with the standard practice of a single, presumably optimal composite.

Compared with multiple hurdles, compensatory scoring is more expensive but has somewhat more predictive accuracy. There is no general conclusion about the actual trade-off between cost and accuracy. This trade-off depends on the actual costs and predictive validities of each of the selection procedures. However, it is common for cost differences between types of selection procedures to be very large, sometimes 500% to 1,000%, though the incremental accuracy that the second procedure adds to the first is often slight, say 10%. Of course, a 10% increase in predictive accuracy may actually have more dollar value than the cost of administering the second procedure to all candidates.

Cut Scores

The use of cut scores can be combined with any of the other strategies described here. In fact, some strategies, such as multiple hurdles and banding, invariably rely on cut scores as part of the decision-making process. However, it is useful to describe cut scores as a distinct strategy, perhaps a substrategy, and to provide information about specific methods for determining and using them.

A cut score is a particular score on a selection procedure or composite of selection procedures that serves as a threshold value for determining which candidates are excluded or included. There is no law or professional standard that requires cut scores to be either low or high. Generally, it is acknowledged that the hiring organization may consider a variety of factors, including expected work proficiency, cost of employment, labor market conditions, and efforts to avoid discriminatory employment practices, in determining a cut score that optimizes the organization's value for its new hires.

Because many factors may influence cut scores, there are many methods for setting cut scores. Some methods rely primarily on the judgment of experts, whereas other methods rely on quantitative analyses of desired outcomes. Some methods focus on the probability that hired candidates will be successful

employees, whereas other methods focus on the probability that people who will be successful employees will be hired. In any case, no cut score can be set without some form of value judgment being made on behalf of the organization. All cut scores rely on some judgment about the outcomes the organization values and desires from its selection strategy.

More than one cut score may be used to enable selection decisions. In the simplest decision process, a single cut score is used to determine that candidates who score at or above the cut score will be hired. More complex decision processes may use multiple cut scores to create ranges of scores that distinguish the most qualified candidates from the next most qualified, and so on. In all cases, a cut score defines a boundary line between candidates who are treated in different ways.

The primary advantage of cut scores is that they simplify the selection decision process. The primary disadvantage is that the use of cut scores ignores potentially useful information both above and below the cut score. For example, by relying on a single cut score set at the 75th percentile of candidate scores, the organization treats the highest-scoring candidates the same as candidates scoring at the 75th percentile. Both are hired. This process can be disadvantageous to the organization if it only needs to hire a small percentage of the candidates. For example, suppose an organization only needs to hire 5% of the available candidates but has adopted a cut score that 25% of the candidates satisfy. In this situation, the organization is losing value from its selection strategy because the cut score does not allow it to choose just the top 5% of all candidates. Of course, in such a case, the organization may change the cut score to be closer to the 95th percentile so that it does not lose useful information.

Judgment Methods

For convenience, the term *judgment methods* is used to refer to methods of making selection decisions that are not based on cut scores to determine automatic decisions. Judgment methods include all methods for using quantitative information from the selection procedures to inform the judgment of the person making the hiring decision. Certainly, there are innumerable such methods. The two most common types of judgment methods will be described

here: expectancy methods and profile-matching methods.

Expectancy methods convert the score results from the selection procedures into quantitative predictions or expectations about outcomes of interest to the organization. This conversion requires quantitative analysis that relates the scores on the selection procedures to scores on outcome measures. One method, *probability of success*, converts each selection procedure score into a probability of success. This, of course, requires the organization to define what level of outcome result corresponds to success and to provide a measure of this outcome in some study sample of employees that can be used to define the conversion. For example, suppose the organization is interested in making selection decisions to minimize the number of new hires who leave during the first 12 months. Success is defined as staying on the job for 12 months or longer. To convert scores on the selection procedure into a probability of staying for 12 months or longer, retention would need to be tracked for candidates who had taken part in the selection procedures in question. Based on an analysis of the results of such a study, for each candidate, the person making the hiring decision would be provided with a measure of the probability that the candidate will stay for 12 months or longer, as predicted by the selection procedure. The decision maker could then make an informed hiring decision based on this information and whatever other information might be available about the candidate.

Similarly, another expectancy method, *predicted performance*, provides predicted levels of performance rather than probability of success. The same types of data and analyses are required to produce this type of information, although it is no longer necessary for the organization to define success.

A second judgment method, *profile matching*, provides a different type of quantitative information to the person making the hiring decision. According to this method, the information describes the extent to which the candidate's selection procedure scores are similar to the selection procedure scores of people who have demonstrated success on the job.

Consider a sales organization, for example. Suppose this organization is implementing new selection procedures to assess achievement orientation, independence, intelligence, sociability, and integrity. As part of the study of this new process, the organization administers selection procedures to its current salespeople. Suppose that the top sellers are different from average sellers on

achievement orientation, independence, and intelligence but no different on sociability and integrity. In addition, top sellers score very high on achievement orientation, moderately on independence, and moderately high on intelligence. This profile of a top seller becomes the ideal pattern of scores on these three selection procedures and distinguishes top sellers from average sellers. Each new candidate's profile of achievement orientation, independence, and intelligence scores is compared with this ideal profile. In some fashion, usually graphically or quantitatively, the decision maker is shown the extent to which each candidate's score profile is similar to the ideal profile. Like expectancy methods, the profile method provides quantitative information to decision makers as the basis for making a hiring decision but generally does not trigger any automatic decision.

Banding Methods

During the early 1990s, banding methods were introduced as a technique for selecting candidates so as to equalize the hiring rates among different groups of candidates. Although these methods were designed to minimize group selection rate differences, they also have broader applications. Banding methods all separate the full range of scores on the selection procedure of interest into several bands. The essential feature of banding is that each band of scores is defined as a range within which the organization is indifferent to the highest- and lowest-scoring candidates. Some banding methods define the indifference bands based on the reliability of differences between scores on the selection procedure; other methods define the indifference bands based on differences between predicted outcomes. Regardless of the method used to define the bands, the selection decisions are made by first considering the candidates in the top band, choosing among them, and, if any vacancies remain, moving to the next highest band and repeating the process until all vacancies are filled.

The primary advantage of banding methods is that they provide an explicit definition of the organization's indifference to the highest- and lowest-scoring candidates within a band. This enables organizations to base selection decisions on other considerations because they can be confident that candidates within bands are similarly qualified with respect to the attributes assessed by the selection procedures. The primary disadvantage of banding is that it is most effectively applied only when the whole set of candidates is known before any selection decisions are made.

EVALUATION OF STRATEGIES

Eight employment contexts are listed in Table 1. For each context, the selection strategies most likely to fit with the demands of that context are shown, as well as the most significant considerations in choosing among the selection strategies. This evaluation is presented in a table format for ease of comparison and use.

The distinction between high and low volume is not based on absolute numbers of vacancies or candidates. Rather, high volume exists when the number of candidates or vacancies to be filled stretches the capacity of the regular employment process.

Mode of employment refers to the continuity of recruiting and screening processes. Continuous-mode operations manage ongoing recruiting to maintain an available pool of candidates to be ready when vacancies occur or to support continuous vacancies. Continuous employment processes include processes that are modulated from time to time but maintain ongoing recruiting and screening processes. A common example of continuous employment is the process used by retail sales organizations that need to maintain fully staffed sales clerk positions in the face of typically high turnover rates. In contrast, episodic employment processes stop and start over time. Typically, they start when a batch of new vacancies is to be filled or a batch of new candidates is to be recruited. Once the batch of vacancies or candidates is completed, the process stops. A common example of episodic employment is public-sector employment for police and firefighter jobs, which are frequently managed as periodic episodes of employment.

The culture for accountability is perhaps the least well-prescribed context feature. It refers to the organization's tendency to place high accountability on either its systems or its managers, especially with regard to human resource processes and systems. For example, some organizations manage annual performance management and compensation processes largely as a matter of inputting performance results into a system and then following that system's rubrics for performance assessment and compensation decisions. In contrast, other organizations rely entirely on managers to make performance management decisions and compensation decisions with little, if any, systematic structure or guidelines.

—Jerard Kehoe

Table 1 The Fit Between Employment Contexts and Selection Strategies

<i>Employment Context</i>			<i>Good-Fitting Strategies</i>
<i>Volume</i>	<i>Mode</i>	<i>Accountability</i>	<ul style="list-style-type: none"> • <i>Preferred strategies</i> ○ <i>Primary considerations</i>
High	Continuous	Systems	<ul style="list-style-type: none"> • Multiple hurdles <ul style="list-style-type: none"> ○ Cut scores ○ Minimized potential for high costs ○ Rapid, automatic decisions
High	Continuous	Manager	<ul style="list-style-type: none"> • Compensatory scoring • Early-stage cut scores • Late-stage judgment methods <ul style="list-style-type: none"> ○ Reduce volume to managers ○ Tolerate potential for high costs ○ Enable managers' rapid decisions and reduce workload
High	Episodic	Systems	<ul style="list-style-type: none"> • Banding • Cut scores • Compensatory scoring <ul style="list-style-type: none"> ○ Higher risk of scrutiny ○ Tolerance of higher costs ○ Explicit decisions ○ Rapid, automatic decisions ○ Automatic control of group selection rates
High	Episodic	Manager	<ul style="list-style-type: none"> • Compensatory scoring • Early-stage cut scores • Late-stage judgment methods <ul style="list-style-type: none"> ○ Reduce volume to managers ○ Tolerate potential for high costs ○ Enable managers' rapid decisions
Low	Continuous	Systems	<ul style="list-style-type: none"> • Compensatory scoring • Banding with systematized decision rules and small number of bands (two or three) • Cut scores at early stage, representing minimum qualifications <ul style="list-style-type: none"> ○ Little potential for high cost, so maximum predictive accuracy ○ Automated decision rules (banding) using complete information
Low	Continuous	Manager	<ul style="list-style-type: none"> • Compensatory scoring • Cut scores at early stage, representing minimum qualifications <ul style="list-style-type: none"> ○ Little potential for high cost, so maximum predictive accuracy ○ Exclude the least competitive candidates to reduce manager workload
Low	Episodic	Systems	<ul style="list-style-type: none"> • Cut scores • Compensatory scoring <ul style="list-style-type: none"> ○ Automatic decisions ○ Little potential for high cost, so maximum predictive accuracy
Low	Episodic	Manager	<ul style="list-style-type: none"> • Compensatory scoring • Judgment methods <ul style="list-style-type: none"> ○ Little potential for high cost, so maximum predictive accuracy ○ Enable manager's effective use of complete selection information

See also Employee Selection; Executive Selection; Prescreening Assessment Methods for Personnel Selection; Selection: Occupational Tailoring; Uniform Guidelines on Employee Selection Procedures

FURTHER READING

- Aguinis, H. (Ed.). (2004). *Test score banding in human resource selection*. Westport, CT: Praeger.
- Kehoe, J. F. (Ed.). (2000). *Managing selection in changing organizations: Human resource strategies*. San Francisco: Jossey-Bass.
- Kehoe, J. F., Dickter, D. N., Russell, D. P., & Sacco, J. M. (2005). E-selection. In H. G. Gueutal & D. L. Stone (Eds.), *The brave new world of eHR: Human resources management in the digital age*. San Francisco: Jossey-Bass.
- Kehoe, J. F., & Olson, A. (2005). Cut scores and employment discrimination litigation. In F. J. Landy (Ed.), *Employment discrimination litigation: Behavioral, quantitative, and legal perspectives*. San Francisco: Jossey-Bass.
- Schmitt, N., & Borman, W. C. (Eds.). (1993). *Personnel selection in organizations*. San Francisco: Jossey-Bass.
- Tippins, N. (2002). Issues in implementing large-scale selection programs. In J. W. Hedge & E. D. Pulakos (Eds.), *Implementing organizational interventions: Steps, processes, and best practices*. San Francisco: Jossey-Bass.

SELF-CONCEPT THEORY OF WORK MOTIVATION

The study of work motivation centers on why employees initiate, terminate, or persist in specific work behaviors in organizations. Most traditional theories of work motivation are built on the premise that individuals act in ways that maximize the value of exchange with the organization. However, the nature of an individual's work motivation may also involve an internal, individually rooted need or motive—for example, to enhance one's self-esteem, to achieve, or to affiliate. These motives are assumed to be part of the unique, internal core of a person's self-concept.

STRUCTURE OF SELF-CONCEPT

Current theories purport that self-concept is a multi-dimensional knowledge structure that helps individuals

organize and give meaning to memory and behavior. Indeed, psychologists have argued that attaching an object or event to the self gives it special meaning (e.g., *my* car versus *a* car). Self-concept may be seen as consisting of attributes related to individual self-perception, including traits, competencies, and values. For example, individuals may use trait terms such as *ambitious* and *dependable* to describe their essential character or hold perceptions of the competencies they possess (e.g., "I am a good leader").

The *working self-concept* (WSC) is the highly activated, contextually sensitive portion of the self-concept that guides action and information processing on a moment-to-moment basis. The activation of the components of the WSC varies depending on the cues in one's current context. For example, one's self-concept may include several roles, such as being a parent, a spouse, and an employee. These alternative self-concepts are associated with different social contexts, which become activated when the right social cues are present.

The WSC can be viewed as consisting of three components: *self-views*, or one's perceived standing on salient attributes, and two types of comparative standards—*current goals*, which are short-term and narrowly focused, and *possible selves*, which are long-term and future focused and provide much broader comparative standards. These three components combine to create control systems that regulate motivation. Furthermore, a control system may involve any two of the three components, so that one component provides the standard and the other the source of feedback. Researchers have proposed that combinations of the three components have very different motivational consequences on work behavior.

Finally, self-concept also has different focal levels that are composed of personal and social identities. Personal identity refers to self-categorization based on comparisons to others that emphasize one's own uniqueness. Social identity is based on self-definition through relations with others or through group membership, and thus it emphasizes one's similarities and connectedness. These identities are active at different times, creating a personal WSC or, alternatively, a social WSC.

RELATIONSHIP BETWEEN SELF-CONCEPT AND WORK MOTIVATION

The self-concept is a source of work motivation in that individuals are motivated to maintain and enhance an

internalized view of the self. Specifically, the meaning that individuals attribute to information is often a function of the strength of their self-perceptions and their need to affirm their self-concept. In an organizational setting, employees make choices among behavioral alternatives, set and accept work goals, take on projects, and generally direct effort toward obtaining task and social feedback that is consistent with their self-concept. In addition, when there is conflict between the self-concept and social or task feedback, employees may engage in a number of adaptive strategies to achieve congruence between their self-concept and performance feedback (e.g., increasing effort, changing feedback).

Whether work goals are tied to current self-views or possible self-views has important implications for work motivation. When work goals are tied to current self-views, more proximal motivation mechanisms may be engaged, creating an overriding performance orientation that accentuates self-enhancement. Alternatively, when work goals are connected to possible selves, more distal motivational processes predominate that are rooted in the need for uncertainty reduction and consistency and the ability to predict and control the environment.

Possible selves normally reflect ideals toward which individuals strive, but they can also represent feared selves that individuals attempt to avoid. The contribution of these two motivational components changes with one's perceived proximity to each, with the more proximal source generally having a greater impact. For example, studies show that feared selves are powerful sources of motivation, particularly for individuals who perceive themselves to be close to the feared self. These findings have implications for work motivation: Organizational leaders may need to understand that both feared and desired selves serve as regulatory standards for employees. Consequently, for an employee who is close to the feared self, articulating a vision of an ideal may not have much motivational impact, but framing work tasks in terms of the feared self may serve as a powerful motivator. Conversely, for an individual who is close to ideal and far from the feared self, explaining how the employee can avoid the feared self may have minimal effects, but linking work activities to the ideal self may be very motivating.

Consistent with the distinction between personal identity and social identity, work motivation may also be internally or externally based. Work motivation is

internally based when a personal WSC is activated by cues in the work environment. In this situation, the employee may set internal standards that become the basis of the possible self. Furthermore, the individual may tend to use fixed rather than ordinal standards of self-measurement as he or she attempts to first reinforce perceptions of competency and later achieve higher levels of competency. Employees for whom a personal WSC is chronically activated will likely have a high need for achievement and be highly motivated by task feedback. It is important to these individuals that their efforts are vital in achieving work outcomes and their ideas and actions are instrumental in performing a job well.

Work motivation is externally based when a social WSC is activated and the individual is primarily other-directed. In this case, the possible self is derived by adopting the role expectations of the reference group, leading to ordinal standards of self-evaluation. When a social WSC is chronically activated, the individual is motivated to behave in ways that meet the expectations of others and elicit social feedback that is consistent with self-concept perceptions. The individual may behave in ways that satisfy reference group members, first to gain acceptance and, after achieving that, to gain status.

Recent studies show that core self-evaluations, a concept that overlaps to a great extent with self-concept, are predictive of work motivation. Core self-evaluations refer to fundamental assessments that people make about their worthiness, competence, and capabilities. Findings suggest that individuals who choose goals that are concordant with their ideals, interests, and values are happier than those who pursue goals for other (e.g., extrinsic) reasons. Further, self-concordant goals are likely to receive sustained effort over time and be more attainable and more satisfying.

In sum, the theories and findings related to self-concept and work motivation suggest that individuals are motivated to behave in ways that are consistent with their existing self-concepts. Thus, theories based on the assumption that individuals have a fundamental need to maintain or enhance their self-concept may be useful in expanding our understanding of motivated behavior in the workplace.

—Heather MacDonald and Douglas Brown

See also Job Involvement; Work Motivation

FURTHER READING

- Judge, T. A., Bono, J. E., Erez, A., & Locke, E. A. (2005). Core self-evaluations and job and life satisfaction: The role of self-concordance and goal attainment. *Journal of Applied Psychology, 90*, 257–268.
- Leonard, N. H., Beauvais, L. L., & Scholl, R. W. (1999). Work motivation: The incorporation of self-concept-based processes. *Human Relations, 52*, 969–998.
- Lord, R. G., & Brown, D. J. (2004). *Leadership processes and follower self-identity*. Mahwah, NJ: Lawrence Erlbaum.

SELF-EFFICACY

Albert Bandura defined self-efficacy as a person's belief in his or her capability to successfully perform a particular task. Together with the goals that people set, self-efficacy is one of the most powerful motivational predictors of how well a person will perform at almost any endeavor. A person's self-efficacy is a strong determinant of his or her effort, persistence, and strategizing, as well as subsequent training and job performance. Besides being highly predictive, self-efficacy can also be developed to harness its performance-enhancing benefits. After outlining the nature of self-efficacy and how it leads to performance and other work-related outcomes, the measurement and sources of self-efficacy will be discussed. We conclude by considering whether it is possible to have too much self-efficacy.

NATURE OF SELF-EFFICACY

Because self-efficacy pertains to specific tasks, people may simultaneously have high self-efficacy for some tasks and low self-efficacy for others. For example, a manager may have high self-efficacy for the technical aspects of his or her role, such as management accounting, but low self-efficacy for other aspects, such as dealing with employees' performance problems.

Self-efficacy is more specific and circumscribed than self-confidence (i.e., a general personality trait that relates to how confidently people feel and act in most situations) or self-esteem (i.e., the extent to which a person likes himself or herself), and therefore it is generally more readily developed than self-confidence or self-esteem. Self-efficacy is a much stronger predictor of how effectively people will perform a given task than either self-confidence or self-esteem.

HOW SELF-EFFICACY AFFECTS PERFORMANCE AND WELL-BEING

A high degree of self-efficacy leads people to work hard and persist in the face of setbacks, as illustrated by many great innovators and politicians who were undeterred by repeated obstacles, ridicule, and minimal encouragement. Thomas Edison, believing that he would eventually succeed, reputedly tested at least 3,000 unsuccessful prototypes before eventually developing the first incandescent lightbulb. Abraham Lincoln exhibited high self-efficacy in response to the numerous and repeated public rebukes and failures he experienced before his eventual political triumph. Research has found that self-efficacy is important for sustaining the considerable effort that is required to master skills involved in, for example, public speaking, losing weight, and becoming an effective manager.

When learning complex tasks, high self-efficacy prompts people to strive to improve their assumptions and strategies rather than look for excuses, such as not being interested in the task. High self-efficacy improves employees' capacity to collect relevant information, make sound decisions, and take appropriate action, particularly when they are under time pressure. Such capabilities are invaluable in jobs that involve, for example, dealing with irate customers when working in a call center or overcoming complex technical challenges in minimal time. In contrast, low self-efficacy can lead to erratic analytical thinking, which undermines the quality of problem solving—a key competency in an increasingly knowledge-based society.

In a dynamic work context, in which ongoing learning and performance improvement are needed, high self-efficacy helps individuals react less defensively when they receive negative feedback. In areas in which self-efficacy is low, people often see a negative outcome as confirming the incompetence they perceive in themselves. This can set up a vicious circle whereby ambiguous results are considered evidence of perceived inability, further lowering an individual's self-efficacy, effort, and subsequent performance. When people have low self-efficacy, they tend to blame the situation or another person when things go wrong. Denial of any responsibility for poor performance inhibits the chance that an individual will learn how to perform more effectively in the future.

People are inclined to become anxious or depressed when they perceive themselves as unable to manage

aversive events or gain what they value highly. Thus, self-efficacy is related to the experience of stress and occupational burnout. Specifically, low self-efficacy can readily lead to a sense of helplessness and hopelessness about one's capability to learn how to cope effectively with the challenges and demands of work. When this occurs, low self-efficacy can be distressing and depressing, preventing even highly talented individuals from performing effectively.

MEASUREMENT OF SELF-EFFICACY

Because self-efficacy is task specific, there is no single, standardized measure of self-efficacy. Rather, measures must gauge an individual's self-assessed capacity to either (a) achieve a certain outcome on a particular task (*outcome self-efficacy*) or (b) engage in the processes likely to lead to a certain desired outcome (*process self-efficacy*). For example, an outcome self-efficacy scale in the domain of job search might include items such as "I believe that I can get a new job within four weeks" or "I believe I can get a new job with a starting salary of at least \$65,000," with response anchors ranging from "not at all confident" to "extremely confident." Alternatively, a process self-efficacy scale for job search would focus on items such as "I believe I can network effectively to at least six people during the next four weeks" or "I believe that I can send out 15 résumés during the next four weeks," with response anchors similar to the outcome self-efficacy scale. The key point is that measures of self-efficacy are most informative, predictive, and useful when addressing areas in which self-efficacy is lacking or when they are highly focused on specific behaviors, tasks, or objectives.

SOURCES OF SELF-EFFICACY

There are three key sources of self-efficacy. The most powerful determinant of self-efficacy is *enactive self-mastery*, followed by *role modeling*, and then *verbal persuasion*.

Enactive self-mastery is achieved when people experience success at performing at least portions of a task. It serves to convince them that they have what it takes to achieve increasingly difficult accomplishments of a similar kind. Self-mastery is best achieved through progressive mastery, which is attained by breaking down difficult tasks into small steps that are relatively easy in order to ensure a high level of initial

success. Individuals are then given progressively more difficult tasks in which constructive feedback is provided and accomplishments celebrated before increasingly challenging tasks are attempted. Building self-efficacy through enactive self-mastery entails structuring situations that bring rewarding success and avoid the experience of repeated failure. For example, a person who is learning to pilot an aircraft may be given many hours to develop skill and confidence in the separate component skills before attempting to combine them by actually flying solo. Initial flying lessons are designed so that trainee pilots are challenged but also experience efficacy-building successes during each session. For employees to develop self-efficacy through enactive self-mastery, managers need to provide challenges in which individuals regularly encounter and celebrate successes as they develop their proficiency at work tasks.

Role modeling occurs when people observe others perform a task that they are attempting to learn or vividly visualize themselves performing successfully. Role modeling can provide people with ideas about how they could perform certain tasks and inspire their confidence so that they can act in a similarly successful manner.

Effective role models approach challenging activities as an opportunity to learn and develop their knowledge, skills, and effectiveness rather than as a test of how talented they are. They respond to setbacks by exploring what can be done differently in the future. In short, good role models demonstrate the development of skill, persistence, and learning rather than the defensiveness and blaming that cause mistakes to recur and subsequent performance to decline.

Models are most effective at raising self-efficacy when they are personally liked and seen as having attributes (e.g., age, gender, or ethnicity) similar to those of the individuals who observe them. One implication is that managers should think carefully before assigning mentors, especially without the input of those being mentored. Individuals may learn and become more confident from observing both the successes and failures of others, as long as they feel confident that they can avoid repeating the errors they observe.

Verbal persuasion builds self-efficacy when respected managers encourage and praise individuals for their competence and ability to improve their effectiveness. Positive self-talk can also raise self-efficacy. Regardless of its source, verbal persuasion is most likely to increase self-efficacy when it is

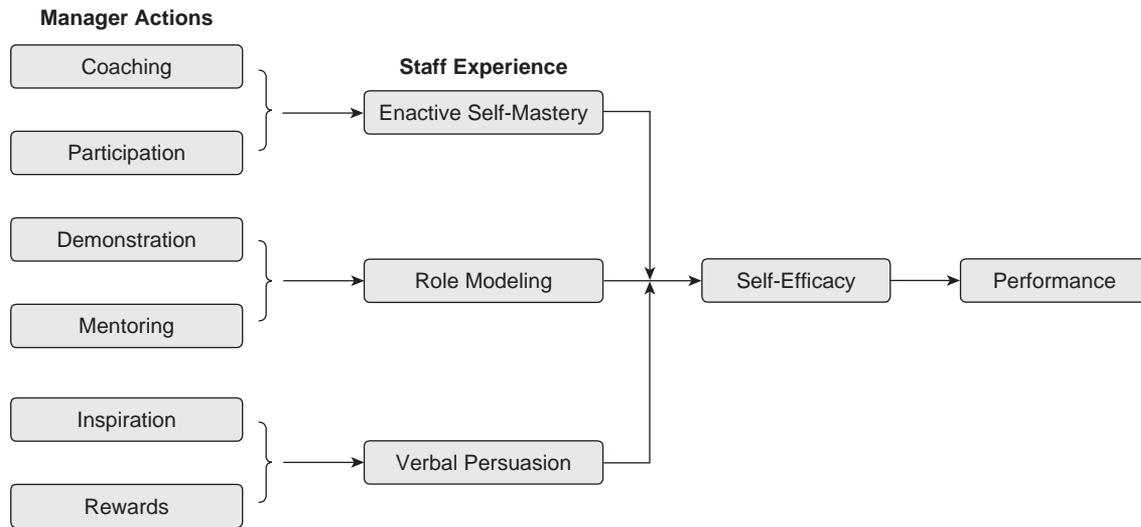


Figure 1 Managerial Actions That Improve Employees' Performance by Building Their Self-Efficacy

SOURCE: Adapted from Heslin (1999).

perceived as credible and emphasizes how success results from devoting sufficient effort to mastering acquirable skills rather than depending on inherent talent. Efficacy-raising feedback highlights how consistent efforts have enabled substantial improvements, as well as the progress made, rather than involving peer comparisons or making reference to how far individuals have to go until their ultimate objective is achieved. Effective verbal persuasion is reinforced with corresponding actions. For example, telling individuals that they are capable but not assigning them any challenging tasks tends to erode both employees' self-efficacy and the manager's credibility. In contrast, having individuals draw up a progress chart before complimenting them on their genuine progress can be a potent way of raising employees' sense of what they can achieve.

UNDERMINING SELF-EFFICACY

These approaches contrast with the subtle, though common, messages that individuals have low ability, which erode self-efficacy beliefs. Such signals include consistently being assigned unchallenging tasks, receiving praise for mediocre performance, being treated indifferently for faulty performance, or being offered unsolicited help. Faultfinding and personal criticism are particularly destructive because these actions undermine motivation to explore and experiment, whereby individuals discover what they are

actually able to achieve. Although encouraging messages can raise self-efficacy, attempts at building self-efficacy through verbal persuasion may easily degenerate into empty sermons unless they are supported by efficacy-affirming experiences (i.e., enactive self-mastery).

Figure 1 illustrates the types of managerial initiatives that build employees' self-efficacy. Table 1 provides a self-assessment of how frequently efficacy-building behaviors should be engaged in.

TOO MUCH OF A GOOD THING?

Extremely high self-efficacy can lead to excessive risk taking, hubris, and dysfunctional persistence, though in most cases, the resulting failures that people experience soon recalibrate their self-efficacy to a more realistic level. In general, the many benefits of high self-efficacy make it a worthwhile attribute to cultivate. This is best done through the simultaneous and systematic application of enactive self-mastery, role-modeling, and verbal persuasion.

—Peter A. Heslin and Ute-Christine Klehe

See also Social Cognitive Theory

FURTHER READING

Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice Hall.

Table 1 Self-Assessment: How Frequently Do You Build Employees' Self-Efficacy?

Rate how often you exhibit the following behaviors using the following scale:

1. Rarely
2. Occasionally
3. About half the time
4. Regularly
5. Often

<i>Manager Actions</i>	<i>To what extent do you . . .</i>	<i>Rating</i>
Coaching	<ul style="list-style-type: none"> • Provide clear, broad objectives for your employees to work toward? • Break complex tasks down into components to enable employees to experience success? • Provide feedback about behaviors rather than personal style? • Deal with “silly” questions or suggestions by tactfully helping employees to explore their implications? 	
Participation	<ul style="list-style-type: none"> • Enable your employees to establish or at least participate in the determination of their goals? • Encourage participation in decision making, where feasible? • Actively engage employees in solving problems that they experience? • Seek input before making changes that will affect your employees? 	
Demonstrate	<ul style="list-style-type: none"> • Personally model struggling to overcome challenges? • Walk the talk—do what you ask others to do? • Express enthusiasm, persistence, and not taking yourself too seriously? 	
Mentoring	<ul style="list-style-type: none"> • Provide opportunities that may result in your employees having more expertise than yourself in certain areas? • Express interest in the learning experiences of your employees? • Make yourself available as a sounding board? 	
Inspiration	<ul style="list-style-type: none"> • Establish a clear and exciting vision that your employees are inspired to strive toward? • Leave your employees feeling stronger and more capable after spending time with you? • Have and demonstrate a genuine concern for the welfare of your employees? 	
Rewards	<ul style="list-style-type: none"> • Reward employees by making encouraging comments and publicly acknowledging their efforts and achievements? • Provide each employee with rewards that they value? • Make employees feel safe and supported when they have made mistakes? 	

Add up your scores to obtain an approximate estimate of how much you build the self-efficacy of your employees. How would your employees rate you on these questions? Why not reevaluate yourself one month from now to gauge your improvement at raising the self-efficacy of your employees?

NOTE: This exercise is intended as a self-development activity illustrating efficacy-building behaviors rather than as a tool for assessing managers to make selection, performance appraisal, or promotion decisions.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Heslin, P. A. (1999). Boosting empowerment by developing self-efficacy. *Asia Pacific Journal of Human Resources*, 37, 52–64.

Wood, R., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of Management Review*, 14, 361–384.

SELF-ESTEEM

Self-esteem (SE) is the overall value that one places on oneself as a person. Few topics have received more attention in psychology than SE, and indeed, a search of the PsycINFO database in 2005 identified more

than 25,000 articles with *self-esteem* as a keyword. There are several reasons for the enduring interest in SE. First and foremost, most people are inherently curious about SE because it encompasses important information about the self, such as how worthy, competent, and well-liked one is. In that sense, possessing self-knowledge necessitates understanding ones' SE, and few can be indifferent to this kind of information. Second, researchers and practitioners alike have assumed that high SE has many positive outcomes, and in fact, much of the research on SE has been focused on exploring what enhances SE. Third, SE has been shown to be related to many important variables of interest, such as subjective well-being, job satisfaction, performance, competition, causal attribution, achievement, and helping. Therefore, understanding SE appears to enhance knowledge in many other areas of psychology. Because SE seems to have such major importance to researchers, practitioners, and people in general, it is not surprising that more than 150 articles are published every month on SE. Despite this proliferation of studies and decades of empirical research, the topic is not free of controversies, and there is no universal agreement about some aspects of the validity of the construct and its effects.

THEORETICAL AND MEASUREMENT ISSUES

Because SE involves an evaluation of how worthy one is as a person, by definition, it seems that people with high SE should have positive self-regard and those with low SE should have negative self-regard. However, though it is true that people with high SE have positive, well-defined views of the self, people with low SE do not necessarily hold negative views of themselves. Instead, low-SE individuals tend to evaluate themselves neutrally, and their self-views tend to vary considerably from situation to situation.

This neutrality and variability in evaluations of the self raises several important theoretical, methodological, and practical questions that have not been clearly answered in the SE literature. For example, it is not completely clear why people with low SE have variable views of themselves; several incompatible theoretical explanations may account for this phenomenon. On one hand, it is possible that people with low SE lack a clear notion of who they are, and therefore they describe themselves in noncommittal, middle-of-the-road terms. Indeed, people with low SE exhibit less stability of self-evaluations and tend to

give inconsistent responses to questions asking them to describe themselves (compared with those with high SE). Thus, according to the *self-concept clarity* explanation, low-SE individuals are confused and ambivalent about who they are and therefore tend to be variable and noncommittal in their self-views.

On the other hand, it is also possible that people with low SE are actually more accurate in their self-evaluations than high-SE individuals. In this sense, the neutrality and inconsistency of self-evaluations associated with low SE actually represent a more accurate perception of the self that truly varies across situations and circumstances. Because we sometimes act as worthy and capable individuals and sometimes do not, people with low SE may be correct in their self-descriptions, and those with high SE may be positively biased and even detached from reality. Indeed, there is some evidence to suggest that people with high SE consistently exaggerate their positive views of the self. For example, several studies have shown that people with high SE overevaluate how much other people like them, and some researchers have even claimed that the interpersonal success of high-SE individuals exists only in their own minds. Indeed, high SE has often been equated with narcissism.

These two theoretical explanations of SE have opposite practical implications. If, in fact, people with low SE have variable and neutral self-views because they lack a clear notion of who they are, then the goal of practitioners should be to enhance SE. However, if those with low SE are actually more accurate and those with high SE are self-deceivers who tend to be narcissistic, then enhancing SE may be counterproductive. These two theoretical explanations also raise some methodological difficulties: If SE represents either a lack of self-concept clarity (on the low end) or narcissism and self-deception (on the high end), then how does SE differ from these constructs, and what is its distinctive contribution as a concept? Is it a unitary concept at all? The literature on SE is not clear on this point; therefore, theories that account for SE as a self-reported descriptor have some difficulty explaining the concept and its uniqueness.

Perhaps a better approach is to look at the behavioral patterns of people with high and low SE and explain the psychological processes that underlie these behavioral patterns. The SE literature clearly shows that people with high SE are much less plastic in their behavior than people with low SE. For example, people with low SE are more reactive to external

social cues and therefore more susceptible to negative feedback and more accepting of it than high-SE individuals. Low-SE individuals are also more susceptible to attempts to influence, more sensitive to anxiety-causing stimuli, and prone to be influenced by self-focus and expectancy manipulations. This tendency to be “behaviorally plastic” may be especially important in performance situations—performance has been shown to be influenced by expectancies and self rather than task-focused manipulations.

Two underlying psychological motives may explain the behavioral plasticity pattern of low-SE individuals. On one hand, individuals want to feel good about themselves and feel that they are worthy, capable, and likable; therefore, one motive that drives people is self-enhancement. On the other hand, people also desire to be self-consistent and protect their self-conceptions from change. In other words, people are driven by the desire to predict and control important life experiences and to tell themselves a consistent story about who they are. For those with positive SE, self-consistency and self-enhancement operate in concert, but for people with negative self-views, these two drives operate in opposite directions. Low-SE people want to maintain their negative self-view in order to maintain self-consistency, but at the same time, they want to think better of themselves. Because they have contradictory motives, they look outside for cues to who they are and rely on social information to determine their future actions. For example, when people with high SE encounter negative information about themselves in the form of failure or negative feedback, they tend to reject it and do not let the information affect their expectancies or behaviors. In contrast, those with low SE often accept the information and let it influence their behaviors.

Methodologically, SE presents other difficulties. A recent analysis of the relationship between SE, neuroticism, locus of control, and generalized self-efficacy found very strong correlations among all of these constructs, which are essentially representing the same underlying construct. The discriminant validity of SE as a unique construct is therefore open to debate.

CONTRIBUTIONS

Despite these issues, research on SE has made some significant contributions. First, measures of SE are highly correlated with each other and generally show high reliabilities. In particular, the Rosenberg

Self-Esteem Scale, named for Morris Rosenberg, seems to be content- and face-valid, and it is reliable and unitary and therefore can be used with confidence.

Second, meta-analytic research has shown some of the relationships between SE and important variables of interest in industrial and organizational psychology to be quite significant. For example, SE has been shown to be an important predictor of job satisfaction ($r = .26$). People with high SE actually attain more challenging jobs, and even in jobs that are not particularly complex, they see more challenges and therefore are more excited about their jobs than people with low SE. People with high SE also have higher subjective well-being ($r = .47$) and cope better with stressful situations. Self-esteem is significantly correlated with job performance ($r = .26$), and the relationship is actually stronger than the usual relationship between conscientiousness and performance, which is considered the strongest personality predictor of job performance. Another major variable of interest in the organizational literature is leadership—indeed, several studies have shown that SE is a good predictor of leadership behavior and efficacy. In addition, a recent large-scale study showed that people with high SE exhibit more “voice behavior” in organizations and therefore are less susceptible to groupthink. Overall, despite the theoretical and methodological controversies, SE has been shown to be a valuable variable of interest in industrial and organizational psychology.

—Amir Erez

See also Core Self-Evaluations

FURTHER READING

- Baumeister, R. F., Campbell, J. D., Kruger, J. I., & Vohs, K. D. (2003). Does self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyle? *Psychological Science in the Public Interest*, 4, 1–44.
- Brockner, J. (1988). *Self-esteem at work: Research, theory, and practice*. Lexington, MA: Lexington Books.
- Campbell, J. D., & Lavelle, L. F. (1993). Who am I? The role of self-concept confusion in understanding the behavior of people with low self-esteem. In R. F. Baumeister (Ed.), *Self-esteem: The puzzle of low self-regard* (pp. 3–20). New York: Plenum Press.
- Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology*, 86, 80–92.

- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2002). Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct? *Journal of Personality and Social Psychology*, 83, 693–710.
- La Ronde, C., & Swann, W. B. (1993). Caught in the cross-fire: Positivity and self-verification strivings among people with low self-esteem. In R. F. Baumeister (Ed.), *Self-esteem: The puzzle of low self-regard* (pp. 147–166). New York: Plenum Press.

SELF-FULFILLING PROPHECY: PYGMALION EFFECT

The *Pygmalion effect* is a special case of the self-fulfilling prophecy in which raising a manager's expectations for worker performance in fact boosts performance. The Pygmalion effect first appeared in educational psychology when psychologists experimentally raised elementary schoolteachers' expectations for a randomly selected subsample of pupils, producing significantly greater achievement gains among those pupils than among control pupils. Subsequent research has replicated this phenomenon among adult supervisors and subordinates in military, business, industrial, and service organizations and among all four cross-gender combinations—that is, both men and women lead male and female subordinates to greater success when they expect more of them. Interpersonal expectancy is inherent in most leader–follower interactions, and the Pygmalion effect undoubtedly characterizes many manager–worker relationships.

Several theories have been proposed to explain why raising leader expectations boosts subordinate performance. Common to all explanations is a causal chain that begins with the impact of the leader's expectations on and his or her *own* behavior toward subordinates, which, in turn, arouses some motivational response on the part of the subordinates and culminates in subordinate performance that accords with the leader's expectations. Self-efficacy has emerged as the key motivational mediator in this process. Self-efficacy is an individual's belief in his or her ability to execute the behaviors needed to perform successfully. Ample research shows that self-efficacy is a major determinant of performance. When individuals believe they have what it takes to succeed, they

try harder. Conversely, those who doubt they can succeed refrain from exerting the effort to apply the ability they do have and end up accomplishing less than is possible.

The *Pygmalion-at-work model* posits that having high expectations moves the leader to treat followers in a manner that augments their self-efficacy, which, in turn, motivates subordinates to expend greater effort, culminating in enhanced performance. Thus, the Pygmalion effect is a motivational phenomenon initiated by the high performance expectations held by a leader who believes in his or her followers' capacity for success. In a largely unconscious interpersonal process, leaders with high expectations lead their followers to success by enhancing their self-efficacy.

The self-fulfilling prophecy is a double-edged sword: As high expectations boost performance, low expectations can depress performance in a negative process dubbed the *Golem effect*. The word *golem* means “oaf” or “dumbbell” in Hebrew and Yiddish slang. Managers who expect dumbbells get dumbbells. Experiments have shown that Golem effects can be mitigated by informing supervisors that subordinates with relatively low qualifications have high potential to succeed.

Another variant of the self-fulfilling prophecy is the *Galatea effect*. Named for the statue sculpted by the mythical Pygmalion, this is an intrapersonal expectancy effect involving only the worker. Self-starters fulfill their own prophecies of success; believing in their own capacity to excel, they mobilize their internal motivational resources to sustain the effort needed for success even without any external source (e.g., a supervisor) of high expectations. However, Galatea effects can also be Golem-like. Individuals who harbor a negative self-image expect to fail; they refrain from using their skills and abilities, thereby needlessly but unintentionally fulfilling their own gloomy prophecy.

Finally, research shows group-level expectancy effects in which a manager's high expectations for a whole group, distinct from expectations toward particular individuals, culminate in the group exceeding the performance of control groups. This is an especially important phenomenon in team sports as well as in the teamwork that has emerged as a defining feature of modern organizations.

A fascinating but elusive aspect of interpersonal self-fulfilling prophecies involves the communication of expectations. Some of this communication is verbal

and conscious, but much of it is not. Managers exhibit many nonverbal behaviors by which they convey their expectations, whether high or low, to subordinates. When managers expect more, they unwittingly nod their heads affirmatively more often, draw nearer physically, maintain eye contact, speak quickly, and show greater patience toward those they are supervising. These nonverbal behaviors serve to “warm” the interpersonal relationship, create a climate of support, and foster success. Other ways in which leaders favor those whom they expect more from include providing them with more input, more feedback, and more opportunities to show what they can do, whereas those whom managers expect less of are left neglected “on the bench.”

Fortunately, the high expectations that motivate enhanced performance also augment subordinate satisfaction. In every successful Pygmalion experiment in which satisfaction was measured, it was significantly increased. Satisfaction is not a surprising by-product. High expectations and the resulting superior performance are satisfying because, by and large, employees want to succeed, and they are more satisfied when they do. Thus, all the news is good news as far as the Pygmalion effect is concerned.

Meta-analyses have confirmed that the magnitude of the Pygmalion effect in management is medium to large. The Pygmalion effect research is unique in organizational psychology because it is entirely based on field experimentation, lending it extraordinary internal and external validity. Experimental design confirms the flow of causality from leader expectations to follower performance, and the field settings confirm its generalizability. What remains to be shown is the practical validity of the Pygmalion effect. Although replications have produced the effect in organizations, attempts to get managers to apply it through managerial training have been less successful. Managers’ prior acquaintance with subordinates appears to be a barrier to widespread application. Virtually all of the successful replications occurred among newcomers whose managers had not known them previously. Familiarity apparently crystallizes expectations because managers do not expect their subordinates to change much. Therefore, the most effective applications may be made among managers and new subordinates.

Organizational innovations and other deviations from routine that unfreeze standard operating procedures are particularly conducive to Pygmalion effects.

Organizational development programs or profound changes in organizational structure or function resulting from, for example, mergers and acquisitions or personnel transitions open a window of opportunity. Savvy managers piggyback on these unsettling events and raise expectations to promote successful change and productive outcomes. In one classic industrial example, the introduction of simple job rotation and job enrichment produced significant improvements in productivity when accompanied by information that raised expectations from the new work procedures, but neither innovation improved productivity when expectations were not raised.

The practical upshot is clear: Change—any change—presents managers with an opportunity to create productive Pygmalion effects. It is incumbent on those who want to lead individuals, teams, and organizations to success to convey high expectations whenever the opportunity presents itself. Conversely, cynical expressions of doubt about reorganizations, innovations, or developmental interventions condemn them to failure. Thus, the practical agenda for managers is twofold: They must counteract any manifestations of contrary expectations, and they must implant high expectations.

The essence of the Pygmalion effect is that managers get the workers they expect. Expect more and you will get more. However, the converse is true, too: Expect less and you will get less. All managers should strive to play a Pygmalion role by cultivating high expectations of their subordinates’ potential and by communicating those expectations to foster high self-expectations among subordinates regarding their own potential for success. High expectations are too important to be left to chance or whim; they should be built into all manager–worker relationships and should be part of all managerial training and development programs.

—Dov Eden

See also Leadership and Supervision; Training

FURTHER READING

- Eden, D. (1992). Leadership and expectations: Pygmalion effects and other self-fulfilling prophecies in organizations. *Leadership Quarterly*, 3, 271–305.
- Eden, D. (2003). Self-fulfilling prophecies in organizations. In J. Greenberg (Ed.), *Organizational behavior: The state of the science* (2nd ed., pp. 91–122). Mahwah, NJ: Lawrence Erlbaum.

- Eden, D., Geller, D., Gewirtz, A., Gordon-Terner, R., Inbar, I., Liberman, M., Pass, Y., Salomon-Segev, I., & Shalit, M. (2000). Implanting Pygmalion leadership style through workshop training: Seven field experiments. *Leadership Quarterly, 11*, 171–210.
- McNatt, D. B. (2000). Ancient Pygmalion joins contemporary management: A meta-analysis of the result. *Journal of Applied Psychology, 85*, 314–322.
- Merton, R. K. (1948). The self-fulfilling prophecy. *Antioch Review, 8*, 193–210.

SELF-REGULATION THEORY

The term *self-regulation* refers to a complex and dynamic set of processes involved in setting and pursuing goals. It is commonly used to refer to a broad set of theories that seek to describe, explain, and predict these goal-directed processes. Although many theories of self-regulation exist, each proposing some unique characteristics, researchers generally agree on several fundamental features of self-regulation.

GOALS AND GOAL SETTING

The most fundamental aspect of self-regulation theory is the idea that much of human behavior is directed toward accomplishing goals. Indeed, it is the pursuit of goals that forms the focus of much of self-regulation theory. The term *goal* takes on a fairly broad meaning in this context, referring to desired future states that individuals wish to attain.

Goals can differ from one another in many ways. For example, they may be assigned by others (e.g., by one's supervisor), they may be self-set by the individual, or they may be determined by some combination of the two (e.g., participatively set). Goals can vary in both difficulty and specificity, as well as content. They can be near-term (proximal) goals or long-term (distal) goals. Goals can even vary in the extent to which one is consciously aware that the goal is guiding behavior. All of these characteristics have important influences on cognition, affect, and behavior.

One of the most consistent findings (although it is not without exception) is that difficult, specific goals often result in high levels of performance. Although this finding has great practical benefit by itself, self-regulation theorists seek to understand precisely how, when, and why such goal-setting effects are obtained. This increased understanding of goal-related processes

provides valuable information about how motivational interventions can best be implemented.

FEEDBACK AND SELF-MONITORING

Feedback plays a critical role in self-regulatory processes. In this context, feedback refers to information concerning an individual's progress toward attaining a goal. By comparing feedback to goals, an individual can determine the level of success he or she is having in pursuing the goal. If the feedback indicates that he or she is not making sufficient progress, then changes are often undertaken, such as investing more effort, trying different approaches to meet the goal, or even abandoning the goal altogether.

Feedback need not come from outside sources (e.g., one's supervisor)—indeed, such external feedback is often unavailable. Thus, individuals often rely on *self-monitoring* to evaluate their progress toward achieving their goals. Unfortunately, individuals are notoriously flawed in making such self-evaluations, typically perceiving their progress to be better than it really is. As a result, without sufficiently frequent and specific external feedback, individuals often make poor decisions in the pursuit of their goals, such as investing less time and effort than is truly necessary for success and persisting with ineffective strategies.

GOAL HIERARCHIES

Most theories of self-regulation propose that goals are arranged hierarchically in a series of means–ends relationships. For example, a car salesperson may have a goal to obtain a pay raise. To accomplish this goal, the individual must get a positive performance evaluation from his or her supervisor during the annual performance appraisal. To get a positive evaluation, he or she must sell at least eight new cars per month, and so on.

The importance of goals higher up in the hierarchy can determine how committed individuals are to particular goals lower in the hierarchy. For example, if a student is seeking an A grade in a psychology course because he or she sees it as a necessary step toward fulfilling a lifelong dream of getting into graduate school, his or her commitment to obtaining the grade is likely to be very high.

Goal hierarchies are highly complex. Rather than having a strict one-to-one relationship between higher-level and lower-level goals, a higher-level goal, or end, can often be obtained by achieving several alternative,

lower-level goals, or means (i.e., equifinality—“all roads lead to Rome”). Likewise, a given lower-level goal or means can often serve many higher-level goals or ends (i.e., multifinality—“kill two birds with one stone”). Goal hierarchies are also highly individualized. Each individual’s hierarchy may be distinct and change over time. Some theorists postulate that an important determinant of individual personality is the goals that exist (or the relative importance of such goals) near the top of their hierarchy.

APPROACH VERSUS AVOIDANCE GOALS

Up to this point, goals have been described as future states that individuals wish to attain. Such goals are often referred to as *approach goals* because individuals seek to move toward these states. However, *avoidance goals* are also powerful influences on behavior, representing undesired future states that individuals wish to avoid. For a variety of reasons, the self-regulatory processes resulting from approach and avoidance goals differ in subtle but very important ways.

One important way in which approach and avoidance goals differ is in the affect (i.e., emotions) that arises from successful and unsuccessful pursuit. In short, success at an approach goal often leads to excitement or elation, whereas success at an avoidance goal often leads to relief or relaxation. Failure at an approach goal often leads to sadness or depression, whereas failure at an avoidance goal often leads to anxiety or nervousness. Because emotions can have important influences on the way individuals perceive and react to the world around them, the distinction between approach and avoidance self-regulation is of great practical importance.

SUMMARY

Despite the vast insights and many practical applications that have emerged from the research on self-regulation, researchers are only just beginning to understand all of the implications of this complex, dynamic, and individualized process. Nonetheless, it appears clear that the implications are many, and increased understanding in this area will likely yield further improvements in effectiveness in the workplace and beyond.

—Aaron M. Schmidt

See also Feedback; Goal-Setting Theory; Path-Goal Theory

FURTHER READING

- Carver, C. S., & Scheier, M. F. (2000). On the structure of behavioral self-regulation. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 41–84). San Diego: Academic Press.
- Donovan, J. J. (2001). Work motivation. In N. Anderson, D. S. Ones, H. K. Sinangil, & C. Viswesvaran (Eds.), *Handbook of industrial, work, and organizational psychology* (Vol. 2, pp. 53–76). Thousand Oaks, CA: Sage.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, *57*, 705–717.
- Shah, J. Y. (2005). The automatic pursuit and management of goals. *Current Directions in Psychological Science*, *14*, 10–13.
- Vancouver, J. B. (2000). Self-regulation in industrial/organizational psychology: A tale of two paradigms. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 303–341). San Diego: Academic Press.

SEXUAL DISCRIMINATION

Sexual discrimination occurs when individuals are treated differently or receive different outcomes solely because they are men or women. Title VII of the Civil Rights Act of 1964 made sexual discrimination illegal in the American workplace. Specifically, Title VII prohibits discrimination against any employee or applicant for employment because of his or her sex with regard to hiring, termination, promotion, compensation, job training, or any other condition or privilege of employment. Title VII prohibitions also include sexual harassment and pregnancy discrimination. Although Title VII protects both sexes, women are systematically more likely than men to be victims of sexual discrimination.

Legally, sexual discrimination is identified as manifesting itself in one of two forms: disparate treatment and disparate impact. *Disparate treatment* refers to the differential treatment of an individual intentionally and specifically because that individual is a man or a woman. This includes discrimination predicated on assumptions about the abilities, traits, or performance of individuals on the basis of sex. Examples of disparate treatment are asking men and women different questions during a job interview, offering a lower starting salary because the recruit is a woman, or

exhibiting reluctance to hire a woman for a job that requires long hours and travel.

Disparate impact constitutes a broader definition of gender discrimination and is more complex. Disparate impact results when a particular group is systematically and adversely affected by a company's policy. Although the policy may not have been created with the intent of discrimination, it may nonetheless disproportionately exclude individuals on the basis of sex for reasons that are not job related. For example, requiring applicants to take a selection test that involves lifting 100 pounds, even though 30 pounds is the maximum a person would need to lift on the job, might unnecessarily screen out qualified female applicants.

EVIDENCE OF SEXUAL DISCRIMINATION

Women have made substantial gains in the last several decades in the work domain: They now compose nearly half the U.S. labor market and had a labor force participation rate of 46.5% in 2003. In addition, women are closing the education gap, earning more bachelor's and master's degrees than men and increasing their representation in business, law, and medical schools. Given the strides that women have made, coupled with the illegality of sexual discrimination, is sexual discrimination really a problem in the modern workplace? If so, what is its prevalence?

According to many sources of data, it is clear that sexual discrimination remains a concern in the work domain. One piece of direct evidence is the sheer number of sexual discrimination charges filed with the Equal Employment Opportunity Commission (EEOC), a key federal agency responsible for the enforcement of Title VII. In 2004, the EEOC received 24,249 charges of sex-based discrimination, an increase of 12% over the last decade. Moreover, these data are unlikely to capture the whole picture. Many women do not challenge the discriminatory practices they encounter in the workplace for fear of losing their jobs, and others are deterred by the personal and financial costs associated with submitting a claim.

By examining the general topography of the U.S. workforce and the way women fit into it, a clearer picture of gender inequity emerges. For example, although women make up nearly half of the U.S. workforce, they continue to be concentrated in occupations that are traditionally considered female—often support roles that are low in status and pay. In 2003, the top five occupations held by women were

administrative assistant (96.3% female), registered nurse (90.2%), nursing, psychiatric, and home health aide (89%), elementary and middle school teacher (80.6%), and cashier (75.5%). Meanwhile, women remain decidedly underrepresented in roles that are traditionally considered male—roles that are often highest in authority, responsibility, and prestige in organizations.

This seemingly impenetrable barrier to women's entrance into the highest echelons of organizations is often referred to as the *glass ceiling*. Indeed, the higher up in the organizational hierarchy one looks, the more scarce women become. For example, in 2003, despite occupying 50.5% of the managerial and specialty positions overall, in Fortune 500 companies, women made up only 15.7% of corporate officers and 13.6% of board members, and only eight women were CEOs. Not surprisingly in light of these figures, only 5.2% of the Fortune 500 top earners were women.

Gender inequities are also evident in the way women are compensated; women continue to be paid less than men. In 2003, for every dollar earned by a man, a woman earned 75.5 cents on average. Differences in the jobs and occupations held by men contribute somewhat to this discrepancy; however, even after controlling for factors such as education, job training, work experience, and occupation, more than half of the gap in earnings remains unexplained. Consider this: According to the U.S. Department of Labor, women in 1997 earned less than men in 99% of all occupations.

Despite the significant advances that women have made over the past few decades, sexual discrimination continues to be a problem in organizational life. Women are consistently employed in lower-status jobs and earn less than men. This begs the question, why? In considering the causes of sexual discrimination in the workplace, gender stereotypes frequently are designated as the culprit.

ANTECEDENTS OF SEXUAL DISCRIMINATION

Gender Stereotypes

The belief that women and men are different is widely shared in our culture; in fact, research suggests that men and women are often viewed as polar opposites. Men are thought to be rational, independent, decisive, and assertive, whereas women are described as illogical, dependent, indecisive, and passive. Men

and women are also described differently with respect to the qualities of warmth and expressiveness, with women rated more favorably. Yet the traits associated with men and women are not only different but valued differently. Although each sex is credited with desirable traits, it is generally argued that male traits are more highly valued in Western culture than those associated with women. That is, the achievement-oriented traits typically ascribed to men have been shown to be more highly valued than the nurturing and affiliation-oriented traits typically ascribed to women; this is particularly true with respect to the work domain.

How do these stereotypes translate into discrimination in the workplace? The answer to this question lies not only in the stereotypes about women but also in conceptions of what is required to effectively handle jobs that are considered to be male. Taken together, these elements determine performance expectations—expectations that ultimately become the precursor to sexual discrimination.

Expectations about how successful or unsuccessful an individual will be when working at a particular job are determined by the fit between the perceived attributes of the individual and the perceived attributes required for success at that particular job. If the fit is good, then success will be expected; if the fit is poor, then failure will be expected. These fit-derived performance expectations, whether positive or negative, play a key role in evaluation processes because individuals have a tendency to perpetuate and confirm them. Once an expectation has been formed, it becomes a lens through which information is filtered, including what is attended to, how it is interpreted, and whether it is remembered and recalled when making critical decisions.

Applying this reasoning to women in organizations, the lack of fit between the stereotype-based perceptions of women's attributes and the perceptions of many job requirements leads hiring managers to conclude that women are ill-equipped to handle certain types of work—namely, work that is considered to be male sex-typed—and the expectation that women are unlikely to succeed in traditionally male roles. These performance expectations are powerful in their impact: They create a tenacious predisposition to view women in a way that is consistent with the expectation, thereby detrimentally affecting the way they are regarded and the way their work is evaluated. The behavioral consequence is sexual discrimination.

From Expectations to Discrimination

Research has demonstrated that the expectation of failure for women often permeates the entire process of women's careers. In personnel selection, there is a tendency for men to be preferred over women of similar qualifications when the job is one traditionally held by men. For example, researchers have found that for managerial positions, the same résumé is rated more favorably when it is believed to belong to a man rather than a woman. Women are also placed in positions that seem more appropriate for their attributes—ones in which the fit seems good. Thus, women tend to be placed in staff rather than line jobs, where they can provide support and assistance, something they are thought to be well-equipped to do.

When women do attain jobs that are considered to be male sex-typed, the effects of negative expectations deriving from perceptions of lack of fit persist. Men and women producing identical work are often evaluated differently, with women's work regarded as inferior. Even when a woman's successful performance is indisputable, evaluators may attribute it to some factor other than the woman herself, be it another person (if she has worked in a group), the ease of the task, or some transient factor such as luck. If it is impossible to dismiss her role in her success and she is acknowledged as competent in a male sex-typed role, then she seems to be disliked. There are many "shoulds" attached to gender stereotypes that, when violated, have negative consequences. Thus, assertive behavior that is seen as tough and decisive when acted out by a man may be seen as "bitchy" when done by a woman.

These findings have obvious implications not only for entry-level access to organizations but also for advancement opportunities such as training programs, promotions, and career trajectories in organizations. These individual processes, at an aggregate level, account for macro-level discrimination: the discrepancies in the types of roles women occupy, the roles they don't, and the compensation they receive for their work.

SUMMARY

Despite being made illegal by the Civil Rights Act of 1964, discrimination on the basis of sex continues to be a problem in today's work organizations. At the root of this problem are gender stereotypes and the expectations they produce, which ultimately result in

the differential treatment of men and women on the basis of their sex.

—Michelle C. Haynes and Madeline E. Heilman

See also Adverse Impact/Disparate Treatment/Discrimination at Work; Civil Rights Act of 1964, Civil Rights Act of 1991; Glass Ceiling; Sexual Harassment at work; Stereotyping

FURTHER READING

- Dipboye, R. A., & Colella, A. (Eds.). (2005). *Discrimination at work: The psychological and organizational bases*. Mahwah, NJ: Lawrence Erlbaum.
- Heilman, M. E. (1995). Sex stereotypes and their effects in the workplace: What we know and what we don't know. *Journal of Social Behavior and Personality, 10*(6), 3–26.
- Heilman, M. E. (2001). Description and prescription: How gender stereotypes prevent women's ascent up the organizational ladder. *Journal of Social Issues, 57*(4), 657–674.

SEXUAL HARASSMENT AT WORK

Psychologists generally describe sexual harassment at work as offensive, degrading, or harmful verbal or nonverbal behaviors that are of a sexual or gender-targeted nature. A variety of behaviors can be viewed as constituting sexual harassment. Examples include repeated requests for a romantic date despite rejection, as well as violent behaviors such as attempted or completed rape. Although women are more commonly victims of sexual harassment, men may be harassed as well. In the case of both female and male victims, men tend to be the most common perpetrators.

Sexual harassment is often viewed as a significant source of stress for victims. Indeed, victims may experience psychological, physical, and behavioral problems, many of which can be problematic for organizations. Sexual harassment has received a considerable amount of attention worldwide in the media, among lawmakers, and among organizational researchers. Many organizations have instituted policies and practices intended to prevent such harassment and to provide support for its victims.

To better understand workplace sexual harassment, this entry provides an overview of (a) forms of sexual harassment and how they are commonly measured by organizational researchers, (b) sexual harassment and

the law, (c) causes of sexual harassment, (d) consequences of sexual harassment, and (e) how sexual harassment compares with other types of aggression in the workplace.

FORMS OF SEXUAL HARASSMENT AND THEIR MEASUREMENT

Louise F. Fitzgerald and her colleagues have played a pivotal role in advancing our knowledge of the manifestations of sexual harassment and how they can be measured. These researchers describe three forms of sexual harassment: *gender harassment*, *unwanted sexual attention*, and *sexual coercion*.

Gender Harassment

Gender harassment refers to verbal and nonverbal behaviors that are not aimed at sexual cooperation but convey insulting, hostile, and degrading attitudes toward a person's gender. In other words, this form of sexual harassment constitutes putting someone down on the basis of their gender. Examples of such behaviors include making crude sexual remarks, displaying or distributing sexually offensive material, and making sexist comments. Compared with the two other forms of sexual harassment described here, gender harassment is likely the most widespread.

Unwanted Sexual Attention

Unwanted sexual attention denotes verbal and nonverbal behavior that is offensive, unwanted, and unreciprocated. Unwanted sexual attention is distinguishable from gender harassment in that it indicates an inappropriate and unwelcome come-on as opposed to a put-down. Behaviors that may constitute unwanted sexual attention include attempts to discuss sex, leering, and repeated requests for drinks or dinner despite rejection, as well as physical behaviors such as touching someone in a way that makes him or her feel uncomfortable or attempting to stroke or fondle another person. Attempted or completed rape can be viewed as an extreme form of unwanted sexual attention.

Sexual Coercion

Sexual coercion is the extortion of sexual cooperation in return for job-related considerations such as job security, promotions, and compensation (e.g.,

salary, bonuses). Behaviors exemplifying this form of sexual harassment include making subtle bribes, making subtle threats, and making a person afraid of poor job-related treatment if he or she does not agree to provide a sexual favor.

Although gender harassment, unwanted sexual attention, and sexual coercion have been proposed as conceptually distinct forms of sexual harassment, they tend to be highly correlated because they often co-occur in the same organizational contexts. For example, victims of sexual coercion virtually always report having experienced unwanted sexual attention and gender harassment in the same context.

Measuring Sexual Harassment

Fitzgerald and her colleagues developed a questionnaire, the Sexual Experiences Questionnaire (SEQ), to measure how frequently employees believe they have been the target or victim of each of the three forms of sexual harassment. In the questionnaire, individuals are presented with a series of statements (items) describing behaviors that denote each of the three forms of sexual harassment and are asked to rate the frequency with which they have been the target of such behaviors over a given time period. Though some scholars have encouraged further refinement of the SEQ, it remains the most widely known and studied measure of sexual harassment.

SEXUAL HARASSMENT AND THE LAW

A number of countries have laws in place intended to curb the occurrence of sexual harassment. For example, the United States, Canada, Australia, Denmark, Ireland, New Zealand, Sweden, and the United Kingdom all have equal opportunity laws that address sexual harassment. For example, the United States considers sexual harassment to be a form of sex discrimination that violates Title VII of the Civil Rights Act of 1964. According to the U.S. Equal Employment Opportunity Commission (EEOC), unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment when submission to or rejection of this conduct explicitly or implicitly affects an individual's employment, unreasonably interferes with an individual's work performance, or creates an intimidating, hostile, or offensive work environment. By this legal definition, all three forms of sexual harassment may be recognized by

the EEOC as unlawful sexual harassment. However, it should be noted that the SEQ does not necessarily capture behaviors that courts recognize as unlawful. One may feel sexually harassed, psychologically speaking, without having been the target of unlawful behavior.

According to the EEOC, sexual harassment can occur in a variety of circumstances, including but not limited to the following:

- The victim as well as the harasser may be a woman or a man; the victim need not be of the opposite sex.
- The harasser may be the victim's supervisor, an agent of the employer, a supervisor in another area, a coworker, or a nonemployee.
- The victim does not have to be the person harassed but could be anyone affected by the offensive conduct.
- Unlawful sexual harassment may occur without economic injury to or discharge of the victim.
- The harasser's conduct must be unwelcome.

The EEOC notes that it is helpful for the victim to inform the offender that the conduct is unwelcome and must stop. The victim should use any employer complaint mechanism or grievance system available.

In investigating allegations of sexual harassment, the EEOC considers the circumstances, such as the nature of the sexual advances, and the context in which the alleged incidents occurred. A determination is made from the facts on a case-by-case basis. However, it is often difficult to prove that sexual harassment has taken place, especially if no objective evidence is provided. Moreover, many victims feel that making a formal complaint is worse than saying nothing at all. Not surprisingly, many victims choose not to make formal accusations. Considering the challenges associated with the legal pursuit of sexual harassers, as well as the interests of potential victims and their employing organization (the organization can suffer financially from a tarnished reputation, poor employee morale, and financial damages), it is clearly desirable to prevent the occurrence of sexual harassment in the first place. Knowing the likely causes of sexual harassment provides a roadmap for such prevention.

CAUSES OF SEXUAL HARASSMENT

The small body of empirical research conducted on potential predictors of workplace sexual harassment focuses largely on aspects of the organizational or work context and on the personal characteristics of offenders.

Work Context

Many organizations have implemented policies or practices intended to curb the occurrence of sexual harassment. Some research suggests that these policies may be beneficial. For example, both female and male employees are more likely to experience sexual harassment when they perceive their organization as being more tolerant of sexual harassment. Clearly communicating and applying policies against sexual offenders gives employees the impression that sexual harassment is not tolerated. In addition, male employees are less likely to sexually harass women when they believe that such behavior will be punished by the organization.

Another contextual factor that has been studied is the extent to which the workplace is dominated by one gender. For example, some research shows that female employees are more likely to report sexual harassment in work contexts that they view as male dominated.

Offender Characteristics

Although research on offender characteristics is limited and has focused exclusively on male offenders, it suggests that men's past sexual experiences and current beliefs and attitudes toward the sexual harassment of women are related to their self-acknowledged propensity to sexually harass women. Specifically, men are more likely to sexually harass women when they have had more sexual experience, have been the victims of childhood sexual abuse, are more easily accepting of interpersonal violence against women, and hold beliefs regarding the sexual harassment of women that tend to blame the victim.

CONSEQUENCES OF SEXUAL HARASSMENT

Psychologists conceptualize sexual harassment as a significant source of stress for targets. Thus, much of the research investigating the consequences of sexual harassment has tested whether the experience of sexual harassment relates to psychological, physical, and behavioral manifestations of stress, many of which can be problematic for the effective functioning of organizations. The primary limitation of most of this research, however, is that sexual harassment and its consequences are measured at the same point in time, thereby precluding any cause-and-effect conclusions from being drawn.

Psychological Consequences

Studies show that the more people report having experienced sexual harassment, the more they are likely to report reduced job satisfaction (a commonly measured work attitude), reduced satisfaction with life in general, and increased psychological distress (e.g., anxiety, depression, fear, and hopelessness about the future). It is also possible that victims psychologically avoid feelings of stress by denying (to themselves and to others) that the harassment ever took place.

Physical Consequences

Research suggests that the more people report having been sexually harassed at work, the more they are likely to complain of physical ailments such as severe headaches, shortness of breath, and exhaustion with no apparent cause. Such ailments are likely a response to the stress experienced as a result of sexual harassment.

Behavioral Consequences

Employees who experience sexual harassment are more likely to neglect their job tasks, be absent from work, and feel a desire to quit their job. These types of behaviors and behavioral intentions exemplify how some targets of sexual harassment choose to avoid the context in which the stressful event occurred, namely, their job or organization. Other responses to sexual harassment can be exhibited by victims, including confronting the offender directly (relatively rare), social coping (i.e., getting support from colleagues, friends, or family members), and advocacy seeking (i.e., bringing the alleged harassment to the attention of organizational authorities). Unfortunately, few victims seek such advocacy out of fear of individual or organizational retaliation, which may explain why organizational policies intended to reduce sexual harassment are not always effective.

SEXUAL HARASSMENT AND OTHER TYPES OF AGGRESSION AT WORK

Much of the research on workplace sexual harassment has progressed independently of research on other types of aggressive behavior at work, such as general incivility or nonsexual bullying. Recently, some scholars have argued that sexual harassment is only

one of many types of workplace aggression. Despite general conceptual similarities, little is known about how sexual and nonsexual types of workplace aggression differ in terms of their causes or consequences.

A recent quantitative review of studies investigating nonviolent forms of workplace aggression revealed that nonsexual aggression generally shares a stronger relationship with reduced overall job satisfaction among female victims than does sexual aggression. This difference may be explained by reports that nonsexual aggression happens more frequently than sexual aggression, and therefore victims view it as more of an organizational problem than sexual aggression; that organizations rarely have policies in place to curb nonsexual aggression, making the victims of aggression more likely to be dissatisfied at work; and that targets generally view nonsexual aggression as a more severe form of aggression by targets than sexual aggression. Clearly, more research is needed to elucidate the unique causes and consequences of sexual versus nonsexual workplace aggression.

—Laurent M. Lapierre

FURTHER READING

- Dekker, I., & Barling, J. (1998). Personal and organizational predictors of workplace sexual harassment of women by men. *Journal of Occupational Health Psychology, 3*, 7–18.
- Fitzgerald, L. F., Drasgow, F., Hulin, C. L., Gelfand, M. J., & Magley, V. J. (1997). Antecedents and consequences of sexual harassment in organizations: A test of an integrated model. *Journal of Applied Psychology, 82*, 578–589.
- Fitzgerald, L. F., Gelfand, M. J., & Drasgow, F. (1995). Measuring sexual harassment: Theoretical and psychometric advances. *Basic and Applied Social Psychology, 17*, 425–445.
- Lapierre, L. M., Spector, P. E., & Leck, J. D. (2005). Sexual versus non-sexual workplace aggression and victims' overall job satisfaction: A meta-analysis. *Journal of Occupational Health Psychology, 10*, 155–169.
- Lim, S., & Cortina, L. M. (2005). Interpersonal mistreatment in the workplace: The interface and impact of general incivility and sexual harassment. *Journal of Applied Psychology, 90*, 483–496.
- Lim, S., & Howard, R. (1998). Antecedents of sexual and non-sexual aggression in young Singaporean men. *Personality and Individual Differences, 25*, 1163–1182.
- Wasti, S. A., & Cortina, L. M. (2002). Coping in context: Sociocultural determinants of responses to sexual harassment. *Journal of Personality and Social Psychology, 83*, 394–405.

SHIFTWORK

Shiftwork is a term used to describe an arrangement of working hours that differs from the standard daylight working hours (i.e., 8:00 a.m. to 5:00 p.m.). Organizations that adopt shiftwork schedules extend their normal working hours beyond the traditional eight-hour shifts by using successive teams of workers. Notable examples of organizations that adopt shiftwork schedules include hospitals, fire stations, and police stations. However, forces such as industrialization, new technologies, and the increasing global economy have contributed to the creation of a society that operates 24 hours a day. This 24-hour society has led to an increase in the need for shiftwork. In fact, it is currently estimated that 15% to 30% of all workers in industrialized societies are involved in some type of shiftwork. Although shiftwork remains more common in certain occupations (e.g., process-control industries, emergency services, transport), the growth of shiftwork systems is expected to continue at a rapid pace.

The types of shiftwork systems that organizations adopt differ on a wide array of characteristics, such as the number and length of shifts. For example, one organization may adopt two 12-hour shifts, whereas another may adopt three 8-hour shifts. Shiftwork systems can also differ in the direction and speed of shift rotation. Shift systems that rotate employee schedules from morning shifts to evening shifts to night shifts have a forward rotation, whereas shifts that rotate counterclockwise (i.e., night to evening to morning) have a backward rotation. With regard to the speed of rotation, shift systems fall into three major categories: (a) permanent shift systems (e.g., permanent night shift); (b) slowly rotating shift systems (e.g., weekly rotating); and (c) rapidly rotating shift systems (e.g., an employee works the morning shift on Monday, the evening shift on Tuesday and Wednesday, and the night shift on Thursday and Friday).

A recent review of shift systems produced five general recommendations regarding the design of shiftwork systems. First, it seems that night work should be reduced as much as possible; however, if this is not possible, an organization should adopt a rapidly rotating system. Second, long shifts (e.g., 9 to 12 hours) should be avoided. Third, flexible work arrangements should be integrated with shift systems. Fourth, shift changes within the same day should be avoided, and the number of consecutive days worked should be

limited. The final recommendation suggests that forward rotation is most preferable.

Although shift systems remain highly popular with employees on the front end because they seem to provide a degree of flexibility, research investigating shiftwork has found that such schedules have primarily negative effects for both individuals and organizations. The problems associated with shift systems fall into three broad categories: disturbance of circadian rhythms, physical and psychological ill health, and social and domestic disruption.

DISTURBANCE OF CIRCADIAN RHYTHMS

A great deal of research has investigated the impact of shiftwork on individual circadian rhythms. In general, humans have evolved over thousands of years as a species that habitually sleeps during the night and is awake during the day. The rotation of the earth around the sun creates a 24-hour cycle of light and dark, which is internalized by humans and forms a natural internal body clock. All human circadian rhythms normally show a fixed-phase relationship. For example, body temperature peaks around 8:00 p.m., and all other circadian rhythms reach their maximum at the appropriate time, allowing us to eventually fall asleep at night.

Problems occur for shiftworkers as a result of the mismatch between environmental time cues and the internal timing system. Although the natural light–dark cycle, the clock time, and other social cues may remain the same, the timing of shiftworkers' work and sleep is delayed. Evidence suggests that adjustments to the shiftworkers' body clock are slow, if they occur at all. This mismatch between the environment and the internal body clock has been linked to negative outcomes such as sleep deprivation.

PSYCHOLOGICAL AND PHYSICAL ILL HEALTH

Most of the early work on the psychological outcomes of shiftwork focused on the exploration of shiftworkers' attitudes, such as job satisfaction. This research suggests that, in general, although workers welcome the idea of shift systems up front, they are typically less satisfied with their work than nonshiftworkers. Additionally, the research generally shows that psychological and emotional distress accompanies shiftwork; however, these effects are often small. Some studies failed to find any psychological differences

between shiftworkers and nonshiftworkers. For example, two recent studies found no differences between shiftworkers and nonshiftworkers in variation of mood and depressive symptoms. Thus, in general, though evidence suggests that shiftworkers are generally less satisfied with their jobs, other emotional and psychological outcomes, such as depression, are hardly affected.

Much more research has explored the physical consequences of shiftwork. Research has found sleep to be extremely disrupted by shiftwork. In general, many bodily functions are at their highest level of activity during the day. Thus, it is often difficult for individuals to sleep during the day because they are attempting to sleep at a time that is not natural for their circadian rhythm. The most prominent outcome of this lack of quality sleep is chronic fatigue.

Chronic fatigue is linked with greater incidence of physical injury. In general, a greater number of serious job-related injuries occur among employees who work night shifts. Additionally, night shift workers are more likely to be involved in automobile accidents on the drive home from work than day shift workers. Thus, the increased risk of injury seems clear. However, several potential confounds must be considered—for example, night shift workers are often less experienced and work with less supervision.

By far, the most prevalent health complaint associated with shiftwork is gastrointestinal problems. According to a recent study, 20% to 75% of night and shiftworkers complain of gastrointestinal problems such as irregular bowel movements and constipation, compared with 10% to 25% of nonshiftworkers. Although some research has found no difference between day and shiftworkers in gastrointestinal disease, the consensus is that these types of disorders are more prevalent in shift- and night-working populations. One explanation for the increase is that shiftworkers have less regular eating schedules and may have less access to healthful foods.

The relationship between cardiovascular disease and shiftwork has also been explored. Though there has been much debate, recent studies all seem to support a relationship between shiftwork and cardiovascular disease. Many characteristics of shiftworkers are considered predictors of cardiovascular disease (e.g., poor eating habits, gastrointestinal disorders, sleeping disorders, less favorable working conditions). Thus, the risk of cardiovascular disease should be a concern for shiftworkers.

Aside from chronic fatigue, injury, digestive disorders, and cardiovascular disease, shiftwork has additionally been shown to have negative effects on the reproductive cycle of women (e.g., increased menstrual pain and lower rates of pregnancy) and to influence drug activity and effectiveness. The latter point suggests that persistent shift or night work may be incompatible with the efficacious treatment of disease.

SOCIAL AND DOMESTIC DISRUPTION

In addition to the psychological and physical effects, shiftwork is related to several social and domestic variables. For example, although organizations may believe that it is advantageous to operate on a 24-hour schedule, estimates place the cost of shiftwork among U.S. companies at \$70 billion per year. Research has shown higher rates of absenteeism among shiftworking populations. Thus, the \$70 billion cost results in part from lost productivity because of absenteeism and higher medical bills because of increased injury and accidents. Not only are many of these job-related accidents harmful to the company and dangerous for the worker, but also these careless accidents can have detrimental societal consequences. Additionally, shiftwork is associated with a decreased ability to balance work and nonwork responsibilities. In fact, divorce rates for shiftworkers are up to 60% higher than those for day workers.

INDIVIDUAL DIFFERENCES AND SOCIAL SUPPORT

Several individual difference variables have been shown to be important to the relationship between shiftwork schedules and outcomes. Several of these individual difference variables involve individual circadian types. For example, morningness, or a preference for going to bed early and rising early in the morning, is moderately associated with difficulty adjusting to night work. Additionally, sleep flexibility (i.e., the ability to sleep at unusual times) and vigor (i.e., the ability to overcome drowsiness) predict an individual's level of tolerance for shiftwork.

In addition to differences in circadian type, age and personality are frequently investigated individual differences. With regard to age, the older an employee is, the less tolerance he or she will have for shiftwork. Over the age of 50, it becomes increasingly difficult for individuals to alter their sleep-wake cycles. In

addition, many physical ailments increase with advancing age, and this increase in physical problems affects older individuals' ability to adjust to shiftwork. In general, it is recommended that shiftwork be voluntary after the age of 40. With regard to personality, it has been found that introverts are generally more morning oriented than extroverts, making it more difficult for them to adjust to shiftwork. Neuroticism has also been linked to lower levels of shiftwork tolerance. However, some evidence suggests that neuroticism is an outcome of prolonged shiftwork exposure. Thus, the exact role that neuroticism plays in shiftwork tolerance is not yet understood.

Another individual difference variable that has been explored is the amount of social support an individual experiences. In general, results suggest that supervisor support is extremely important in buffering the negative effects of work stress, and the positive effects of support seem to be particularly important for shiftworkers. Thus, it is extremely important to encourage supervisors to take an active interest in the well-being of their shiftworkers.

SUMMARY

Research suggests that shiftwork has negative effects for individuals, organizations, and society. These effects are many and serious. However, this does not mean that shiftwork should be abandoned. For many organizations, shiftwork is a necessity. These organizations need to understand not only how individual differences affect shiftwork tolerance but also, perhaps more importantly, how to design a shiftwork system that is minimally detrimental to employees. Although some research has been conducted, researchers should focus their attention on designing optimal shiftwork systems.

—Boris B. Baltes and Lindsey M. Young

See also Flexible Work Schedules

FURTHER READING

- Costa, G. (1996). The impact of shift and night work on health. *Applied Ergonomics*, 27(1), 9–16.
- Knauth, P. (1996). Designing better shift systems. *Applied Ergonomics*, 27(1), 39–44.
- Parkes, K. R. (2003). Shiftwork and environment as interactive predictors of work perceptions. *Journal of Occupational Health Psychology*, 8(4), 266–281.

- Schmieder, R. A., & Smith, C. S. (1996). Moderating effects of social support in shiftworking and non-shiftworking nurses. *Work and Stress, 10*(2), 128–140.
- Smith, C. S., Folkard, S., & Fuller, J. A. (2003). *Shiftwork and working hours*. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 163–183). Washington, DC: American Psychological Association.
- Taylor, E., Briner, R. B., & Folkard, S. (1997). Models of shiftwork and health: An examination of the influence of stress on shiftwork theory. *Human Factors, 39*(1), 67–82.

SIMULATION, COMPUTER APPROACH

The word *simulation* refers to any procedure that is meant to imitate a real-life system. Simulations are especially useful in examining situations that are too complex, too difficult, or too costly to explore in the real world. The computer is often used for this purpose because it is able to efficiently model systems and process data. The phrase *computer simulation* is a broad rubric for a range of different types of methodologies; the following are their general forms.

MONTE CARLO SIMULATION

In a Monte Carlo simulation, values for uncertain variables are generated by the computer to reproduce information found in the real world. Named for the city of Monte Carlo, Monaco (where the primary attractions are games of chance at gambling casinos), a Monte Carlo simulation generates data pseudorandomly to explore hypothesized models. Much like the random behavior in games of chance, a Monte Carlo simulation selects values at random to simulate a variable. For example, when you roll a die, you know that a number from one to six will come up, but you don't know what number will come up for any particular roll. In much the same way, a Monte Carlo simulation works by first defining the possible values that simulated data can take as the same values found in the real world and then using that definition to generate random numbers. In this way, any number of variables that have a known range of values but an uncertain value for any particular time or event (e.g., interest rates, staffing needs, stock prices, inventory, phone

calls per minute) can be modeled. In a typical Monte Carlo simulation, behavioral processes are entirely simulated by the computer.

MICROWORLD SIMULATION

Microworld simulations have a higher level of realism. Microworld simulations are complex, computer-generated situations used in controlled experiments that are designed to study decision making. Microworld simulations represent a compromise between experimental control and realism and enable researchers to conduct experimental research within a dynamic, complex decision-making situation. In a typical microworld simulation, the situation is generated with a moderate degree of fidelity and behavioral processes are examined as humans navigate through it. The simulation is typically only unidimensional—that is, participants are instructed to make decisions that are cognitively complex but that do not invoke a range of senses (e.g., visual, aural, olfactory, tactile, and proprioceptive).

VIRTUAL REALITY SIMULATION

At the most realistic level, a virtual reality (VR) simulation is defined as a computer-simulated, multisensory environment in which a perceiver—the user of the VR computer technology—experiences *telepresence*. Telepresence is defined as feeling present in an environment that is generated by a communication medium such as a computer. In the context of VR, telepresence occurs when the VR user loses awareness of being present at the site of the human–computer interface and instead feels present or fully immersed in the VR environment. Thus, a successful VR simulation reproduces the experience of reality with a high degree of accuracy so that behavioral processes can be examined as humans navigate through the simulated environment. The simulation is typically multidimensional—that is, the best VR simulations attempt to invoke the full range of participants' senses (i.e., visual, aural, olfactory, tactile, and proprioceptive).

EXAMPLES FROM THE LITERATURE

Computer simulations have been used to explore a multitude of real-world situations. What follows are a number of examples, broken down by simulation type, which may help to make the exposition more concrete.

Monte Carlo Simulations

Monte Carlo simulations have been used to investigate such phenomena as faking on personality inventories, the effect of forced distribution rating systems on workforce potential, adverse impact in selection, statistical properties of various indexes, and withdrawal behaviors, to name just a few.

Microworld Simulations

Microworld simulations have been used to study a number of situations, including a sugar production factory, a fire chief's job, a beer game, and a water production plant. These microworlds vary along four dimensions: (a) dynamics, that is, the system's state at time t depends on the state of the system at time $t - 1$; (b) complexity, or the degree to which the parts interconnect, making it difficult to understand or predict system behavior; (c) opaqueness, or the invisibility of some parts of the system; and (d) dynamic complexity, or the effect of feedback structures on a decision maker's ability to control a dynamic system.

Virtual Reality Simulations

Virtual reality simulations have been used to create virtual environments to assess large-scale spatial abilities; to model responses to a fire; and to prepare trainees for job experiences that normally would have high costs (e.g., flying an airplane), the risk of costly damage to equipment (e.g., landing a plane on an aircraft carrier), or the potential for injuries to the trainee (e.g., training in a race car).

ADVANTAGES AND DISADVANTAGES OF COMPUTER SIMULATIONS

There are trade-offs with any methodology. The major advantage of computer simulations is that they are particularly well-adapted for situations in which it would be difficult, because of cost, safety, or validity, to examine a particular phenomenon in a real-life situation. With a computer simulation, any one of a number of naturally occurring parameters can be manipulated in a controlled laboratory setting many times without endangering participants, spending large sums of money, or resorting to correction formulas for participants who drop out.

The major disadvantage of computer simulations is their lack of external generalizability—that is, the

degree to which the results of the computer simulation apply to actual situations and behavior in real life. However, external generalizability can be enhanced in several ways:

- When conducting Monte Carlo studies and designing microworlds, choose parameter estimates sensibly (e.g., from prior empirical studies).
- When conducting VR simulations, ensure that VR environments invoke maximal vividness and interactivity.

—Chet Robie and Shawn Komar

See also Human-Computer Interaction; Judgment and Decision-Making Process; Quasi-experimental Designs; Virtual Organizations; Virtual Teams

FURTHER READING

- Gamberini, L., Cottone, P., Spagnolli, A., Varotto, D., & Mantovani, G. (2003). Responding to a fire emergency in a virtual environment: Different pattern of actions for different situations. *Ergonomics*, *46*, 842–858.
- Gonzalez, C., Vanyukov, P., & Martin, M. K. (2005). The use of microworlds to study dynamic decision making. *Computers in Human Behavior*, *21*, 273–286.
- Scullen, S. E., Bergey, P. K., & Aiman-Smith, L. (2005). Forced distribution rating systems and the improvement of workforce potential: A baseline simulation. *Personnel Psychology*, *58*, 1–32.
- Seitz, S. T., Hulin, C. L., & Hanisch, K. A. (2000). Simulating withdrawal behaviors in work organizations: An example of a virtual society. *Nonlinear Dynamics, Psychology, and Life Sciences*, *4*, 33–65.
- Waller, D. (2005). The WALKABOUT: Using virtual environments to assess large-scale spatial abilities. *Computers in Human Behavior*, *21*, 243–253.

SITUATIONAL APPROACH TO LEADERSHIP

The situational approach to leadership asserts that there is no one best way to lead others and emphasizes that a leader's style and behavior should depend on the characteristics of his or her followers. Specifically, the *situational approach to leadership model* provides leaders with insight regarding the most effective leadership style to demonstrate based on the readiness of their followers. This approach contends that a leader will elicit

maximum performance from his or her followers when the leader's behaviors are tailored to the followers' ability, willingness, and level of confidence.

Known previously as the life-cycle model of leadership and situational leadership theory, the situational approach to leadership has been revised several times, and the terminology has been modified with each revision.

Research examining the behavioral approach to leadership has demonstrated that leaders engage in both directive behaviors and supportive behaviors (also recognized as task and relationship behaviors). Directive behavior refers to one-way communication that clearly explains each needed detail to the follower to ensure the completion of the task. Supportive behavior is two-way communication with an interpersonal focus that demonstrates the leaders' desire to build and maintain relationships. The situational approach to leadership suggests that effective leaders practice both directive and supportive behaviors, yet their use depends on the developmental level of their followers (previously termed *maturity*).

FOLLOWER DEVELOPMENT LEVEL

Two follower factors make up the follower development level. The first is competence—it asks the question, “Does the follower have the skills and knowledge to successfully complete the task?” Competence refers to learned job-related abilities, knowledge, and skills gained from education or experience (earlier versions of the model referred to this as *job maturity*). The second determinant, commitment, asks, “Does the follower possess the motivation and self-assurance to successfully complete the task?” Commitment refers to the follower's motivation and self-confidence (earlier versions of the model referred to this as *psychological maturity*).

The combinations of competence and commitment can be divided into four categories, which indicate the four levels of development (D1–D4) that followers may possess:

- D1—Not committed and not competent; not developed or developing
- D2—Committed but not competent; low to moderate development
- D3—Not committed but competent; moderate to high development
- D4—Committed and competent; developed

When the followers' developmental level is determined, an appropriate leadership style can be identified. The four leadership styles are *directing*, *coaching*, *supporting*, and *delegating*.

LEADERSHIP STYLES

Directing (Telling)

The directing leadership style (S1), previously referred to as *telling*, is used when followers are at the lowest developmental level (D1). The directing style of leadership involves relaying information to the follower in a very clear, specific manner. The directing style primarily consists of one-way, top-down communication. The follower's roles and assigned tasks are explicitly and specifically stated so that the follower is clear about how, where, and when to do the tasks. In the directing style, the leader solves the problems and makes the decisions.

For example, the directing leadership style is appropriate when a new engineering graduate (follower) walks into the office on her first day. The new employee has a foundation of engineering principles from the classroom setting, but she is unaware of the practices and principles under which her new employer operates. If her boss (leader) directs her as to what to work on and when, her performance will increase because she has the requisite skills to do the tasks, but she probably does not know what needs to be done.

The directing style is also appropriate in extreme situations requiring rapid decision making and action. For example, the leader of an electrical power line maintenance crew who sees lightning nearby is likely to tell his crew to descend from the electrical poles immediately and without question.

Coaching (Selling)

The coaching leadership style (S2), previously referred to as *selling*, is linked with the second level of development (D2). Within this leadership style, the leader's supportive behavior increases to a higher level, allowing two-way communication, and directive behaviors remain high. The leader still provides much direction to the follower, but the leader listens to the follower and allows the follower to grasp and understand the explanations and reasoning behind the leader's decisions. In the coaching leadership style, final decisions are still made by the leader.

For example, a track coach (leader) might provide detailed instruction to a novice hurdle jumper (follower). The coach explains how to jump hurdles and provides encouragement to the jumper. The jumper begins running down the track and clears three out of five hurdles. The coach praises the jumper for jumping the three hurdles, and the jumper asks the coach for further guidance on how to improve (i.e., clear all five hurdles). The jumper is developing both the competence and commitment to jump and improve her abilities. Her performance will increase as the coach continues to encourage and support her efforts while providing guidance and direction on how to perform the task more effectively.

Supporting (Participating)

The supporting leadership style (S3), previously referred to as *participating*, is practiced at the third level of development (D3). The leadership style is low on directive behaviors, but supportive behaviors remain high. At this stage, the leader and follower engage in two-way communication and joint decision making. The leader's words and actions need to be encouraging and convey support for the follower's decisions to help facilitate confidence and motivation in the follower.

Take, for example, a skilled and well-trained nurse (follower) with many years of experience. The nurse understands what tasks and duties need to be performed on a daily basis and stays abreast of current medicines and treatments. The nursing supervisor (leader) does not need to tell the nurse what to do in a step-by-step manner—in fact, such actions would likely be perceived negatively by the nurse. However, as the nurse completes his daily activities, he will need to inform his supervisor of the patients he has seen and their ailments. The nurse will also need the supervisor's support and input on decisions. The nurse has the skills and training to perform the job, but at times may feel unsure of the decisions he is making to treat his patients. Therefore, the nurse's performance will increase if the leader actively listens to the nurse while encouraging and praising the nurse's work.

Delegating

The final leadership style, delegating (S4), is used when the follower is both committed and competent (level D4). At the delegating stage, the leader removes himself or herself even further, resulting in low directive behaviors and low supportive behaviors. The

follower is now at a developmental stage that allows autonomy and requires only general supervision from the leader. The leader has little need to provide support because the follower is confident and motivated to take on the responsibility of the assigned tasks. This leadership style is appropriate for peak performers.

Consider, for example, a follower who has worked in the marketing field for more than 20 years and has continually landed projects leading to substantial profits for the company. She does not need a leader who tells her what to do; she already knows the processes and required tasks. She has the skills and abilities to do the job. She possesses the willingness and confidence to take initiative. Supporting behaviors from her boss (leader) may not decrease her performance on the job, but she requires only minimal support. Her performance will increase if her boss delegates projects to her while keeping her apprised of organizational goals and the big picture. Her boss should be available for consultation and should praise and reward her successes.

EXTENSIONS AND APPLICATIONS OF THE MODEL

The situational approach to leadership offers some general suggestions relating to the leader's span of control (the number of followers the leader is responsible for supervising). Specifically, the model advises that the number of direct reports a leader can effectively lead is a function of the developmental level of the individual followers. That is, the span of control of a leader who is supervising followers at the D4 level can be larger than a leader who is managing a group of people who are all at the D1 level.

The model has been extended and applied to the leadership of work groups and teams. In this application, the readiness of the group or team is determined by the alignment of the followers toward a common goal. A group in the forming stage is at the D1 level, a group in the storming stage is at the D2 level, a group at the norming stage is at the D3 level, and a group at the performing stage is at the D4 level. The leadership styles (defining, clarifying, involving, and empowering) used in this group-level adaptation are analogous to those described previously.

MEASURES AND USES

The situational leadership model is a training model that is intended to enhance leader–follower

communications. The training provides the leader with the information needed to adapt to the various situations that he or she and the followers may encounter. Although little is known about the validity of the situational approach to leadership model, it is frequently used in corporate America. The most current instruments used to measure competence and commitment (the manager rating scale and the staff rating scale) originated from the Center of Leadership Studies.

—Mark C. Frame and Taylor P. Drummond

See also Leadership Development

FURTHER READING

- Blanchard, K. H., Zigarmi, P., & Zigarmi, D. (1985). *Leadership and the one minute manager: Increasing effectiveness through situational leadership*. New York: Morrow.
- Graeff, C. L. (1997). Evolution of situational theory: A critical review. *Leadership Quarterly*, 8(2), 153–170.
- Hersey, P., & Blanchard, K. H. (2000). *Management of organizational behavior: Utilizing human resources* (8th ed.). Upper Saddle River, NJ: Prentice Hall.
- Vecchin, R. P. (1987). Situational leadership theory: An examination of a perspective theory. *Journal of Applied Psychology*, 72(3), 444–451.

SITUATIONAL JUDGMENT TESTS

Many work situations require the job incumbent to make a judgment about aspects of the situation and respond to the practical situational demands. An effective response to the practical demands of a situation may require the appropriate use of some combination of one's abilities and other personal attributes. Situational judgment tests (SJTs) are psychometric tests that are specifically designed to assess individual differences in this overall ability to make effective judgments or responses to a wide variety of situations.

Situational judgment tests are typically administered in a paper-and-pencil mode, although they may be implemented in other modes, such as video-based items and interview questions. The SJT is made up of several situations, each presenting a hypothetical critical incident and several courses of action in response to the situation. The instructional and response format is dependent on the specific SJT. In many SJTs, respondents are required to

rate each possible course of action on a five-point effectiveness scale or indicate the best and worst action among the alternatives provided. In other SJTs, respondents are asked to rate each possible action in terms of the likelihood that they would adopt it or indicate their most likely and least likely actions among the possible actions provided.

DEVELOPMENT OF SITUATIONAL JUDGMENT TESTS

Most modern versions of SJTs derive from the work of Stephen Motowidlo and his colleagues, which builds on Robert Sternberg's concept of *tacit knowledge* (i.e., job-relevant knowledge needed to accomplish everyday tasks that are usually not openly stated or part of any formal instruction) and improves the measurement of the concept by using job analyses to identify the types of judgments made on a specific job and to improve their content and face validity. The development process usually involves the identification of a set of work-related constructs that are targeted in an SJT. Job incumbents are asked to generate critical incidents or situations that require ability or expertise related to these constructs. Other job incumbents provide a set of possible actions that could be taken to resolve or improve the situations, and a third group, usually subject-matter experts, provide effectiveness ratings of each solution and judgments about the best and worst of the solutions. These ratings and judgments are analyzed and used to develop a final item and scoring key that is applied to the items. (Detailed examples of the SJT development process are provided in the references listed in Further Reading.)

Probably as a result of the job-relevant features of the test development process, studies have shown that respondents tend to have more favorable perceptions of SJTs compared with other types of employment tests, such as cognitive ability and personality tests, because they believe the tests are relevant to work situations and valid in predicting job performance. In addition to the evidence on the face validity of SJTs, there is increasing evidence that SJTs can produce substantial zero-order and incremental criterion-related validities. However, unlike cognitive ability and personality measures, which have an extensive literature and large database, the empirical evidence on SJTs is much less established, and the theoretical or conceptual underpinnings of SJTs are much less understood.

CRITERION-RELATED VALIDITY OF SITUATIONAL JUDGMENT TESTS

In a meta-analysis of the criterion-related validities of SJTs, Michael McDaniel and his colleagues found that the average observed validity of 102 validity coefficients was .26, a figure that increased to .34 when it was corrected for criterion unreliability. However, there was substantial unexplained variability (55%) in coefficients around this population value, suggesting that the validity of an SJT is likely to be moderated by many variables. Moderator analyses indicated that measures developed as the result of job analyses yield larger validity coefficients than those that are not based on job analyses, but the results of other moderator analyses were inconclusive because of the small number of studies or small total sample size in one or more of the groups of studies formed by the moderator variable.

Several primary studies involving employees in a wide variety of jobs conducted since Motowidlo et al. revived interest in the SJT method have produced validities similar to the averages reported by McDaniel et al. In addition, several studies found that SJTs produce validity increments (in predicting job performance) over cognitive ability, personality, job knowledge, and experience measures.

The criterion-related validity of SJTs in predicting performance seems well-established. Although SJTs appear to be related to cognitive ability and, in some studies, to personality measures as well, incremental validity of SJTs over and above personality and cognitive ability has been reported in multiple studies. The substantial variability in correlations may result because different constructs are being measured depending on the types of situations included on the SJT. When the situations require cognitive-based constructs such as planning, organizational ability, and analytical problem solving, SJT scores correlate highly with cognitive ability test scores compared with situations that require constructs associated with interpersonal or leadership skills, for example, which are more personality based.

CONSTRUCT VALIDITY OF SITUATIONAL JUDGMENT TESTS

In contrast to the emerging evidence on the criterion-related validity of SJTs, research on the construct validity of SJTs is in its infancy. The bulk of the studies on SJTs are not explicitly designed to examine

the nature of the constructs assessed by SJTs, and therefore the construct validity evidence available to date is indirect, at best. The constructs underlying SJTs are likely related to the concepts of adaptability, contextual job knowledge, and practical intelligence, but the precise nature of the test constructs is inextricably tied to the specific content of the SJT items.

Efforts to conduct factor analysis on SJT items typically produce little support for a priori factors that researchers have tried to incorporate into their items. The first factor in these analyses usually accounts for two to three times the variance of the second factor, but unless the scale comprises a large number of items, internal consistency (coefficient alpha) reliabilities are typically low. One explanation for these results is that responses to a single SJT item with its varied options may be the result of a variety of individual difference constructs, including both ability and motivational or personality constructs. This is consistent with empirical findings indicating that SJTs are correlated with a variety of variables, including cognitive ability and personality traits.

Given the nature of SJTs and the extant research findings, it is unlikely that SJTs measure any single unidimensional construct, even though it may be legitimate to use an overall SJT score to represent the composite (multifaceted) ability or effectiveness in situational judgment. Like interviews and many paper-and-pencil tests, SJTs may be better construed as a method of measurement that can be adapted to measure a variety of job-related constructs in different situations. However, some types of situational judgment constructs are almost inherently assessed in typical SJTs. That is, SJTs may be construed as a method of testing that constrains the range of constructs measured.

Like the interview, SJTs have dominant constructs (though they are different in nature from those in the interview method) that are readily or almost inherently assessed. Primary dominant constructs include *adaptability constructs*, which are likely a function of both individual difference traits and acquisition through previous experiences, and *contextual knowledge constructs*, which may be gained through experience in real-world contexts. Collectively, these SJT-dominant constructs can be represented by the global construct called *practical intelligence*. However, unlike the interview, SJT-dominant constructs are not associated with the structural format of the SJT (i.e., candidates are presented with a problem situation followed by the requirement to generate,

endorse, or rate a series of response options). Instead, the dominant constructs are associated with the core characteristics of the test content of typical SJTs.

The details of these construct validity issues are beyond the scope of this entry. Interested readers may refer to works by David Chan and Neal Schmitt (1997, 2002, 2005), which elaborate three distinct but interrelated core characteristics of SJT content (i.e., practical situational demands, multidimensionality of situational response, and criterion-correspondent sampling of situations and response options in test content development) and relate them to SJT performance as well as job performance.

There is emerging evidence on the face validity and criterion-related validity of SJTs, but studies that directly address the fundamental issue of construct validity are lacking. Research on the construct validity of SJTs could help to identify the boundary conditions for the criterion-related validity of SJTs. Such research would also clarify the SJT constructs and increase our understanding of the nature of SJT responses and their relationship to job performance and other work-relevant variables.

—David Chan

See also Critical Incident Technique; Practical Intelligence; Selection Strategies; Validity

FURTHER READING

- Chan, D., & Schmitt, N. (1997). Video-based versus paper-and-pencil method of assessment in situational judgment tests: Subgroup differences in test performance and face validity perceptions. *Journal of Applied Psychology, 82*, 143–159.
- Chan, D., & Schmitt, N. (2002). Situational judgment and job performance. *Human Performance, 15*, 233–254.
- Chan, D., & Schmitt, N. (2005). Situational judgment tests. In A. Evers, O. Smit-Voskuil, & N. Anderson (Eds.), *Handbook of personnel selection* (pp. 219–242). Oxford, UK: Blackwell
- McDaniel, M. A., Morgeson, F. P., Finnegan, E. B., Campion, M. A., & Braverman, E. P. (2001). Use of situational judgment tests to predict job performance: A clarification of the literature. *Journal of Applied Psychology, 80*, 730–740.
- Motowidlo, S. J., Dunnette, M. D., & Carter, G. W. (1990). An alternative selection procedure: The low-fidelity simulation. *Journal of Applied Psychology, 75*, 640–647.
- Weekly, J. A., & Jones, C. (1999). Further studies of situational tests. *Personnel Psychology, 52*, 679–700.

SOCIAL COGNITIVE THEORY

Social cognitive theory explains human accomplishments and well-being in terms of the interplay between individuals' attributes, their behavior, and the influences operating in their environment. According to this view, people are *contributors* to their life circumstances, not just the products of them. They are characterized by a number of basic capabilities. These include cognitive, vicarious, self-regulatory, and self-reflective capabilities that play a central role in human self-development, adaptation, and change.

SYMBOLIZING CAPABILITY

People's extraordinary cognitive capacity provides them with a powerful means for understanding the workings of their environment and for shaping and managing it in ways that touch virtually every aspect of their lives. Cognitive factors, which constitute people's symbolic nature, partly determine which aspects of the environment are attended to among the myriad activities, what meaning is conferred on them, what emotional impact and motivating power they have, and how the information they convey is organized for future use.

Through the medium of symbols, people transform information from transient experiences into cognitive models that serve as guides for reasoning and action. They transcend time and place in communicating with others at any distance. By symbolizing their experiences, people give coherence, direction, meaning, and continuity to their lives. The other distinctive human capabilities draw heavily on this advanced capacity for symbolization.

VICARIOUS CAPABILITY

Psychological theories traditionally emphasize learning through its positive and negative effects on one's actions. Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on direct experience to tell them what to do. Direct experience is a toilsome, tough teacher. Fortunately, humans have evolved an advanced capacity for observational learning that enables them to expand their knowledge and competencies through the power of social modeling.

Much human learning relies on the models in one's immediate environment. However, a vast amount of

knowledge about styles of thinking and behaving, as well as the norms and practices of social systems, is gained from the extensive modeling in the symbolic environment of the electronic mass media. A special power of symbolic modeling lies in its tremendous reach, speed, and multiplicative power. Unlike learning by doing, which requires shaping the actions of each individual laboriously through repeated consequences, in observational learning, a single model can simultaneously convey new ways of thinking and behaving to countless people in widely dispersed locales. Observers can now transcend the bounds of their immediate environment. Electronic systems that feed off telecommunications satellites are rapidly diffusing new ideas, values, and styles of conduct worldwide.

Modeling is not merely a process of response mimicry, as is commonly believed. Modeled judgments and actions may differ in specific content but embody the same principle. For example, a model may deal with moral conflicts that differ widely in the type of predicaments but apply the same moral standard to them. Observers learn the principles underlying the modeled activity rather than the specific examples. Such abstract modeling enables them to construct new versions of the behavior that go beyond the particular examples they see.

Modeling can also promote creativity, in several ways. Modeled unconventional modes of thinking increase innovativeness in others. Creativeness rarely springs entirely from individual inventiveness; rather, it usually involves synthesizing existing knowledge into new ways of thinking and doing things. People adopt useful modeled elements, improve on them, synthesize them into new forms, and tailor them to their particular circumstances. In these ways, selective modeling serves as the mother of innovation.

FORETHOUGHT CAPABILITY

Another distinctive human characteristic is the capability of forethought. Most human behavior, being purposive, is regulated by thought projected into the future. People anticipate the likely consequences of prospective actions, they set goals for themselves, and they plan courses of action that are likely to produce the desired outcomes and avoid detrimental ones. Through the exercise of forethought, people motivate themselves and guide their actions anticipatorily. Future events, of course, cannot be the cause of current motivation and action because they have no actual

existence. However, through cognitive representation, visualized futures are brought into the present to serve as current motivators and regulators of behavior.

Human behavior is extensively regulated by its effects. These effects may take the form of material costs and benefits, social approval or disapproval, or self-evaluative positive and negative reactions. Behavior patterns that produce positive outcomes are readily adopted and used, whereas those that bring unrewarding or punishing outcomes are generally discarded. But external consequences are not the only outcomes that influence human behavior; people also profit from the successes and mistakes of others, as well as from their own experiences. As a general rule, people do things they have seen succeed and avoid those they have seen fail. However, observed outcomes exert their influence through perceived similarity—the belief that one is likely to experience similar outcomes for similar courses of action and that one possesses the capabilities to achieve similar performances. People also influence their own motivation and behavior by the positive and negative consequences they produce for themselves. This mode of self-regulation will be discussed next.

SELF-REGULATORY CAPABILITY

People are not only planners and forethinkers. They are also self-reactors with a capacity for self-direction. Successful development requires the gradual substitution of internal regulation and direction for external sanctions and mandates. Once the capability for self-direction is developed, self-demands and self-sanctions serve as major guides, motivators, and deterrents. In the absence of personal standards and self-sanctions, individuals would behave like weathervanes, constantly shifting direction to conform to whatever momentary influence happened to impinge on them.

The self-regulation of motivation, affect, and action operates partly through personal standards and evaluative reactions to one's own behavior. The anticipated self-satisfaction gained from fulfilling a valued standard provides one source of incentive motivation for personal accomplishments. Self-dissatisfaction with substandard performance serves as another incentive for enhanced effort. The motivational effects do not stem from the standards themselves but from the fact that people care about their self-regard and respond evaluatively to their own behavior.

In activities that involve achievement and the cultivation of competencies, the personal standards

selected as a mark of adequacy are progressively raised as knowledge and skills are acquired and challenges are met. In many areas of social and moral behavior, however, the personal standards that serve to regulate conduct have greater stability. People do not change from week to week what they regard as right or wrong or good or bad. After they adopt a standard of morality, their self-sanctions for actions that match or violate their personal standards serve as a regulatory influence. People do things that give them self-satisfaction and a sense of self-worth. They refrain from behaving in ways that violate their moral standards because it will bring self-disapproval. Thus, self-sanctions keep conduct in line with internal standards.

Moral standards do not function as fixed internal regulators of conduct. Self-regulatory influences do not operate unless they are activated, and there are many processes by which moral self-sanctions can be selectively disengaged from harmful conduct. The disengagement may center on sanctifying harmful conduct by portraying it as serving worthy purposes. It may focus on downplaying one's role in given activities by diffusing and displacing responsibility so that perpetrators do not hold themselves accountable for the harm they cause. It may involve minimizing, distorting, or even disputing the harm that flows from detrimental actions. And the disengagement may include dehumanizing and blaming the recipients of the maltreatment. Through the selective use of these means, otherwise considerate people can perpetrate illegalities and inhumanities.

SELF-REFLECTIVE CAPABILITY

The capability to reflect on oneself and the adequacy of one's thoughts and actions is another distinctly human attribute that figures prominently in social cognitive theory. People are not only agents of action but also self-examiners of the quality of their own functioning. Effective functioning requires reliable ways of distinguishing between accurate and faulty thinking. In verifying the adequacy of thought by self-reflective means, people generate ideas and act on them or predict occurrences from them. They then judge from the results the accuracy and functional value of their thinking and use this information to improve their thinking if necessary.

Among the various types of self-referent thoughts, none is more central or pervasive than people's beliefs in their capability to exercise influence over their own

functioning and events that affect their lives. Beliefs about personal efficacy are the foundation of motivation and accomplishment. Unless people believe they can produce desired results by their actions, they have little incentive to act or to persevere in the face of difficulty. Whatever other factors serve as guides and motivators, they are rooted in the core belief that one can make a difference by one's actions.

Beliefs about personal efficacy regulate human functioning through four major types of processes: cognitive, motivational, emotional, and decisional. A major function of thought is to enable people to predict events and develop ways to exercise control over them. People of high efficacy show greater cognitive resourcefulness, strategic flexibility, and effectiveness in managing their environment.

Efficacy beliefs play a central role in the self-regulation of motivation. Most human motivation is cognitively generated by goal aspirations and by the material, social, and self-evaluative costs and benefits anticipated for different courses of action. People of high perceived efficacy set motivating goals for themselves, expect their efforts to produce favorable results, view obstacles as surmountable, and figure out ways to overcome them. The functional belief system in difficult undertakings is realism about tough odds but optimism that, through self-development and perseverance, those odds can be beaten.

People's beliefs in their coping efficacy also affect how much stress, anxiety, and depression they experience in threatening or taxing situations. Those who believe they can manage threats and adversities view them as less inimical and act in ways that reduce their aversiveness or change them for the better. People have to live with a psychic environment that is largely of their own making. Many human distresses result from failures of control over perturbing thoughts. Beliefs about coping efficacy facilitate the exercise of control over perturbing and dejecting ruminations.

People also have a hand in what they become through the types of activities and environments they choose. Beliefs about personal efficacy can, therefore, play a key role in shaping the course of one's life by influencing the choices made at key decision points. In self-development through choice processes, destinies are shaped by selecting activities and environments that are known to cultivate valued potentialities and lifestyles.

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People do not live their lives in isolation. They work together to secure what they cannot accomplish on their own. People's shared beliefs in their collective ability to produce desired outcomes is a crucial ingredient of group attainments. Such beliefs influence the type of futures that people seek to achieve through collective action, how well they use their resources, how much effort they put into group endeavors, their staying power when collective efforts fail to produce quick results or meet forcible opposition, and their vulnerability to the discouragement that can beset those taking on tough problems that are not easily changeable.

SOCIAL COGNITIVE THEORY IN CULTURAL CONTEXT

Cultures are dynamic and internally diverse systems, not static monoliths. They are no longer insular; global connectivity is shrinking cross-cultural uniqueness. Transnational interdependencies and global market forces are restructuring national economies and shaping the political and social life of societies. Advanced telecommunications technologies are disseminating ideas, values, and styles of behavior transnationally at an unprecedented rate. The symbolic environment, which feeds off communication satellites, is altering national cultures and producing intercultural commonalities in some lifestyles. The growing role of electronic acculturation is fostering a more extensive globalization of culture. People are becoming increasingly enmeshed in a cyberworld that transcends time, distance, place, and national borders. In addition, the mass migration of people and the high global mobility of entertainers, athletes, journalists, academics, and employees of multinational corporations are changing cultural landscapes. These intermixing social forces are homogenizing some aspects of life and fostering cultural hybridization.

One must distinguish between inherent capacities and the way culture shapes these potentialities into diverse forms. For example, modeling, which figures prominently in social cognitive theory, is essential for

self-development and functioning regardless of the culture in which one resides. Modeling is a universal human capacity. But what is modeled, how modeling influences are socially structured, and which purposes they serve vary in different cultural milieus. Similarly, a resilient sense of efficacy has generalized functional value regardless of whether one resides in an individualist-oriented culture or a collectivist-oriented one. Being immobilized by self-doubt and belief in the futility of effort has little adaptive advantage. But the way efficacy beliefs are developed and structured, the way they are exercised, and the purposes to which they are put vary cross-culturally. In short, there is a cultural commonality in basic capacities and mechanisms of operation but diversity in the culturing of these inherent capacities. In this dual-level analysis, universality is compatible with manifest cultural plurality.

AGENTIC MANAGEMENT OF FORTUITY

There is much that people do purposefully to exercise some measure of control over their self-development and life circumstances. But there is a lot of fortuity in the courses people's lives take. Indeed, some of the most important determinants of life paths occur through the most trivial of circumstances. People are often inaugurated into new life trajectories, marital partnerships, and occupational careers through fortuitous circumstances. Consider the following example: An individual enters a lecture hall as it is rapidly filling up and seizes an empty chair near the entrance. He ends up marrying the woman who happened to be seated next to him. With only a momentary change in time of entry, seating constellations would have altered, and this intersect would not have occurred.

Most fortuitous events leave people untouched, whereas others have some lasting effects, and still others launch people into new trajectories of life. Fortuitous influences may be unforeseeable, but having occurred, the conditions they create contribute to causal processes in the same way that prearranged ones do. Fortuity does not mean uncontrollability. People can bring some influence to bear on the fortuitous character of life. They can make chance happen by pursuing an active life that increases the number and type of fortuitous encounters they will experience. Chance favors the inquisitive and venturesome who go places, do things, and explore new activities. People also make chance work for them by cultivating

their interests, enabling beliefs, and competencies. These personal resources enable them to make the most of opportunities that arise unexpectedly. Louis Pasteur put it well when he noted that “chance favors only the prepared mind.” By these means, people can exercise some influence on the way they play the hand that fortuity deals them.

—Albert Bandura

See also Goal-Setting Theory; Self-Efficacy

FURTHER READING

- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A. (2005). The evolution of social cognitive theory. In K. G. Smith & M. A. Hitt (Eds.), *Great minds in management* (pp. 9–35). Oxford, UK: Oxford University Press.
- Locke, E., & Latham, G. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.
- Rosenthal, T. L. (1984). Cognitive social learning theory. In N. S. Endler & J. M. Hunt (Eds.), *Personality and the behavioral disorders* (2nd ed., Vol. 2, pp. 113–145). New York: Wiley.
- Schwarzer, R. (Ed.). (1992). *Self-efficacy: Thought control of action*. Washington, DC: Hemisphere.

SOCIAL EXCHANGE THEORY

Social exchange theory is one of the most influential conceptual paradigms for understanding behavior. Over the years, differing perspectives on social exchange have evolved, bridging disciplines such as anthropology, sociology, organizational theory, and social psychology. As a result, social exchange theory cannot be thought of as a single theoretical model. Rather, it is a general framework or conceptual point of view about how resources are valued and exchanged. Thus, there is no single social exchange *theory* but many different social exchange *theories*, each meaningfully elaborating on the general paradigm.

Theories of social exchange view social life as a series of transactions. Social exchange transactions involve the exchange of some resource, broadly defined, between two or more parties (individuals or

institutions). These exchanges are viewed as interdependent in the sense that the behavior of one party is contingent on the actions of another. A basic tenet of social exchange is that an offer of a benefit generates an obligation to reciprocate in kind. In time, a series of interdependent transactions will generate trust, loyalty, and mutual commitments. Although theories of social exchange differ on particulars, they highlight three central principles:

- Interdependent transactions are defined by rules or norms of exchange.
- Social exchange quality is defined by the attributes of the resources being exchanged.
- Social exchanges evolve into relationships among the parties involved.

EXCHANGE RULES AND NORMS

Exchange rules and norms define the expectations or attributes of transactions. In this way, parties of exchange use rules to guide behavior. Over time, these rules may become social norms, or moral standards of behavior. Both exchange rules and norms define how parties should behave and be treated. Within the organizational sciences, the most commonly accepted rule is reciprocity. However, other rules are also important for understanding social exchange.

Reciprocity

Reciprocity involves repaying like with like. By and large, most social exchange research focuses on the *positive reciprocity norm*, meaning that individuals expect to return a benefit for a benefit. However, exchanges may also involve a *negative reciprocity norm*, meaning that individuals may avenge a harm. Indeed, these felt obligations can be quite strong. For example, in some cultures, individuals will refuse valuable gifts so as to avoid expensive repayment. Likewise, the desire to punish a wrong can cause one to retaliate—even when it is economically costly and there is no hope of future deterrence. Therefore, it is not surprising that human beings have been labeled *homo reciprocus*. Some scholars have gone so far as to argue that reciprocity is an evolutionarily driven predication, whereas others contend that this tendency is learned through socialization.

The give-and-take principles of reciprocity motivate much of human behavior. For example, a tit-for-tat

tactic, which begins with unilateral concessions, can defuse serious conflicts. This tactic works because one's concession tends to prompt parallel concessions in the other disputant. Similarly, individuals tend to reciprocate self-disclosing statements. This process of positive reciprocal exchange generally builds closer relationships.

Although reciprocity strongly influences human interactions, not everyone shares this propensity to the same degree. In other words, individuals differ in how strongly they endorse the norm of reciprocity or an *exchange ideology* (sometimes termed *reciprocation ideology*). The more strongly an individual endorses an exchange ideology, the more likely he or she is to “keep score” of what was exchanged and to expect the return of a good deed. For example, just treatment at work tends to have a stronger effect on work attitudes among those who are high in exchange ideology and a weaker effect among those with lower scores. In fact, those who do not strongly endorse an exchange ideology may not care whether obligations are reciprocated.

Other Rules of Exchange

Although most research emphasizes reciprocal exchanges, other models exist as well. For example, negotiated rules require the parties engaging in joint decision processes to outline exchange arrangements. Negotiated rules differ from reciprocity in that they are explicitly stated. That is, within reciprocal exchanges, individuals tend to coordinate their behavior implicitly and without formal discussion. Within negotiated exchanges, coordination is formally delineated in advance. A good deal of research has compared negotiated exchanges to reciprocal exchanges. Negotiated exchanges tend to be more concrete and have a stricter definition of terms. One specific benefit (e.g., an hourly wage) is exchanged for another (e.g., a certain unit of work completed). In contrast, reciprocal exchanges tend to be more open-ended and flexible. Generally speaking, reciprocal exchanges tend to lead to closer interpersonal relationships, engendering trust, commitment, and equality between the parties.

Other models of exchange rules have also been developed, mainly in the disciplines of anthropology and sociology. These models emphasize rules other than reciprocity and negotiation. At their core, these rules serve to identify the general goal of the exchange. Though a thorough review of this literature

is beyond the scope of this summary, it is noteworthy to mention that exchanges can also be based on principles of community (e.g., exchanges based on the common good of a group), rationality (e.g., exchanges based on self-interest), altruism (e.g., exchanges that benefit another), status or authority ranking (e.g., exchanges based on formal or informal position), and market (e.g., exchanges based on market value).

TYPES OF RESOURCES

Exchange resources include worthy possessions or capabilities. Thus, exchange resources are thought of as potential benefits to the other party. The most common typology divides these benefits into two types: financial and material benefits and socioemotional benefits. Financial and material benefits have economic or direct pecuniary value (e.g., wages, access to company vehicles). Socioemotional benefits hold symbolic value and convey standing or dignity to the recipient (e.g., friendliness, loyalty, invitations to lunch).

Both sets of resources are important, though in some cultures, they are not exchanged by the same rules. For example, American managers prefer to assign financial and material benefits based on performance, whereas socioemotional benefits tend to be assigned equally. An interesting feature of these two types of resources is that successful exchanges of one may lead individuals to exchange the other. Specifically, many workplace relationships begin with simple transactions for financial and material goods (e.g., pay for work). Over time, the involved individuals may build trust by exchanging socioemotional benefits, which builds closer interpersonal attachments.

INTERPERSONAL RELATIONSHIPS

One of the most popular components of social exchange theory used by management scientists involves the importance of workplace relationships. Accordingly, social exchanges provide for the development of interpersonal connections, referred to as *social exchange relationships*. This research tradition can be traced primarily to the seminar work of Gary Blau. According to Blau, individuals engage in two different types of exchange relationships: economic exchange and social exchange.

Economic exchange relationships are *quid pro quo* arrangements that emphasize short-term financial and material benefits. The benefits exchanged are clearly

specified and bound by contractual obligations. In contrast, social exchange relationships are open-ended and mutually beneficial. The benefits exchanged in social exchange relations are generally socioemotional in nature. As a result, social exchange relations involve stronger emotional ties between participants. According to Blau, money is only one motivator of effective work behavior. When workers are in social exchange relationships, they tend to have more positive work attitudes and engage in more positive behaviors.

Because social exchange relations involve unspecified exchanges, people in these relationships do not know whether the other party will reciprocate in the long run. Therefore, social exchange relations may initially involve vulnerability and risk. Understandably, this means that social exchange relations are far more risky than economic exchange relations and, as a result, social exchange relations involve a certain level of trust. Mutual, balanced, and beneficial exchanges ultimately enhance trust and build loyalty and commitment among the parties involved. Employers that engender trust are seen as not taking advantage of their employees and caring about their employees; employees who feel their employers take care of them reciprocate by way of positive consequences. In this way, only social exchange relationships create enduring social patterns; economic exchange relations do not.

Indeed, much research has demonstrated the benefits of social exchange relationships. For example, researchers have found that high-quality social exchanges generate higher levels of performance and even encourage employees to perform above and beyond their formal job tasks (e.g., staying late hours, helping others, improving knowledge and skills to help the organization), called *organizational citizenship behaviors* (OCBs). Furthermore, high-quality social exchanges heighten feelings of organizational commitment (or close membership to the organization). These positive attitudes yield beneficial outcomes for organizations, such as higher levels of performance, OCB, and job satisfaction and lower levels of turnover.

Research suggests that employees may form social exchange relationships with their direct supervisor (e.g., leader–member exchange relationship), their work teams (e.g., team support), or their employing organization as a whole (e.g., organizational support). Consistent with the principle of reciprocity, individuals tend to tailor their behavior to benefit the entity

with which they have a social exchange relationship. For example, those with close ties to their immediate supervisor tend to target their OCBs so as to benefit that supervisor (e.g., voluntarily assisting the supervisor until late hours), whereas those with close ties to their employing organization direct OCBs so as to benefit the firm as a whole (e.g., promoting the organization to outsiders). Research has produced similar results in terms of social exchange benefits within work teams.

CONCLUSION

Social exchange theory has become one of the most influential paradigms for understanding the nature of human interaction. Within organizational science alone, social exchange theory has been integrated into theories of organizational justice, psychological contracts, commitment, OCB, support, leader–member exchange, and networks. In this way, social exchange theory provides a powerful framework for understanding workplace exchanges and relationships. Its explanatory value relies on the basic tenet that social exchanges comprise actions that are contingent on the rewarding reactions of others. Implied is a mutual process whereby transactions or exchanges may foster quality relationships. In sum, social exchanges create interlocking status duties that ultimately initiate, maintain, and stabilize social behaviors both within and outside organizations.

—Russell Cropanzano and Marie S. Mitchell

See also Contextual Performance/Prosocial Behavior/
Organizational Citizenship Behavior

FURTHER READING

- Blau, P. M. (1964). *Exchange and power in social life*. New York: Wiley.
- Coyle-Shapiro, J. A. M., & Conway, N. (2004). The employment relationship through the lens of social exchange theory. In J. Coyle-Shapiro, L. M. Shore, M. S. Taylor, & L. E. Tetrick (Eds.), *The employment relationship: Examining psychological and contextual perspectives* (pp. 5–28). New York: Oxford University Press.
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, 25, 161–178.
- Molm, L. D. (2003). Theoretical comparisons of forms of exchange. *Sociological Theory*, 21, 1–17.

Shore, L. M., Tetrick, L. E., Taylor, M. S., Coyle-Shapiro, J. A. M., Liden, R. C., McClean Parks, J., Wolfe Morrison, E., Porter, L. W., Robinson, S. L., Roehling, M. V., Rousseau, D. M., Schalk, R., Tsui, A. S., & Van Dyne, L. (2004). The employee-organization relationship: A timely concept in a period of transition. In J. J. Martocchio (Ed.), *Research in personnel and human resources management* (Vol. 23, pp. 291–370). Amsterdam: Elsevier.

SOCIAL LOAFING

Many tasks at work are designed to be performed by a group of employees, with the expectation that groups are more efficient and effective than individuals. Yet group performance is not always synonymous with great performance. One reason is that some group members do not work as hard as they should. In these cases, *social loafing* or *free riding* is said to occur.

Although a number of definitions of social loafing are available, the one proposed by Steven Karau and Kipling Williams is arguably the most complete. These authors define social loafing as the reduction in motivation and effort that occurs when individuals work on a collective task as opposed to coactive or individual tasks. Collective tasks are those that most people would intuitively call a *group task*. In collective conditions, individuals work with other group members toward a single goal. Thus, individual performance is pooled to produce the group's total performance. Conversely, individuals working in coactive conditions work in the presence of others, but each individual's work remains separate from that of others at all times. People working individually do not work in the presence of others, and their work remains separate from that of others.

Free riding is similar to social loafing, and the terms are often used interchangeably. The term *free riding* is often employed by sociology and economics scholars, whereas psychology and management scholars tend to employ *social loafing* to refer to the tendency to withhold effort in group work. The main distinction between these two constructs is the amount of effort withheld, as well as the existence of a group benefit or reward that cannot be denied to any group member (e.g., all qualifying employees are entitled to health benefits regardless of whether they were involved in negotiating the insurance plan). Thus, free riding involves withholding all effort because one can reap the benefits regardless of one's contribution to

the group. Conversely, social loafing involves withholding some (but not all) effort toward the group output; the existence of a public reward has not typically been studied.

Early research on social loafing primarily explored physical tasks (e.g., rope pulling or shouting). Recent research has replicated the basic social loafing effect with evaluative (e.g., rating the quality of writing samples), vigilance (e.g., detecting random signals on a computer screen), creative (e.g., brainstorming or thought listing), and work-related (e.g., completing an in-basket exercise) tasks. In addition, social loafing has been found to occur in both laboratory and field research (including some research conducted in organizations), though the effect size tends to be larger for laboratory studies. The substantial evidence accumulated since the publication of the first modern study on social loafing in 1974 makes it a topic of great interest to both scientists and practitioners—though interestingly, social loafing had already been demonstrated almost a century earlier by Max Ringelmann.

CONSEQUENCES OF SOCIAL LOAFING

Social loafing is detrimental to group performance and costly to organizations. However, there are also less apparent consequences to social loafing. When individuals are aware that a capable coworker is loafing, they will often respond by reducing their own task-related effort to avoid being taken advantage of (an occurrence termed *retributive loafing*). However, in some situations, coworkers might increase their own efforts to compensate for loafing. When group members are aware that the coworker in question does not possess the abilities required for adequate task performance, group members will typically maintain high effort and motivation. Similarly, when the task is meaningful to them, nonloafers will work harder to compensate for a loafer's poor performance (a phenomenon called *social compensation*). Still, compensating for an underperforming or unskilled group member causes a disproportionate increase in the nonloafers' workload. In time, this increased workload may be detrimental to their own task performance and may strain interpersonal relationships.

REDUCING SOCIAL LOAFING

Initially, social loafing was presumed to occur because of the coordination problems that often characterize

groups. However, research has clearly shown that social loafing is a question of motivation and effort. Given the negative consequences of social loafing, it is not surprising that substantial research has focused on identifying the conditions under which individuals working in collective group settings are less likely to loaf.

Ringelmann first observed that as group size increases, social loafing also increases. This finding is consistent with social impact theory, an early explanation for social loafing, which proposes that individuals are sources or targets of social influence (e.g., when a supervisor urges individuals to work hard). Collective conditions allow for social influence to be diluted across individuals, whereas individual or coercive conditions do not. The relationship between group size and loafing is not linear: Above a certain group size, the addition of members has little influence on loafing.

Loafing is more pronounced when individual performance can be identified or evaluated, either by other group members or by a person in a supervisory position (e.g., a boss or experimenter). Thus, individuals are less likely to loaf when they perceive their efforts or productivity to be highly visible to others. In addition, regardless of whether others can evaluate individual contributions to group performance, simply allowing group members to evaluate their own input (e.g., through the provision of individual or group-level standards) reduces social loafing. The *evaluation potential* or *identifiability model* proposes that loafing occurs because collective situations diminish the possibility that individuals' effort and performance will be clearly distinguishable from their coworkers' effort and performance. Thus, it is difficult for individuals to be punished for poor performance or rewarded for good performance.

Social loafing is less likely to occur in collective tasks that are highly valued, meaningful, or personally involving. Recall that working on meaningful tasks can even prompt group members to compensate for lost productivity resulting from loafing. In addition, intrinsic involvement in a work task moderates the relationship between employees' perceptions that their on-the-job efforts are visible to supervisors and the likelihood that they will loaf, such that this relationship is stronger when intrinsic involvement is low. Individuals' propensities to engage in social loafing are also lower when group members are working on a difficult or complex task compared to a simple task. Finally, social loafing is less likely to occur when each

group member has the opportunity to make a unique contribution to the group outcome compared to tasks in which group members make redundant contributions. Thus, loafing is likely to occur when effort is perceived to be dispensable.

Other notable findings show that loafing is less likely if group members perceive that their individual efforts will lead to individual performance, individual effort will lead to group performance, and group performance will lead to group outcomes. In addition, social loafing is less likely to occur when group cohesiveness is high compared to when it is low and when group members are friends rather than strangers. Finally, organizational field studies show that the presence of rewards that are contingent on good performance is negatively associated with social loafing, whereas the presence of noncontingent punishment is positively related to loafing. This research suggests that social loafing is negatively correlated with perceived altruism in the group and affective organizational commitment and positively correlated with role ambiguity.

COLLECTIVE EFFORT MODEL

Although many social loafing models (e.g., social impact, evaluation potential, dispensability of effort) have been proposed, none are truly integrative models, and none accounts for more than a few conditions in which loafing is reduced. To fill this theoretical gap, Karau and Williams developed the *collective effort model* (CEM). The CEM proposes that social loafing is best understood by combining the motivational principles of the expectancy theory of work motivation with principles drawn from self-evaluation theory. The central tenet of the CEM is that individual motivation and effort in collective contexts will be unaffected provided that a number of contingencies are satisfied.

Following expectancy theory, individuals need to feel that their effort leads to individual performance. For example, employees are unlikely to be motivated if they believe they will be unable to reach satisfactory performance regardless of the effort exerted. Additionally, individual performance must lead to group performance. In collective settings, individuals are unlikely to be motivated to exert effort if their individual effort does not help the group to attain high performance (e.g., if individual effort is redundant with others' work). Next, motivation will be sustained if group performance is directly related to group outcomes, which must, in turn, be related to individual

outcomes. The CEM proposes that group outcomes can take the form of group evaluation, group cohesiveness, or extrinsic rewards. Similarly, individual outcomes can take the form of self-evaluation, feelings of belongingness to the group, intrinsic rewards, and extrinsic rewards. Finally, motivation and effort are sustained when outcomes are valued. Drawing on self-evaluation theory, the CEM proposes that outcomes are most likely to be valued if tasks are important and meaningful to the individual and the rewards are meaningful. Furthermore, some individual differences, such as culture or gender, increase the valence of some outcomes. In sum, extensive empirical and theoretical work indicates that not all collective settings necessarily give rise to social loafing.

—*Silvia Bonaccio*

See also Expectancy Theory of Work Motivation; Group Dynamics and Processes; Groups

FURTHER READING

- George, J. M. (1995). Asymmetrical effects of rewards and punishments: The case of social loafing. *Journal of Occupational and Organizational Psychology*, *68*, 327–338.
- Ingham, A. G., Levinger, G., Graves, J., & Peckham, V. (1974). The Ringelmann effect: Studies of group size and group performance. *Journal of Experimental Social Psychology*, *10*, 371–384.
- Karau, S. J., & Hart, J. W. (1998). Group cohesiveness and social loafing: Effects of a social interaction manipulation on individual motivation within groups. *Group Dynamics: Theory, Research, and Practice*, *2*, 185–191.
- Karau, S. J., & Williams, K. D. (1993). Social loafing: A meta-analytic review and theoretical integration. *Journal of Personality and Social Psychology*, *65*, 681–706.
- Karau, S. J., & Williams, K. D. (1995). Social loafing: Research findings, implications, and future directions. *Current Directions in Psychological Science*, *4*, 134–140.
- Shepperd, J. A., & Taylor, K. M. (1999). Social loafing and expectancy-value theory. *Personality and Social Psychology Bulletin*, *25*, 1147–1158.

SOCIAL NORMS AND CONFORMITY

Social norms are implicit and explicit rules of behavior that develop through interactions among members of a given group or society. Essentially, norms are

prescriptions for how people should act in particular situations. All groups have established norms that tell members what they should and should not do under certain circumstances. When agreed to and accepted by the group, norms act as a means of influencing the behavior of group members with a minimum of external control. Group members desire acceptance by the group, and because of this desire, they are susceptible to conforming to group norms. There is ample research evidence that groups can place strong pressures on individual members to change their attitudes and behaviors to conform to the group's standard.

Because the workplace context is social and requires interpersonal interaction, work behavior is affected by shared social norms. Formalized norms are written up in organizational manuals that set out rules and procedures for employees to follow, but by far, most norms in organizations are informal. Norms in organizations cover a wide variety of circumstances; however, there are certain classes of norms that seem to crop up in most organizations and affect the behavior of members. Some of the most common organizational norms include the following:

- Dress norms: Social norms frequently dictate the kind of clothing people wear to work
- Reward-allocation norms: Norms that dictate how rewards such as pay, promotions, and informal favors are allocated in organizations
- Performance norms: The performance of organizational members might be as much a function of social expectations as it is of inherent ability, personal motivation, and technology

Individuals are members of many groups in domains such as family, friendship, work, and community, and each overlapping group has norms that may be similar or different. Some or all of these norms may influence an individual's behavior, and some norms apply to essentially everyone, whereas others apply only to certain members within a specific context. For example, norms against incest and cannibalism are widely held in nearly all cultures. Other norms, such as those regulating greetings and nonverbal behavior, vary among cultures or even within cultural subgroups. The norms that are salient at any particular time vary as a function of group and setting, and social norms become more salient when the situation calls attention to group membership.

Individuals obey social norms for several reasons. First, compliance is the simplest, most direct motive for

conformity to group norms. It occurs because members wish to acquire rewards from the group and avoid punishment. Compliance is characterized by a change in observable behavior to match the social norm while maintaining a private lack of acceptance of the norm itself. Second, identification occurs when individuals conform because they find other supporters of the norm attractive. Identification as a motive for conformity is often revealed by an imitation process in which established members serve as models for the behavior of others. For example, a newly promoted executive might attempt to dress and talk like her successful, admired boss. Third, individuals may conform to a norm because they have truly and wholly accepted the beliefs, values, and attitudes that underlie it. Conformity occurs because the norm is seen as right, not because it achieves rewards, avoids punishment, or pleases others. That is, conformity is the result of internal rather than external forces.

TYPES OF NORMS

Descriptive and injunctive norms function at the group level of analysis, whereas subjective and personal norms operate at the individual level of analysis.

Descriptive norms are concerned with what individuals actually do and develop from watching the actions of other group members in certain situations. The more that target group members behave similarly in a given situation, the more the observer will tend to view their behavior as appropriate. When individual group members believe that the group supports a certain behavior, they are more likely to exhibit this behavior themselves.

Injunctive norms refer to attitudes toward certain behavior or what individuals feel is “right” based on morals or beliefs. They are specific guidelines about behavior in certain situations (i.e., reciprocity norms) and develop through normative influence or when group members conform to receive social approval. Rather than describing appropriate and inappropriate behavior, injunctive norms prescribe it.

Subjective norms are group members’ perceptions about what important and influential individuals (e.g., leaders) think about a certain behavior. Thus, they are subjective in the sense that there are variations between individuals as to who is considered important. The *theory of reasoned action* suggests that the main influence on individual intentions is subjective norms. This may be one reason it is common practice for people to consult others before making decisions.

Rather than treating norms as a defining workplace characteristic (i.e., a shared moral understanding among members of the organization), *personal norms* allow the recognition that individuals in the same workplace may vary in their expectations. Personal norms are located within the self. For example, someone may have a long-held belief that it is important to help others, and thus his or her behavior reflects a personal norm to behave altruistically. Personal norms are generally less affected by social context, although some have argued that they may be influenced by group norms.

NORM FORMATION

Norms are more likely to be established when they facilitate group survival and task accomplishment. Moreover, insofar as the perceptual, emotional, and cognitive dispositions responsible for adherence to norms are innate, compliance with social norms must be beneficial to human adaptation. Norms can be beneficial because they (a) keep the group intact and protect the group by punishing behaviors that threaten the group; (b) provide regularity and predictability to the behaviors expected of group members, thereby helping group members predict and anticipate the actions of peers; (c) help the group avoid embarrassing interpersonal problems and ensure that no group member’s self-image is damaged; and (d) express the central values of the group and clarify what is distinctive about its identity.

Some norms are actively transmitted (e.g., explicit statements and rituals), whereas others are passively transmitted (e.g., nonverbal behaviors and imitation). Norms, if they are written down, become formal rules of proper conduct, but in most instances, norms are adopted implicitly as people align their behavior until consensus in action emerges. Muzafer Sherif’s classic analysis of this process suggests that this gradual alignment of action reflects the development of frames of reference for behaviors. Upon forming a group, individuals rapidly structure their experiences until they conform to a general standard. Individuals may not actively try to conform to the judgments of others, but instead they use the group consensus to revise their opinions and beliefs.

Norm formation involves consensus formation and group decision making. *Social influence network theory* suggests that norms are formed through a process of interpersonal influence in which members’ attitudes

toward an issue change as they revise weighted averages of the influential positions of other members. Leaders may influence the discussion that is a part of norm formation because they are likely to direct other team members' activities and influence subordinate behavior to facilitate goal achievement. Moreover, leaders often direct the discussion process or serve an integrative function within the group.

The process of *socialization* explains how established norms become institutionalized. Even though the individuals who originally fostered the norms are no longer present, their normative innovations remain a part of the organization's traditions. When new employees discover and learn their organization's standards and expectations, they are experiencing socialization. In most instances, it is the individual who assimilates the group's norms, values, and perspectives. At times, however, socialization can generate changes in norms as the group accommodates to fit the newcomer's needs. Sometimes a staunch, unyielding individual can shift the group's norms, provided he or she maintains the appearance of consistency and objectivity.

Once established, norms give rise to obligations, which form the basis of each person's agreement with his or her peers. However, because norms are often informal and emerge naturally in groups, they may not support the larger strategic goals of the group. By debating and establishing formal norms, some groups are better able to proactively determine behaviors that are tailored to their needs. The negotiation of common expectations about how each group member should behave represents a proactive stance toward dealing with group problems and may contribute to overall group performance.

ABERRANT BEHAVIOR

Upon being assigned to a group, people appear automatically to think of that group as better for them than any alternative group. This can lead to increased attraction of in-group members and devaluation and possible mistreatment of out-group members. According to social identity theorists, a common normative belief in most social groups is that their group is desirable and members are superior to nonmembers. This belief occurs because groups are motivated to keep a positive self-image. This self-image consists of both a personal identity and a social identity, and any action or thought that elevates a social identity tends to elevate self-image.

Research suggests that norm misperceptions can occur, and misperceptions predict behavior. A meta-analysis of 23 studies of norm misperceptions (described as *self-other differences*) found that misperceptions of injunctive norms were greater than misperceptions of descriptive norms. The meta-analysis reported that misperceptions were greater as social distance increased, whereas the influence on the behavior of closer or more salient social groups was stronger.

A norm often becomes salient to interactions only after it is violated. If normative behavior is defined as the typical choice that others would make in a given context, then counternormative behavior or deviance is *not* the typical choice that others would make. A person may deviate in desirable ways (e.g., display extrarole behavior) or in undesirable ways, and thus deviance may bring either praise or criticism.

By conforming to group norms, idiosyncrasy credits can be earned, and if enough idiosyncrasy credits are earned, the person can, on occasion, breach norms (deviate in undesirable ways) without retribution from the group. Individuals who breach norms but cannot provide an acceptable explanation for their violation are often evaluated negatively and may experience peer aggression, violence, and lesser forms of mistreatment.

Often, punishments for not complying with norms come from social networks as opposed to formal systems established by the organization. Not everyone who breaches a norm receives the same punishment; peer reaction depends on the magnitude of the discrepancy, the importance of the norm, and the characteristics of the person violating the norm. Not conforming to social norms and values is likely to make followers quickly perceive a leader as incompetent and not deserving of that position, regardless of his or her personal achievements. On the other hand, for most individuals, small breaches that reflect personal idiosyncrasies, if kept private, will likely be overlooked.

Individuals may obey norms to fulfill their own expectations about proper behavior. Individuals often feel duty bound to adhere to norms because, as responsible members of the group, they accept the legitimacy of the established norms and recognize the importance of supporting these norms. Individuals who breach norms that they accept may experience a range of negative emotional consequences, such as extreme self-consciousness, embarrassment, guilt, and shame.

The consequences of norm breaches vary by context. For example, cultures that are high in uncertainty avoidance tend to be intolerant of ambiguity and thus likely to be distrustful of new ideas or behaviors. They stick dogmatically to norms, which, in the extreme, become inviolable to reduce uncertainty. Breaches upset uncertainty-reducing activity, so organizations in these cultures may adopt structural formalization and centralization, thus reducing the degree of sharing of important information and decision making with subordinates. In contrast, people from low-uncertainty-avoidance societies are more tolerant of deviations from social norms.

SUMMARY

Norms simplify behavioral choices, provide direction and motivation, and organize social interactions. Most people attend to cues that convey information about social norms and try to comply with norms they believe are in force and feel distress if they act out of compliance. In general, the more consequential the norm, the swifter the social response if it is breached.

—Simon Taggar and Heather MacDonald

FURTHER READING

- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice Hall.
- Axelrod, R. (1986). An evolutionary approach to norms. *American Political Science Review*, 80, 1095–1111.
- Elster, J. (1989). *The cement of society: A study of social order*. Cambridge, UK: Cambridge University Press.
- Forsyth, D. R. (1990). *Group dynamics*. Pacific Grove, CA: Brooks/Cole.
- Johns, G., & Saks, A. M. (2005). *Organizational behaviour: Understanding and managing life at work* (6th ed., pp. 204–236). Toronto: Pearson/Prentice Hall.
- Lodzinski, A., Motomura, M. S., & Schneider, F. W. (2005). Intervention and evaluation. In F. Schneider, J. Gruman, & L. Coutts (Eds.), *Applied social psychology: Understanding and addressing social and practical problems* (pp. 55–72). Thousand Oaks, CA: Sage.
- Moreland, R. L., & Levine, J. M. (1982). Socialization in small groups: Temporal changes in individual-group relations. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 15, pp. 137–192). New York: Academic Press.
- Sherif, M. (1936). *The psychology of social norms*. New York: Harper & Row.

SOCIAL SUPPORT

Workplace *social support* refers to the availability or actual receipt of assistance provided to an employee by one or more individuals. It is generally examined as a means of coping with occupational stress. An important distinction concerns the sources of social support. Support may be provided by individuals within the organization—for example, supervisors, subordinates, coworkers, or even customers—or by individuals outside the organization, such as family or friends. Research shows that social support provided by individuals within the organization, particularly support provided by supervisors, has the greatest implications for employee well-being.

Another important distinction delineates *structural support* and *functional support*. Structural support refers to the size of an individual's social network, whereas functional support refers to whether the individuals in a person's social network actually provide helpful behaviors. Empirical evidence suggests that structural support and functional support are relatively independent. Thus, having a large social network does not guarantee that one will actually receive support in times of trouble. Furthermore, individuals may receive adequate support even if they have relatively small social networks. This might happen, for example, when a person receives high levels of support from one or two individuals.

Functional support can be further divided into *instrumental support* (i.e., tangible support) and *emotional support*. Instrumental social support involves the receipt of concrete assistance from others. An office employee who helps an overworked coworker clean her office, for example, is providing instrumental social support. Emotional social support, on the other hand, involves showing sympathy and concern for others. Whereas instrumental support usually involves doing, emotional support often involves listening and talking. An employee who listens and gives encouragement to a coworker who is in danger of being fired, for example, is providing emotional social support.

Although instrumental and emotional social support are related to each other, empirical evidence supports the distinction between them. Furthermore, the two forms of support may have different effects. Some research suggests that emotional support is more strongly related to employee well-being than instrumental support.

Research further distinguishes between different forms of emotional social support. Terry A. Beehr and his colleagues, for example, identified three types of conversations that people might have at work, each representing a different form of emotional support:

- Conversations about positive aspects of the workplace (e.g., talking about how one's supervisor is a great leader)
- Conversations about negative aspects of the workplace (e.g., talking about how poorly one is paid)
- Conversations about non-work-related events and activities (e.g., talking about how one spent last weekend)

Of these three forms of emotional social support, conversations about the negative aspects of work are most unlike other kinds of support. Indeed, even though people commiserating with each other and agreeing that the situation is bad is a logical form of support, research suggests that this type of support does not have the favorable effects associated with other forms of support.

DISTINCTION BETWEEN SOCIAL SUPPORT AND SIMILAR CONSTRUCTS

Social support has some resemblance to other variables that are of interest to industrial and organizational psychologists. Organizational citizenship behaviors (OCBs), employee friendship, and leader consideration all have some conceptual overlap with social support. For example, OCBs represent pro-social workplace behaviors that involve going above and beyond the responsibilities of one's official job description to help the organization or its members.

Talking favorably about one's employer to organizational outsiders or helping a coworker who has a heavy workload are both examples of OCBs. The first example is an OCB that is directed at assisting the organization, whereas the second example is an OCB that is directed at assisting an individual employee. Because it involves providing assistance to a particular individual, the latter is similar to social support. Important distinctions, however, exist between social support and OCBs. On one hand, OCBs are generally studied from the perspective of the individual performing the behavior. For example, a focal person is asked to report how often he or she personally performs OCBs, or the focal person's supervisor is asked to report the frequency of such behavior. On the other

hand, social support research also measures the extent to which the target individual is a recipient of helpful behaviors from others. Thus, much more is known about recipients' perceptions of social support given than is known about the givers of social support. Another important difference between social support and OCBs is that OCBs are typically regarded as a form of job performance, whereas social support is not considered an aspect of job performance.

Friendship among coworkers, which has attracted some attention from industrial and organizational psychologists, has some conceptual similarity to social support. Whereas friendship implies a helpful relationship between two or more people at work that develops over time, social support can represent a onetime helpful behavior performed by a stranger. It is likely that almost all friends provide social support, but not all individuals who provide social support are necessarily friends. A customer who helps a waiter clean up a spilled drink, for example, is providing instrumental social support but probably not friendship.

Leader consideration is another variable that is conceptually similar to social support. Consideration is the extent to which a leader displays concern for subordinates' well-being and shows appreciation for their efforts. Whereas social support can be provided by anyone within or outside the organization, leader consideration is necessarily a quality of the behavior performed by a supervisor. Thus, some of the behaviors described as consideration are unique to individuals in leadership positions and are not likely to be performed by nonleaders.

ANTECEDENTS OF SOCIAL SUPPORT

Because social support can prove useful as a treatment for occupational stress, it is important to understand the factors that contribute to the amount of social support one receives. Once the factors contributing to social support are understood, organizations will be in a better position to develop interventions to increase support among organizational members. Despite the attention social support has received in the literature, researchers have only recently examined the antecedents of social support. For example, research suggests that reciprocity plays an important role in determining the amount of social support one receives. Specifically, employees are likely to receive the most social support when they give social support to others.

CONSEQUENCES OF SOCIAL SUPPORT

Much more attention has been paid to the effects of social support than to its causes. This research has primarily examined the effects of social support on stressors and strains, as well as the moderating effects of social support on the stressor–strain relationship. Workplace stressors are aspects of the work environment that require an adaptive response on the part of the employee and have the potential to cause ill health. Examples of workplace stressors include having a heavy workload, being exposed to abusive customers, and having to work on tasks that are highly repetitive. Strains, on the other hand, are the negative health consequences produced by stressors, such as depression, anxiety, and physical illness.

Social support is related to both stressors and strains. For example, one recent meta-analysis found that social support is negatively associated with several forms of workplace stressors, such as role ambiguity (having unclear work responsibilities), role conflict (having multiple work responsibilities that interfere with each other), and underutilization of skills. The same meta-analysis found that social support is negatively associated with a number of strains, such as poor mental and physical health, life dissatisfaction, and burnout. In sum, those who report high levels of social support generally report relatively fewer workplace stressors and better mental and physical health.

Much of the attention given to social support has focused on the *buffering effect* (i.e., moderating effect) of social support. Indeed, many researchers agree that the buffering effect is the most important hypothesis about social support. The buffering effect occurs when the relationship between stressors and strains is weaker for individuals who receive high levels of social support than for individuals who receive little or no social support. The following are two examples of the buffering effect:

- The amount of workload one has is strongly associated with anxiety for individuals who receive little social support, but it is only weakly related to anxiety for individuals who receive a great deal of social support.
- Being abused by a supervisor produces serious physical health symptoms for individuals who are low in social support, whereas abuse by a supervisor produces little or no physical health symptoms for individuals who are high in social support.

However, most studies have failed to support the buffering effect. In fact, evidence for the buffering effect is so inconsistent that many current researchers prefer to conduct exploratory analyses regarding the moderating effects of social support rather than actually hypothesize the buffering effect. Perhaps the most common finding is that social support has no effect on the relationship between stressors and strains. In other words, the magnitude of the relationship between stressors and strains is similar regardless of the amount of social support one receives.

Some studies have even found evidence of a *reverse buffering effect*, which occurs when the stressor–strain relationship is stronger rather than weaker for individuals who receive high levels of social support compared to individuals who receive little social support. The reverse buffering effect is counterintuitive, and little evidence exists to explain when and why it might occur. One possibility is that some forms of social support (e.g., conversations about the positive aspects of work) may produce the buffering effect, whereas other forms of support (e.g., conversations about negative aspects of work) may produce the reverse buffering effect. Another possibility is that social support produces a buffering effect only when the social support and the stressor come from different sources. Support from coworkers but not from supervisors, for example, may buffer the relationships between workload (a stressor presumably caused by the supervisor) and strains.

On the other hand, a reverse buffering effect may occur when social support and stressors come from the same source. This may occur because it is distressful to interact with the source of stressors even when that source is providing support. Another possibility is that under some conditions, people feel uneasy when they must consistently depend on the support of others, and this uneasiness may exacerbate the negative effects of stressors.

ORGANIZATIONAL SUPPORT

So far, support provided by particular individuals, such as supervisors or coworkers, has been discussed. In addition to the supportive behavior of individuals, employees generally develop perceptions about whether their employing *organization* is supportive or unsupportive. Organizational support represents the extent to which employees perceive that their employing organization cares about their personal welfare,

values their contributions, and is committed to them. Unlike social support, organizational support represents a global perception of one's organization rather than a perception of particular individuals.

ANTECEDENTS OF ORGANIZATIONAL SUPPORT

Social support provided by one's supervisor is one possible antecedent of organizational support. Immediate supervisors are the organizational representatives whom employees have the most direct exposure to; thus, employees are likely to infer organizational support based on the support provided by their supervisor. The favorability of one's working conditions is also likely to contribute to employee perceptions of organizational support. Both intrinsic job conditions (e.g., having work tasks that are stimulating) and extrinsic job conditions (e.g., availability of promotions) likely affect perceived organizational support, as do workplace stressors (e.g., role ambiguity and conflict).

CONSEQUENCES OF ORGANIZATIONAL SUPPORT

Research suggests that when employees perceive that their organization supports them, they will reciprocate by showing support for the organization. When employees perceive that their organization is supportive, for example, they will generally feel indebted to the organization and manifest attitudes and behaviors that express their gratitude toward the organization.

Organizational support has been examined as a predictor of several employee attitudes and behaviors. Job satisfaction, organizational commitment, job involvement, attitude toward management, and turnover intention, for example, are all attitudes that may be influenced by organizational support. Behaviors related to organizational support include job performance and organizational citizenship behaviors. Like social support, organizational support has been examined as a predictor of employee strains. Organizational support, for example, is negatively associated with burnout, fatigue, job tension, and somatic symptoms.

—Nathan A. Bowling

AUTHOR'S NOTE: The author wishes to thank Terry A. Beehr for his helpful suggestions concerning earlier versions of this entry.

See also Interpersonal Communication; Occupational Health Psychology

FURTHER READING

- Beehr, T. A. (1995). *Psychological stress in the workplace*. London: Routledge.
- Bowling, N. A., Beehr, T. A., & Swader, W. M. (2005). Giving and receiving social support at work: The roles of personality and reciprocity. *Journal of Vocational Behavior, 67*, 476–489.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*, 310–357.
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71*, 500–507.
- Viswesvaran, C., Sanchez, J. I., & Fisher, J. (1999). The role of social support in the process of work stress: A meta-analysis. *Journal of Vocational Behavior, 54*, 314–334.

SOCIALIZATION

See ORGANIZATIONAL SOCIALIZATION

SOCIALIZATION: EMPLOYEE PROACTIVE BEHAVIORS

An employee starting a new job is confronted by the challenge of adapting to a new organizational culture and a new social setting. These roles carry many expectations for appropriate behavior. Information about how to behave is encoded in a sometimes bewildering array of contextually bound communications. To facilitate the transmission of this cultural information to organizational newcomers, most organizations invest a great deal of effort in the creation of orientation programs. There are, however, limits to what an organization can do. Effect sizes for most of the relationships between organizational socialization efforts and newcomer adjustment are small or modest. After years of studying organizational tactics, researchers began to recognize the omission of the newcomer's own agency in most socialization models.

There are many reasons why organization-level socialization may not be especially effective without

newcomer effort in the process. Although organizations may provide a great deal of cultural information, if newcomers discount or ignore this information, it will not affect their behavior. Organizational orientation sessions for many workers do not include job information because task demands are likely to be too specific to be covered on an organization-wide basis. Moreover, for many newcomers, learning how to fit in socially requires developing one-on-one relationships with coworkers. Even if coworkers and supervisors are available to newcomers, these established organizational members may no longer understand what it is like to be a new entrant. They may, therefore, neglect to provide critical information without prompting from the newcomer. In other words, newcomers need to get involved in the process of learning. The most important contribution of the proactive concept of newcomer entry is the examination of an *active* process of adjustment.

To facilitate an understanding of how newcomers proactively influence their own organizational adjustment, three major questions must be answered: (a) What proactive behaviors are newcomers most likely to engage in? (b) What makes a newcomer more or less likely to engage in certain proactive behaviors? (c) What is the relationship between newcomer proactivity and the social environment at work? A standard taxonomy for considering proactive socialization considers the strategy used to find information (e.g., actively searching, asking questions, or passively observing), the target of the action (e.g., supervisors or coworkers), and the type of information being sought (e.g., organizational values, social information, or performance feedback). A comprehensive examination of proactive socialization should take all of these factors into account.

NEWCOMER PROACTIVE BEHAVIOR

One of the most important activities for newcomers is actively seeking information from knowledgeable coworkers about task procedures. This might range from simply asking for guidance on how to complete procedures to more detailed questions regarding the relative importance of tasks. Newcomers may be reluctant to directly ask coworkers how to complete tasks, and so they may prefer to actively observe coworkers as they perform task-related behaviors and then copy these models. Finally, policy and procedure manuals can be an additional source of information.

Besides learning about work tasks, newcomers engage in other forms of proactive socialization

related to the social environment. Social acceptance may be facilitated by organizational newcomers directly asking role incumbents about work group norms and acceptable behavior. Newcomers can also engage in relationship building by initiating conversations and participating in social activities with coworkers. Newcomers also seek information about the authority and reward structure of their new organization.

Not all proactive newcomer behavior relates to fitting in to an established role. Some research suggests that newcomers who are especially confident and have a strong desire for control will actively negotiate job tasks and redesign their work. For organizations that are engaged in highly competitive fields, such changes are crucial for enhancing innovation and avoiding stagnation. This process of role innovation can be encouraged by organizational efforts to engage in investiture socialization, whereby a newcomer is given positive messages regarding his or her unique worth and resources to facilitate new methods of work. Role innovation of this nature requires the newcomer to be willing to risk changing expectations and challenging social conventions in the workplace.

Studies show that proactive newcomer activities are related to superior socialization outcomes such as role clarity, task knowledge, and social integration. Comparison of effect sizes across studies suggests that these proactive activities are at least as important as organizational programs. The general story of adjustment that emerges from repeated measures of organizational newcomers suggests that most newcomers move attitudinally from a state of comparative ignorance of the organization's culture and work demands toward a more stable conception of how they fit in with the job and organization. Individuals who engage in more proactive behaviors appear to be most likely to move quickly to a state of relative adjustment. Those who do not make this progress toward greater commitment over time engage in another form of proactive behavior: They quit. Research demonstrates that turnover rates among newcomers are much higher than turnover rates among established employees.

PERSONALITY AND ADJUSTMENT

To predict proactive socialization, researchers typically examine personality. On a practical level, if personality is a major component of the socialization process, then selection systems should emphasize

traits that are necessary for learning how to perform well in a particular job. On a theoretical level, the relationship between proactive behavior and personality may explain why satisfaction levels are consistent for individuals across multiple job changes.

The most important personal characteristics related to newcomer adjustment relate to personal agency. Confident and personally active newcomers are more likely to engage in proactive behaviors because they believe their efforts will succeed. Empirical studies show a positive relationship between self-efficacy and active information seeking, the use of problem-focused coping strategies, and better work adjustment among organizational newcomers. Research also shows that an individual disposition toward proactive behavior (which is closely related to achievement motivation) is an important predictor of a number of important work-related outcomes, including objective career success, task mastery, role clarity, and social integration across a variety of settings. Most of these relationships are mediated through proactive socialization behaviors.

There are relationships between five-factor model personality variables and newcomer adjustment as well. Openness to experience and extroversion are significantly related to positive work outcomes for organizational newcomers and mediated through information acquisition and relationship building. Although studies show strong relationships between work attitudes and personality for conscientiousness and emotional stability, neither of these variables has yet been empirically linked to proactive socialization behaviors in the literature. The extensive debate regarding the importance of emotional stability (i.e., trait negative affectivity) and work attitudes suggests that there is a dispositional tendency toward dissatisfaction and poor adjustment among some individuals, but the behavioral consequences of emotional stability in the adjustment process have not yet been demonstrated.

INTERPERSONAL SOURCES OF SOCIALIZATION

During adjustment, newcomers must build a repertoire of contextually based knowledge to adequately understand how to fit into a new job. Researchers have proposed that interpersonal interactions or “guides” help newcomers understand the context of most organizations. The interpersonal perspective has opened

the door for subsequent research investigating symbolic interactionism and other forms of information exchange. Interactions between members of a work group are important in the development of shared meaning and attitudes because newcomers interpret their environment through the lens of their interactions with others. Unlike organizational socialization, these interactions involve the newcomers’ reactions to the social environment. The small-group socialization perspective of Richard Moreland and John Levine deemphasizes the organization and focuses on how individuals come to identify with those occupying similar roles. Organizations understand the importance of interpersonal interactions in the socialization process and take steps to enhance these interactions.

Mentoring, whereby a higher-ranking organizational member takes a new employee under his or her wing and provides guidance on how to adapt to an organizational role, is an important source of interpersonal socialization. Supervisory efforts to provide role clarification, social support, and encouragement are conceptually similar to mentoring and have many of the same positive outcomes for organizational newcomers. There is considerable empirical evidence that mentoring and supervisory socialization efforts are associated with significantly higher levels of work role integration and job satisfaction, although effect sizes are modest. Although mentoring is typically conceptualized as a relationship initiated by a higher-ranking member of an organization, employees with higher levels of proactive personality and locus of control are more likely to have mentors. This suggests that either some individuals are selected for mentoring relationships because they are more proactive or that some individuals proactively initiate mentoring relationships.

Studies show that newcomers who actively engage their coworkers are likely to be better adjusted to their new workplaces. Coworkers may be seen by newcomers as having particular expertise in how to behave appropriately because they are in similar roles to newcomers. Coworkers also play an important role in transmitting important information about task completion by providing feedback for processes that cannot be picked up in prior training or education. Coworkers are one of the most significant sources of information regarding knowledge of the work group, and some newcomers report that they are more comfortable seeking social information from peers than from supervisors. Consistent with these observations, research has shown that those who successfully build

relationships with coworkers are more satisfied and more committed and report greater intentions to remain.

SUMMARY

The literature on organizational socialization has historically been marked by claims that socialization occurs primarily because of organizational efforts. Research now demonstrates the importance of the newcomer's point of view as an important element in the adjustment process.

—John D. Kammeyer-Mueller

See also Organizational Socialization

FURTHER READING

- Chan, D., & Schmitt, N. (2000). Interindividual differences in intraindividual changes in proactivity during organizational entry: A latent growth modeling approach to understanding newcomer adaptation. *Journal of Applied Psychology, 85*, 190–210.
- Kammeyer-Mueller, J. D., & Wanberg, C. R. (2003). Unwrapping the organizational entry process: Disentangling multiple antecedents and their pathways to adjustment. *Journal of Applied Psychology, 5*, 779–794.
- Miller, V. D., & Jablin, F. M. (1991). Information seeking during organizational entry: Influences, tactics, and a model of the process. *Academy of Management Review, 16*, 92–120.
- Moreland, R. L., & Levine, J. M. (2001). Socialization in organizations and work groups. In M. E. Turner (Ed.), *Groups at work: Theory and research* (pp. 69–112). Mahwah, NJ: Lawrence Erlbaum.
- Morrison, E. W. (1993). Newcomer information seeking: Exploring types, modes, sources, and outcomes. *Academy of Management Journal, 36*, 557–589.
- Saks, A. M., & Ashforth, B. E. (1997). Organizational socialization: Making sense of the past and present as a prologue for the future. *Journal of Vocational Behavior, 51*, 234–279.

SOCIETY FOR INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY

The Society for Industrial and Organizational Psychology (SIOP) is the primary professional

membership organization for professionals engaged in the application or study of psychology in business, industry, and public service. Although industrial psychologists were involved in applied professional organizations as early as the founding of the American Psychological Association (APA) in 1892, the SIOP in its current form was incorporated as Division 14 of the APA in 1982. The SIOP is also an organizational affiliate of the Association for Psychological Science (APS).

The SIOP is governed by 13 elected members of the Executive Committee, which meets three times per year. The society currently has 10 standing committees that carry out the functions of the SIOP (e.g., awards, job placement, workshops), as well as several ad hoc committees that address issues that are pertinent to the SIOP community.

The SIOP president appoints committee chairs and approves membership in all standing committees. Committee chairs must be fellows or full members of the SIOP, but associate members may serve on committees.

MEMBERSHIP

The SIOP's membership is diverse, with more than 6,500 members representing all 50 states in the United States, as well as 42 countries. There are two main categories of membership: professionals and students. More than 3,700 of the SIOP's members are classified as professionals (more than 2,700 of whom are considered full members), and approximately 2,900 are students.

Professional membership types include member, associate member, international affiliate, and fellow. Applicants for full membership must meet several requirements: First, they must be dues-paying members of the APA, the APS, or the industrial and organizational division of the Canadian Psychological Association. Most of the professional members (more than 80%) are affiliated with the APA, and more than 24% are affiliated with the APS (some are affiliated with both organizations).

Members must have a doctoral degree based on a psychological dissertation awarded by a recognized graduate school, be engaged in study or professional work that is primarily psychological in nature, and be involved in professional activities (research, teaching, or practice) related to the purpose of the SIOP. Associate member applicants must be associate

members of the APA or the APS, have completed two years of psychology graduate study or have a master's degree in psychology or a related field, and be engaged in professional or graduate work related to the SIOP's purpose. Undergraduate and graduate students may apply for either student or student international affiliate membership.

The SIOP's membership includes both academics and practitioners, and many members engage in both areas. Currently, approximately 33% of professional members are primarily academics, 29% are primarily consultants, 15% work in industry, and 5% are in the government or military (18% did not indicate their primary employer).

MISSION

The mission of the SIOP is to increase the well-being and performance of workers by supporting the study and practice of industrial and organizational (I/O) psychology. To achieve this mission, the SIOP has several guiding objectives:

- To support SIOP members in the study, application, and teaching of I/O psychology methods and principles
- To provide opportunities to discuss and exchange research findings, information, and perspectives pertaining to the science, practice, and teaching of I/O psychology
- To identify opportunities to advance the field of I/O psychology
- To identify and address challenges in organizational and work settings regarding the understanding and practice of I/O psychology
- To encourage the education and training of current and future I/O psychologists
- To support public awareness of I/O psychology

FUNCTIONS

The SIOP provides a wide variety of services in pursuit of its mission. It offers distinct programs targeted toward its many constituents, including the media, those seeking consultants, job seekers and employers, graduate students or prospective students, and specific groups within the society (e.g., new members, academics, practitioners). Many of these services and functions are detailed on the SIOP's Web site, <http://www.siop.org>.

The SIOP offers a quarterly publication, the *Industrial-Organizational Psychologist*, which is

available free with membership. This journal contains information about current topics that are relevant to SIOP academic and professional members, international affiliates, and student affiliates. Topics include addressing legal issues, surviving graduate school, teaching I/O psychology, and planning career advancement, as well as calls for manuscripts and conference submissions. The SIOP produces a number of other publications that are freely available on its Web site (e.g., *Guidelines for Education and Training at the Master's and Doctoral Level* and *The Principles for the Validation and Use of Personnel Selection Procedures*). The SIOP also sells selected books written by SIOP members and has a link to the PubHub service, which lists other I/O books that can be purchased through the Web site.

The SIOP's JobNet program allows employers to post job openings in I/O psychology and job seekers to post résumés and search available positions. A resource for employment in I/O psychology is the compensation information obtained from the SIOP salary survey. Every three years, the SIOP sponsors a salary survey within the field of I/O psychology, the results of which are available online.

The SIOP also provides resources for those in academic settings. For example, an instructor's guide with ready-to-use lectures is available for those who teach introductory I/O psychology. An important service for students is the Graduate Training Program Listing. More than 200 graduate training programs in I/O psychology and related fields (e.g., organizational behavior) are posted, with relevant information regarding program focus and admission statistics (e.g., number of students applied and accepted, average GRE scores of accepted students, level of assistantship support). Other documents are available to aid prospective students in their selection of a graduate program (e.g., articles regarding program rankings).

The SIOP provides resources to get people connected with others the field. The Member-2-Member program links new members with established members to facilitate integration into the SIOP community during the member's first two years in the society. A listing of I/O-related professional organizations (e.g., local communities) is also available on the SIOP Web site.

Another important function of the SIOP is to disseminate information about the field to the public, as well as to those who may be in need of the services of an I/O psychologist. The media resources service is designed to help those in the media locate I/O

psychologists with expertise in a given area. This listing includes more than 1,700 psychologists, and recent press releases are also posted on the site. Another service, the Consultant Locator, is a database that the public can search for firms or SIOP professional members with expertise in specific technical areas who provide consulting services.

The major endeavor of the SIOP is its annual conference, which is held each spring. The conference features intensive workshops on cutting-edge topics, special seminars on selected topics, symposia and poster sessions, panel and roundtable discussions, and education forums that present the latest I/O research and practice. The conference also offers a placement center where job seekers have access to available positions and employers can access the résumés of potential candidates; on-site interviews are conducted at the conference. Finally, the conference offers ample opportunities for networking and social activities to connect members of the field of I/O psychology.

—Jennifer Burnfield

See also Academy of Management; American Psychological Association, Association for Psychological Science

FURTHER READING

Koppes, L. L. (2000). *A brief history of the SIOP*. Retrieved March 9, 2006, from <http://www.siop.org/history/history.htm>

SOCIOTECHNICAL APPROACH

The sociotechnical approach to organizational structure was developed in England during the late 1940s by Eric Trist and his colleagues at the Tavistock Institute of Human Relations. These researchers conducted seminal studies on the coal mining industry, where the introduction of new technology had shifted the social patterns of work so profoundly that productivity and job satisfaction were negatively affected. In response, managers and workers fundamentally reorganized their work patterns, returning to the small-team, collaborative process that had prevailed before the mechanization of the industry.

In these and subsequent studies across a variety of work settings, Trist and his colleagues found that

technical changes in an industry (e.g., increased automation) consistently produce profound changes in the social aspects of work as well. They became convinced that work must be conceptualized as a joint social and technical process and that the so-called self-regulating work group is the essential building block of effective organizations.

Following the initial Tavistock studies, further experiments in the design of work according to sociotechnical principles proceeded slowly in the United Kingdom, India, and Europe during the 1950s. Support for the approach was bolstered in the early 1960s, when the government of Norway supported a labor and management effort to introduce Trist's principles of "industrial democracy" into industry there. Highly publicized early examples of work designed around sociotechnical principles in the United States include the General Foods plant in Topeka, Kansas, and the Procter & Gamble plant in Lima, Ohio. In the years since those early efforts, sociotechnical principles have been widely applied in a variety of work settings. The approach is commonplace today and has come to be viewed as a major category of organizational theory.

Although there are no universally accepted defining principles and assumptions of the sociotechnical approach, the following ideas are commonly identified with this approach:

- Organizations are open systems. They exist as animate entities in an environment of customers, competitors, suppliers, regulators, technology, stakeholders, and the broader economy. They must scan that environment, exchange with it (receive inputs and produce outputs), and anticipate and react to environmental changes in adaptive ways. The Tavistock group was strongly influenced by general systems theory as it was articulated in the physical sciences by Ludwig von Bertalanffy during the 1940s and 1950s. Fred Emery, a noted member of the Tavistock team, brought von Bertalanffy's work to the attention of Trist and the rest of the Tavistock group, and it became a pillar of the sociotechnical approach.
- Change is the norm in the environment of work. The business environment is aptly described as turbulent and uncertain, connoting that change can be sudden, extreme, and largely unpredictable. Turbulence disrupts previously stable patterns of interaction and requires a rethinking and redesign of work.
- Joint optimization is essential. Because work is, by its very nature, an intertwined technical and social process, both aspects need to be integrated into the

design of work to achieve the critical objective of improved productivity and quality of work life.

- Equifinality, a notion diametrically opposed to Frederick Winslow Taylor's concept that there is only one road to success, prevails. In all living systems, there are many possible ways to achieve the same outcome. Thus, there are many possible work designs that can achieve the joint goals of productivity and quality of work life.
- Work must be designed for flexibility. Because the environment is constantly changing, no hardwired design, no matter how well adapted to current conditions, will continue to fit the evolving demands of the environment. The organization must be designed—and continually redesigned—for flexibility. The design process is never completed. No design is ever final.
- Design with minimum critical specification. Work designers should specify only what absolutely must be specified in terms of technical and social job design parameters and allow the organization the flexibility to specify the rest for itself.
- Stakeholder input is critical. Employee participation at multiple levels is essential in creating a sociotechnically designed organization and operating it daily. High levels of employee empowerment are central to the sociotechnical philosophy.
- Teams do the work. Teams are the universal, most visible end product of sociotechnical design. The primary production unit is the self-directed work team (also known as the self-managing, self-regulating, semiautonomous, or high-performance team). Team members are usually expected or even required to acquire broader skills and more business knowledge so that they can take on a higher level of decision-making ability and authority. Internal controls gradually supplant external controls. Teams have access to much more information than workers in traditionally structured organizations. Continual learning and growth is expected. Thus, in practice, such multi-skilled teams commonly complete a whole, meaningful unit of work rather than a subcomponent only. They absorb some functions traditionally provided by support departments, such as managing quality, setting production goals, tracking performance and productivity, and making process improvements. Self-managing teams are the embodiment of the sociotechnical systems approach.
- As teams become more capable of self-direction and less reliant on daily supervisory control, they are allowed to manage the bulk of their daily work internally. Management is then able to step out to the boundaries of the team—to focus more strategically on keeping the team linked with other teams and

other parts of the organization and helping to build and manage such structures as pay-for-skill and gain-sharing programs, which support the team concept.

- When problems occur, they should be handled at the source by those who directly encounter them. Thus, quality variances are detected and addressed promptly by line employees who are trained in quality as well as production.

There is a moderate amount of field research on the effectiveness of the sociotechnical approach. However, because applications vary widely, it is not always easy to determine what was done and which parts of the design or redesign may have been effective. And there certainly are reports in the literature of failed or minimally effective sociotechnical design efforts. Still, the bulk of the evidence from studies that meet the standard criteria of research excellence points to substantial increases in productivity—increased throughput, reduced rejects or scrap, decreased cycle time, and decreased machine downtime. Effects on employee satisfaction and quality of work life, measured directly through opinion surveys or indirectly through data on absenteeism, grievances, and job bid-outs, are also generally positive.

The huge body of anecdotal evidence is also strongly positive, showing productivity improvements in the 25% to 45% range and greatly improved employee satisfaction. Such gains, touted in the practitioner literature and lore, are sufficient to keep the approach prominent in contemporary practice.

Critics of the sociotechnical systems approach observe that applications commonly accept the technical work process as a given and focus largely on social redesign. Furthermore, despite such guiding principles as equifinality, the social redesign always results in the same solution—the self-managing team. A further criticism is that the classical sociotechnical design process, which relies on steering committees and design teams to do the analysis and design, is very slow (24 to 36 months being a common time frame) and costly. However, there are alternatives, such as the “future search” methodology, that compress the timeline for work redesign.

The sociotechnical systems philosophy and approach to the design of work continues to spread. The approach forms a central part of the philosophical base of the popular contemporary high-performance organization model.

—John Kello

See also High-Performance Organization Model; Quality of Work Life

FURTHER READING

- Campbell, J. P., & Campbell, R. J. (1988). *Productivity in organizations: New perspectives from industrial and organizational psychology*. San Francisco: Jossey-Bass.
- Cummings, T. G., & Worley, C. G. (2005). *Organization development and change* (8th ed.). Mason, OH: Thomson/South-Western.
- Lawler, E. (2001). *Organizing for high performance: Employee involvement, TQM, re-engineering, and knowledge management in the Fortune 1000*. San Francisco: Jossey-Bass.
- Pasmore, W. A. (1988). *Designing effective organizations: The sociotechnical systems approach*. New York: Wiley.
- Trist, E. L. (1981). The sociotechnical perspective: The evolution of sociotechnical systems. In A. H. Van de Ven and W. F. Joyce (Eds.), *Perspectives on organization design and behavior* (pp. 19–75). New York: Wiley.

SPIRITUALITY AND LEADERSHIP AT WORK

A significant change is taking place in the personal and professional lives of leaders as they aspire to integrate their spirituality with their work. Most leaders agree that this integration is leading to positive changes in their relationships and effectiveness. Furthermore, there is evidence that workplace spirituality programs not only lead to beneficial personal outcomes, such as increased positive human health and psychological well-being, but also improve employee commitment, productivity, absenteeism, and turnover. Recent studies have shown that companies perform better when they emphasize workplace spirituality through both people-centered values and a high-commitment model of attachment between the company and its employees. There is mounting evidence that a more humane workplace is not only more productive but also more flexible and creative and a source of sustainable competitive advantage.

Advocates of workplace spirituality propose that people bring unique and individual spirits to the workplace, and they are highly motivated by the spiritual need to experience a sense of transcendence and community in their work. Spiritual leadership involves motivating and inspiring workers through a transcendent

vision and a culture based on altruistic values to produce a more motivated, committed, and productive workforce. In such an organization, when employees' spiritual needs are met and aligned with organizational objectives, this higher motivation, commitment, and productivity has a direct impact on organizational processes and outcomes that, in turn, influences customer satisfaction and, ultimately, organizational performance (see Figure 1).

WORKPLACE SPIRITUALITY

Although research is still in the early stages of theory building and testing, the role of spirituality in the workplace is receiving increasing attention. In particular, workers who view their work as a called vocation are likely to approach work very differently than employees who see work primarily as a means of paying bills. Most importantly to management and leadership, there is emerging evidence that spirituality provides competitive advantage through its impact on organizational performance. Workplace spirituality incorporates values that lead to a sense of transcendence and interconnectedness of all life, so that workers experience personal fulfillment on the job. This sense of transcendence—having a calling through one's work (vocationally)—and the need for membership, community, and social connection provide the foundation for a theory of workplace spirituality. Hence, workplace spirituality must be framed within a holistic or system context of interwoven cultural, organizational, and personal values. To be of benefit to leaders and their organizations, workplace spirituality must demonstrate its utility by influencing performance, turnover, productivity, and other relevant effectiveness and performance criteria.

Finally, to gain a systemic understanding of how workplace spirituality affects organizational effectiveness—through transcendence and value congruence among organizational, team, and individual values—a focus on the interconnectedness and interplay across these levels is required. Leaders who seek to transform the organizational culture from materialistic to altruistic values that are more idealistic and spiritual must address value congruence across all levels of the organization.

RELIGION AND WORKPLACE SPIRITUALITY

The study of workplace spirituality so far has been relatively free of denominational politics and the

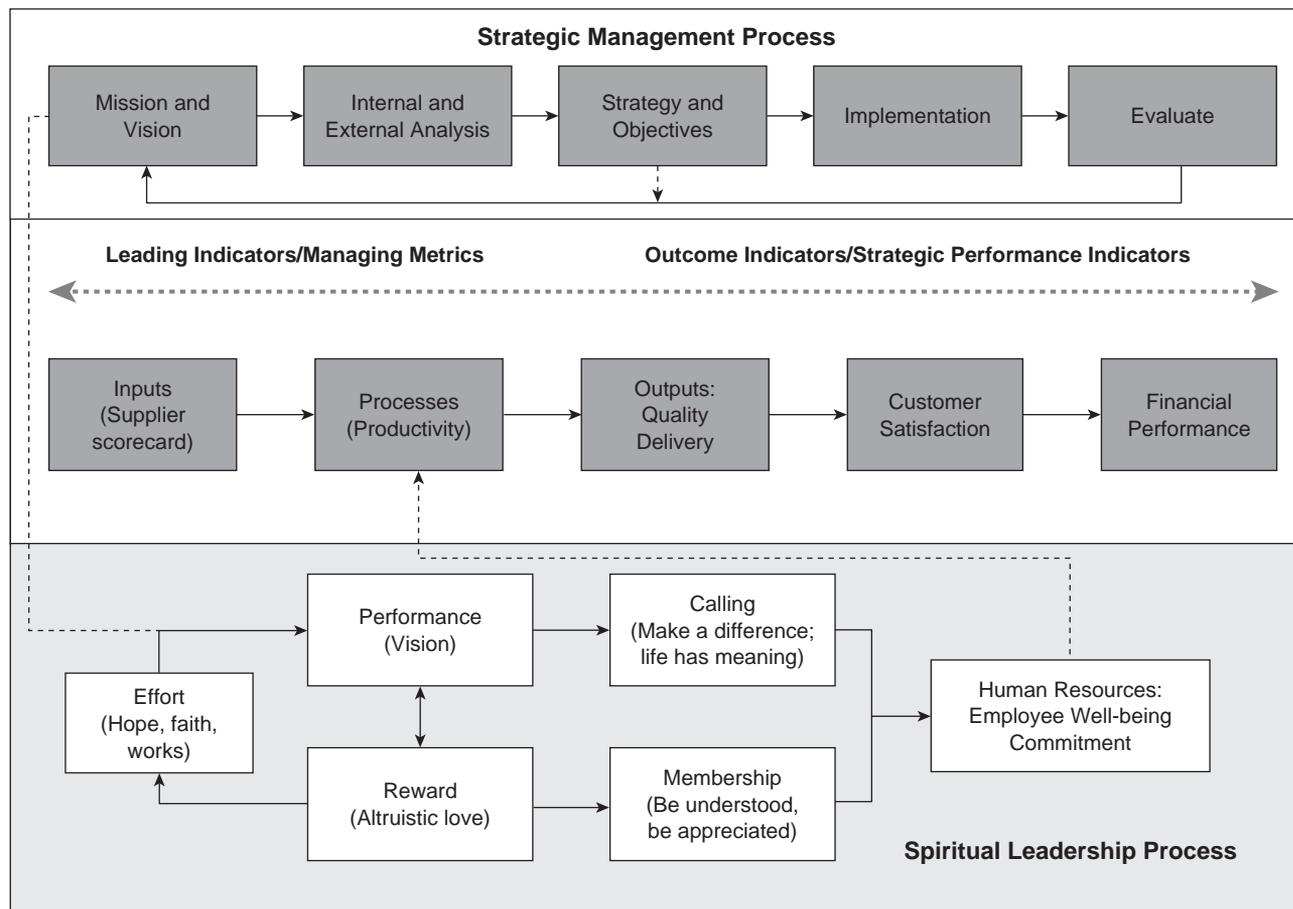


Figure 1 Strategic Model of Performance Excellence Through Spiritual Leadership

“faith blanket” in which such arguments are frequently cloaked. In fact, religious ideology has been virtually disregarded. The issues that have surfaced regarding workplace spirituality avoid any mention of a comparatively right or wrong ideology. Viewing workplace spirituality through the lens of religious traditions and practice can be divisive because, to the extent that a given religion views itself as the only path to God and salvation, it excludes those who do not share that particular denominational tradition. Thus, religion can lead to arrogance that a company, faith, or society is better, morally superior, or worthier than another. Translating religion of this nature into workplace spirituality can foster zealotry at the expense of organizational goals, offend constituents and customers, and decrease morale and employee well-being.

The Dalai Lama, among others, makes a distinction between spirituality and religion, noting that religion

is concerned with faith in the claims of one faith tradition or another and connected with systems of belief, ritual prayer, and formalized practices and ideas. Spirituality, on the other hand, is concerned with qualities of the human spirit, including positive psychological concepts such as love and compassion, patience, tolerance, forgiveness, contentment, personal responsibility, and a sense of harmony with one’s environment. Spirituality is found in the pursuit of a vision of service to others; through humility, or the capacity to regard oneself as an individual equal in value to other individuals; through charity, or altruistic love; and through veracity, which goes beyond basic truth telling to engage one’s capacity for seeing things exactly as they are, free of subjective distortions.

The common bridge between spirituality and religion is altruistic love—regard or devotion to the interests of others. In this respect, the basic spiritual

teachings of the world's great religions are remarkably similar. In religion, this is manifest in the Golden Rule, also called the *rule of reciprocity*—do unto others as you would have them do unto you—which is common to all major religions. From this perspective, spirituality is necessary for religion, but religion is not necessary for spirituality. Consequently, workplace spirituality can be inclusive or exclusive of religious theory and practice.

SPIRITUAL LEADERSHIP

Spiritual leadership is a causal theory based on an intrinsic motivation model that incorporates vision, hope, faith, and altruistic love; theories of workplace spirituality; and spiritual survival and well-being. Spiritual leadership, as a model for organizational development and transformation, can guide the evolution of positive organizations in which human well-being and organizational-level performance can not only coexist but also be optimized.

Spiritual leadership taps into the leader's and the follower's fundamental need for spiritual survival and well-being through calling and membership; creates vision and value congruence across the individual, empowered team, and organization levels; and ultimately fosters higher levels of organizational commitment and productivity. Operationally, the spiritual leadership process comprises the values, attitudes, and behaviors that are necessary to intrinsically motivate one's self and others and to have a sense of spiritual survival through calling and membership (see Figure 1). This entails two actions:

1. Creating a vision wherein leaders and followers experience a sense of calling in that their life has meaning and makes a difference
2. Establishing a social and organizational culture based on the values of altruistic love, whereby leaders and followers have a sense of membership, feel understood and appreciated, and have genuine care, concern, and appreciation for *both* self and others

Spiritual leadership theory explores the concept of positive human health and psychological well-being through recent developments in workplace spirituality, character ethics, positive psychology, and religion. These areas provide a consensus on the values, attitudes, and behaviors necessary for spiritual leadership and ethical and spiritual well-being.

Ethical well-being is defined as authentically living one's values, attitudes, and behavior from the inside out and creating a principled center that is congruent with the universal, consensus values inherent in spiritual leadership theory. Spiritual well-being incorporates transcendence of the self in pursuit of a vision, purpose, or mission in service to key stakeholders that satisfies one's need for calling and membership. Individuals who practice spiritual leadership at the personal level have more joy, peace, serenity, and overall life satisfaction. Not only is their psychological well-being greater, but also spiritual leaders have better physical health. Specifically, spiritual leaders have a high regard for themselves and others, quality relationships with others, a sense that life is meaningful, the ability to effectively manage their surrounding world, the capacity to follow inner convictions, and a sense of continuing personal growth and self-realization.

WORKPLACE SPIRITUALITY, SPIRITUAL LEADERSHIP, AND PERFORMANCE EXCELLENCE

The field of performance excellence has established the need to go beyond reporting financial metrics to include nonfinancial predictors of financial performance such as customer satisfaction and organizational outputs such as quality and delivery, process or internal operating measures, and employee commitment and growth (see Figure 1). Moreover, key performance indicators reported in these areas are derived from the firm's strategic plan and have quantifiable performance objectives. Of these performance categories, employee commitment is the central and leading indicator of the other performance categories; in other words, a high degree of workplace spirituality and spiritual leadership, as a driver of organizational commitment and productivity, is essential to optimizing organizational performance.

In Figure 1, the strategic management process begins with the development of a vision and mission, followed by an internal and external analysis, which results in strategic action plans and objectives. These objectives provide the basis for strategy implementation and determine key performance indicators and outcomes. Furthermore, performance indicators may be either leading or lagging measures. For example, a firm's outputs, which include quality (service or product) and on-time delivery, are leading indicators of customer satisfaction, which, in turn, affect financial

performance. Internal processes in an organization, such as best practices, determine whether the outputs are excellent. Internal processes are affected by inputs (e.g., late delivery from a supplier can result in a late delivery to the customer), as well as employee well-being and commitment.

SUMMARY

Developments in strategic scorecards, performance measurement, and quality (e.g., Baldrige Award criteria and strategy maps) point to the pivotal role that employee well-being and performance play in predicting other key strategic performance indicators. The strategic model of performance excellence through spiritual leadership, depicted in Figure 1, provides a process for influencing customer satisfaction and financial performance by fostering the motivation and leadership required to drive both human well-being and excellent operational performance.

Workplace spirituality and spiritual leadership research is in the initial concept and elaboration stage of development. A 2003 special issue of *Leadership Quarterly* revealed that research in this area has used novel methods to develop and test new theory. Three themes emerged: What is required for workplace spirituality is an *inner life* that nourishes and is nourished by *calling or transcendence of self* within the context of a *community* that is based on the values of altruistic love. Satisfying these spiritual needs in the workplace positively influences human health and psychological well-being and forms the foundation of the spiritual leadership paradigm. By tapping into these basic and essential needs, spiritual leaders produce the follower trust, intrinsic motivation, and commitment that is necessary to optimize organizational performance and human well-being. This is the fundamental proposition that should be tested in future research—that spiritual leadership is necessary for the transformation and continued success of learning organizations—and the organizational paradigm that is necessary for performance excellence in the 21st century.

—Louis W. Fry

See also Leadership and Supervision; Leadership Development

FURTHER READING

Baldrige National Quality Program. (2004). *Criteria for performance excellence*. Washington, DC: U.S.

Department of Commerce, National Institute of Standards and Technology.

Fry, L. W. (2003). Toward a theory of spiritual leadership. *Leadership Quarterly*, 14, 693–727.

Fry, L. W. (Ed.). (2005a). Toward a paradigm of spiritual leadership [Special issue]. *Leadership Quarterly*, 16(5).

Fry, L. W. (2005b). Toward a theory of ethical and spiritual well-being and corporate social responsibility through spiritual leadership. In R. A. Giacalone & C. L. Jurkiewicz (Eds.), *Positive psychology in business ethics and corporate responsibility*. Greenwich, CT: Information Age.

Giacalone, R. A., Jurkiewicz, C. L., & Fry, L. W. (2005). From advocacy to science: The next steps in workplace spirituality research. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of psychology and religion* (pp. 515–528). Thousand Oaks, CA: Sage.

STANDARDIZED TESTING

Since the early 20th century, the United States has been the foremost developer and consumer of testing technology in the world. Tests have been used widely by the U.S. military, government and civilian employers, and educational institutions to improve selection, placement, and promotion decisions. However, the pervasiveness of testing in American life, starting as early as age six, has called into question the purported benefits of testing, led to intense scrutiny of organizational decisions, and raised concerns about the general impact of testing on society. Although some of these criticisms are certainly justified, standardized tests, the most common targets of public rebuke, are among the best assessment devices available and, in our view, do not deserve the bad rap they have been given in the popular press.

The term *standardized tests* originally referred to tests using uniform administration procedures. Over time, the term has evolved to describe tests that measure constructs related to academic achievement and aptitude, that are administered to a very large number of examinees on a regular basis (usually in a group format), and that have a variety of normative information available for interpreting scores. Today, all modern standardized tests are (a) constructed, validated, and normed using large and diverse samples, (b) routinely updated to reflect changes in curricula and social context, (c) administered under uniform conditions to eliminate extraneous sources of variation in

scores, and (d) examined using advanced psychometric methods (e.g., item response theory) to detect and eliminate measurement and predictive bias. All of these features help make standardized tests reliable and valid assessments of the constructs they are intended to measure. The tests are continuously being improved and revised to incorporate advances in psychometric theory, substantive research, and testing technology.

Standardized tests can be roughly grouped into three general types: (a) educational achievement and aptitude tests, (b) military and civil service classification tests, and (c) licensure and certification exams. Each type of test has a different purpose, but the main psychometric features are similar. In the sections that follow, a brief overview of each test type is provided, followed by a discussion of the important issues regarding standardized test use and future development.

EDUCATIONAL ACHIEVEMENT AND APTITUDE TESTS

By far, large-scale educational assessments constitute the largest portion of standardized tests. These include instruments designed to measure student achievement in primary and secondary schools, as well as those developed to assess a student's academic aptitude to perform successfully at a university (both undergraduate and graduate levels). The most well-known primary and secondary school test batteries are the Iowa Test of Basic Skills, the Metropolitan Achievement Test, and the Comprehensive Test of Basic Skills. Each of these instruments aims to provide a thorough and integrative coverage of major academic skills and curricular areas and contains subtests covering different topics (i.e., reading, science) and grade ranges. The advantage of these batteries over earlier objective achievement tests is that their subtests have been normed on the same sample of students, which allows for relatively straightforward comparisons within and across individuals and groups. Collectively, these tests are referred to as *achievement tests*, emphasizing the retrospective purpose of the assessment. Their main goal is to gain information about a student's learning accomplishments and to identify deficiencies as early as possible.

College admission tests, on the other hand, are often called *aptitude tests* because their main purpose is to make predictions about future academic performance. The two most widely taken exams are the

Scholastic Aptitude Test (SAT) and the ACT assessment (American College Testing Program), which are used mainly for undergraduate university admissions. Tests for admission to graduate and professional programs include the Graduate Record Examination (GRE), the Graduate Management Aptitude Test (GMAT), the Law School Admission Test (LSAT), and the Medical College Admissions Test (MCAT).

The GRE, SAT, GMAT, and LSAT all measure basic verbal, mathematical, and analytical skills acquired over long periods of time; however, good performance on these tests does not depend heavily on recently acquired content knowledge. On the other hand, the ACT, MCAT, GRE subject tests, and the SAT II tests do require knowledge in specific content areas, and thus they are much more closely tied to educational curricula. Consequently, it has been argued that, despite their prospective use, tests such as the ACT are more appropriately referred to as *achievement* tests. Yet, as many researchers have noted, the distinction between aptitude and achievement is a fine and perhaps unnecessary one. So-called aptitude and achievement test scores tend to correlate about .9 because individuals high in general ability also tend to acquire content knowledge very quickly. On the whole, it is safe to say that all of these tests measure an examinee's current repertoire of knowledge and skills related to academic performance.

MILITARY AND CIVIL SERVICE CLASSIFICATION TESTS

Military classification tests are the earliest examples of standardized tests developed in the United States. As part of the World War I effort, a group of psychologists developed and implemented the Army Alpha and Army Beta exams, which were designed to efficiently screen and place a large number of draftees. High-quality multiple aptitude test batteries, such as the Army General Classification Test (AGCT), emerged during World War II and were instrumental in the area of aviation selection.

The most prominent successor of the AGCT, the Armed Services Vocational Aptitude Battery (ASVAB), is now widely used to select and classify recruits into hundreds of military occupational specialties. This is accomplished, in part, by using 10 subtests—covering general science, arithmetic reasoning, word knowledge, paragraph comprehension, numeric operations, coding speed, auto and shop

information, mathematics knowledge, mechanical comprehension, and electronics information—to measure an array of specific skills rather than a few broad dimensions. The primary difference between these general aptitude tests is that the ASVAB has a stronger mechanical-spatial emphasis and a unique speeded component that enhances its usefulness in predicting performance in technical and clerical jobs.

In the civilian sector, the General Aptitude Test Battery (GATB) was developed by the U.S. Department of Labor in 1947 for screening and referral of job candidates by the United States Employment Service. The GATB uses 12 subtests to measure three general abilities (verbal, numerical, spatial) and five specialized factors, which include clerical perception, motor coordination, and finger dexterity. Like the ASVAB, the inclusion of these subtests, in addition to measures of math, verbal, and general mental ability, makes the GATB predictive of performance in a diverse array of occupations, ranging from high-level, cognitively complex jobs to low-level, nontechnical positions.

LICENSURE AND CERTIFICATION EXAMS

Licensure and certification exams represent the third type of standardized tests. These tests are similar to achievement tests in that they assess examinees' knowledge and skills, but their main purpose is to determine whether examinees meet some minimal level of professional competency. Whereas achievement test scores are generally interpreted with respect to normative standards (e.g., a large representative group of examinees who took the test in 1995), licensure and certification exam scores are meaningful only in relation to a *cut score* that is tied directly to performance through a standard-setting procedure.

The most popular standard-setting procedure is the Angoff method (named for William H. Angoff), whereby subject-matter experts are asked to indicate the probability that a minimally competent professional would correctly answer each item. This information is combined across items and experts to determine the cut score used for licensure and certification decisions. The key is that scores are interpreted with respect to a defined set of skills that must be mastered. Consequently, in any given year, it is possible that all or no examinees will pass the test. In practice, however, passing rates are often similar from year to year because the average skill level of examinees and

educational curricula are slow to change and because test developers may make small adjustments to passing scores to correct for rater effects and to ensure a steady flow of professionals into the field.

Although many licensure and certification exams still contain a number of multiple-choice items similar in form to those on traditional educational tests, some recently revised exams, such as the Architect Registration Examination (ARE) and the American Institute of Certified Public Accountants Exam (the CPA exam), also include some innovative simulation-type items that are designed to mimic the actual tasks performed by professionals in the field. For example, items might require examinees to locate information in an Internet database, enter values and perform calculations using a spreadsheet, design a structure or mechanical system, or write a narrative report conveying a problem and proposed solution to a client. These types of items not only increase the realism and face validity of the tests but also enhance the measurement of integrative, critical-thinking skills, which are difficult to assess using traditional items.

CURRENT AND FUTURE ISSUES IN STANDARDIZED TESTING

For discussion purposes, standardized tests have been divided into three groups, but there are important issues that cut across domains. The greatest overall concern in standardized testing is fairness. Criticisms of standardized tests are fueled by differences in test scores across demographic groups. The popular belief is that these differences result from measurement bias (i.e., a psychometric problem with the instruments). However, most studies suggest that these differences do not result from bias but rather *impact*, a “true” difference in proficiency across demographic groups. For example, a recent study that examined the relative contributions of bias and impact to observed score differences on the ACT English subtest found that test bias (i.e., differential test functioning) was associated with only .10 of the observed total 12.6 raw score point difference across groups of Black and White examinees. Thus, impact, not bias, poses the biggest problem for college admissions decisions. To the extent that these findings are generalizable, it seems that fairness concerns are best addressed by devoting more attention to the motivational and educational factors influencing test performance rather than searching for a fundamental flaw in the assessment devices.

An issue that is closely connected with bias and fairness is test validity. Many critics have argued that standardized tests do not predict academic or on-the-job performance, and so other types of assessments should be used. However, predictive efficacy is complicated by measurement artifacts (e.g., range restriction and unreliability) that limit the size of the correlations between standardized test scores and performance criteria. Meta-analytic studies, which attempt to correct for these artifacts, have demonstrated that standardized tests are valid predictors of a wide array of outcomes. Four-year grade point averages and work samples do provide comparable validities, but they involve observation over a much longer period of time and, more importantly, make normative comparisons difficult when examinees come from very different backgrounds. On the other hand, tests such as the GRE and SAT make it possible to assess thousands of examinees in a single testing session and provide a common yardstick for comparing examinees from urban schools and community colleges to the most prestigious and selective institutions.

Another issue in standardized testing that has received considerable attention among researchers and test developers is the desire to make exams more accessible to test takers while maintaining a reasonable level of test security. Historically, most standardized tests were offered only a few times per year in a proctored group session format. Security was handled by coordinating testing sessions nationally, using at least one new form per administration, and limiting the public disclosure of items and answers. If, for some reason, a test taker missed or knew in advance that he or she would not be able to attend a testing session, he or she typically had to wait several months for the next opportunity. Needless to say, examinees viewed such timing constraints unfavorably.

Fortunately, advancements in computer technology and psychometric theory now offer many solutions to this problem. Perhaps the most promising development is the widespread availability of computerized adaptive tests (CAT), which allow each examinee to receive a unique sequence of items chosen from a large item pool; items are selected individually or in groups, in real time, to provide near-maximum information about an examinee's estimated proficiency level. Because the number of items in the testing pool is usually very large (sometimes in the thousands) and item-selection algorithms incorporate stochastic features that provide exposure control, it is unlikely that

an examinee would encounter overlapping items upon retesting. Hence, unless there is a substantial coordinated effort among test takers to expose the pool, test security can be maintained reasonably well while offering exams on a more frequent, flexible basis than was possible with paper-and-pencil formats. A related benefit is that scores can be given to examinees immediately upon test completion. Examples of standardized tests that now use some variation of CAT technology are the GRE, ASVAB, and CPA exams.

The last concern in standardized testing is the emerging desire to broaden the scope of aptitudes and skills measured by standardized tests. This effort is being driven largely by organizations that use test score information to make important personnel or admissions decisions. The use of innovative simulation-type items, such as those in the ARE and CPA exams, seems to allow for the assessment of skills that are difficult, if not impossible, to measure using traditional multiple-choice items.

In addition, some testing programs (e.g., military) are seeking to augment cognitive test batteries with subtests measuring noncognitive variables, such as personality and vocational interests, in order to improve not only the prediction of performance but also outcomes such as retention, organizational loyalty, and group cohesion. Of course, making these variables a fundamental part of the decision-making process is not easy because noncognitive assessments are notoriously susceptible to several forms of response distortion (e.g., faking). However, given the number and quality of studies currently being conducted to address this issue, the day when noncognitive subtests become a key component of standardized test batteries may not be far away.

CONCLUSION

Standardized tests play an important role in American society. The information provided by these tests facilitates the diagnosis, screening, and classification of large numbers of examinees from diverse backgrounds. Standardized tests were created with the aims of test precision, efficiency, and predictive efficacy in mind, and many researchers and practitioners argue these ideals are embodied and represented well, particularly in comparison to other types of psychological assessments. Although this entry has focused on standardized testing in the United States, other countries will certainly experience similar issues as

global competition demands more efficient screening and placement of individuals in emerging economies.

—Stephen Stark and Oleksandr S. Chernyshenko

See also Prescreening Assessment Methods for Personnel Selection

FURTHER READING

- Drasgow, F. (2002). The work ahead: A psychometric infrastructure for computerized adaptive tests. In C. N. Mills, M. T. Potenza, J. J. Fremer, & W. C. Ward (Eds.), *Computer-based testing: Building the foundation for future assessments* (pp. 1–35). Hillsdale, NJ: Lawrence Erlbaum.
- Kuncel, N. R., Hezlett, S. A., & Ones, D. S. (2001). A comprehensive meta-analysis of the predictive validity of Graduate Record Examinations: Implications for graduate student selection and performance. *Psychological Bulletin*, *127*, 162–181.
- Murphy, K. R., & Davidshofer, C. O. (2005). *Psychological testing: Principles and applications* (6th ed.). Upper Saddle River, NJ: Prentice Hall.
- Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin*, *124*, 262–274.
- Stark, S., Chernyshenko, O. S., & Drasgow, F. (2004). Examining the effects of differential item/test functioning (DIF/DTF) on selection decisions: When are statistically significant effects practically important? *Journal of Applied Psychology*, *89*, 497–508.
- Thorndike, R. M. (2005). *Measurement and evaluation in psychology and education* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

STATISTICAL POWER

Statistical power (SP) refers to the probability of rejecting a null hypothesis (a hypothesis of no difference) when it is actually false. When an organizational researcher retains (fails to reject) a false null hypothesis, he or she is likely to conclude, for example, that the organizational intervention did not positively affect productivity or that a selection test does not validly predict future job performance. Because an erroneous decision can have important practical implications, researchers would like to have adequate SP in order to be able to reject the null hypothesis when it is false. The amount of SP present when testing, say, the difference between two means or the relationship of two sets of values, is influenced by three

factors: (a) the alpha level (α , or probability value) adopted for the statistical test, (b) the size of the sample used to obtain the means or correlation, and (3) the effect size (ES; or the magnitude of the difference or relationship). Before discussing these factors, a few words must be said about Type I and Type II errors in hypothesis testing.

TYPE I AND TYPE II ERRORS

Figure 1 shows the interplay of accepting or rejecting a null hypothesis when it is actually true or false. A Type I error occurs when a null hypothesis (e.g., two variables that are *not* related or two subgroups that are *not* different) is rejected as being true, but it is actually true. A Type II error occurs when a null hypothesis is retained as being true, but it is actually not true. The probability of Type I error is denoted by alpha (α), and the probability of Type II error is denoted by beta (β). Statistical power—the probability of rejecting the null hypothesis when it is false—is equal to 1 minus the probability of a Type II error ($1 - \beta$).

In a statistical analysis, the likelihood that a Type I versus a Type II error will occur can be manipulated by adjusting the probability, or α level, for the statistical test. The most typical α value is .05. When $\alpha = .05$, the rate of committing a Type I error is five times per 100 independent samples that might be compared. If a smaller value for α (e.g., .01) is chosen, the likelihood of committing a Type I error decreases, but the likelihood of a Type II error increases. Similarly, by increasing α (to a value greater than .05), we decrease the probability of a Type II error.

FACTORS AFFECTING STATISTICAL POWER

As noted previously, α , sample size, and ES play important roles in determining SP. According to Figure 1, SP is the converse of the probability of Type II error ($SP = 1 - \beta$). One way to decrease the likelihood of a Type II error is to increase α . Although there is nothing sacred about the commonly used α levels, one should be careful about increasing the α levels excessively. There are very few organizational interventions in which the treatment effect is truly zero; many treatments may have small effects but rarely zero effects. According to null hypothesis testing, Type I errors can only occur when the treatment effect is zero. Therefore, raising the α level without a good rationale is not recommended because the higher the

		Null hypothesis is false	Null hypothesis is true
Decision	Reject null hypothesis	Correct decision ($p = 1 - \beta$)	Type I error ($p = \alpha$)
	Accept null hypothesis	Type II error ($p = \beta$)	Correct decision ($p = 1 - \alpha$)

Figure 1 Type I and Type II Errors in Hypothesis Testing

α , the less rigorous the test of an effect, and the greater the chance of making a Type 1 error.

All else being equal, the bigger the sample size, the greater the SP. Therefore, one should obtain as big a sample as possible within prevailing practical constraints to ensure detection of a significant effect. Typically, obtaining a bigger sample is more time-consuming and costly. If the population correlation is .10, one would need a sample of 1,000 cases to have enough SP (say, $SP = .80$, which is generally considered acceptable) to detect it with $\alpha = .01$, or a sample of more than 600 cases with $\alpha = .05$.

Effect size is a way of quantifying the effectiveness of an organizational intervention. The bigger the ES, the greater the SP for detecting a significant organizational intervention effect for a given sample size and α level. A commonly used ES is the standardized mean difference, d , which can be calculated by dividing the mean difference (between the intervention and comparison groups) by the pooled standard deviation. Another commonly used ES is the correlation coefficient, r , which can be converted to d . According to the prevailing convention, d s of .20, .50, and .80 are considered to be small, medium, and large ESs, respectively. Similarly, r s of .10, .30, and .50 are considered to be small, medium, and large ESs, respectively.

There are statistical formulas for estimating the sample size, α , SP, or ES when the other three factors are known. (There are also tables for estimating required sample sizes for given values of α , SP, and ES.) For example, prior to implementing a new organizational intervention or a new selection test, a researcher may want to know what size sample would be needed to detect a given level of significant difference.

To use this formula, the researcher might conclude that $\alpha = .05$ and $SP = .80$ would be adequate. An assumption that the intervention should result in a smaller ES requires a larger sample for the given set of SP and α values. Conversely, an assumption that the intervention will result in a larger ES requires a smaller sample size. Often, the temptation is to assume a large ES and thus a smaller sample size estimate. If the assumed ES is smaller than expected, the researcher may not be able to detect a significant difference when it actually exists. Information from previous investigations or meta-analyses is helpful when estimating the ES for a given condition.

We have reviewed the major factors affecting SP and its role in designing a study. Additional information about SP and its estimation can be found in the citations given in Further Reading.

—Nambury S. Raju, John C. Scott, and Jack E. Edwards

FURTHER READING

- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Cohen, J. (1994). The earth is round ($p < .05$). *American Psychologist*, 49, 997–1003.
- Kraemer, H. C., & Thiemann, S. (1987). *How many subjects?* Newbury Park, CA: Sage.
- Murphy, K. R. (1990). If the null hypothesis is impossible, why test it? *American Psychologist*, 45, 403–404.
- Murphy, K. R., & Myors, B. (1998). *Statistical power analysis: A simple and general model for traditional and modern hypothesis tests*. Mahwah, NJ: Lawrence Erlbaum.

STEREOTYPE THREAT

The concept of *stereotype threat* was originally proposed by Claude M. Steele and Joshua A. Aronson in 1995. It is the risk that an individual will confirm a widely known, negative stereotype about his or her group when placed in a situation in which that stereotype is made salient. Concern about making an unfavorable stereotype believable to others outside one's group or to oneself can cause individuals to exhibit decreased performance in these situations.

Stereotype threat was initially offered as an explanation for the performance gap between African Americans and European Americans on tests of cognitive abilities such as the SAT (Scholastic Aptitude Test), GRE (Graduate Record Examination), and LSAT (Law School Admission Test). The difference in mean score of European Americans on tests of cognitive abilities has been reported to be as much as one standard deviation higher than that of African Americans. The size of this difference varies based on sample type, test type, subtest type, education level, employment status, and the complexity of the job being assessed.

Steele and Aronson reasoned that when an African American enters a standardized testing environment, he or she is faced with the threat that his or her behavior will serve as evidence for the validity of stereotypes concerning the intellectual abilities of African Americans. This fear causes the individual to redirect attentional resources from performing well on the test toward disconfirming negative stereotypes about the mental capabilities of African Americans, thereby lowering his or her score. Understanding this theory is important for individuals in educational and employment settings who administer and interpret tests of cognitive abilities because the significance of the decisions based on these tests is great.

Steele and Aronson established several boundary conditions that must be met in order for a person to experience stereotype threat. First, the task being performed must be one to which a specific negative stereotype is attached (e.g., lower performance on tests of cognitive abilities for African Americans in comparison to European Americans). The individual need not internalize the negative generalization, but he or she must be aware that a stereotype exists about his or her group for that particular situation. The domain being measured also must be important to the self-image of the person being evaluated. Finally, the

individual must identify himself or herself as a member of the stigmatized group. According to stereotype threat theory, when these three conditions are satisfied, the performance of the individual is deflated.

EMPIRICAL EVIDENCE

Steele and Aronson's first study provided preliminary support for the existence of stereotype threat. These researchers examined the performance of high-achieving African American and European American college students on a test comprising difficult items from the verbal portion of the Graduate Record Examination. Two separate conditions were created to manipulate the situational aspects of the test. Participants in the stereotype threat condition were told that the test was intended to diagnose their intellectual ability, thus evoking the racial stereotype of African American intellectual inferiority in the minds of the African American students and generating fear of endorsing the stereotype. The non-stereotype-threat participants were not told that the test was an indicator of verbal ability—instead, they were instructed that they were completing a problem-solving task created by the researcher.

The results showed that African American participants in the diagnostic condition performed significantly worse than the African Americans in the nondiagnostic condition and worse than the European Americans in both conditions. Although the performance of African Americans in the nondiagnostic condition was not equal to that of the European American participants, the performance gap between the two groups was larger in the stereotype threat condition than in this condition. These findings support the notion that the incidence of stereotype threat leads to a performance decrement in the minority group, and reducing the relevance or salience of the stereotype in question will lessen the effects of stereotype threat.

Other studies have shown that any group about which negative stereotypes exist may experience stereotype threat, including women and older Americans.

STEREOTYPE THREAT AND EMPLOYMENT SETTINGS

Although tests that measure intelligence have been shown to be valid predictors of job performance for most occupations, psychologists are concerned that their use may create adverse impact for protected

groups. Stereotype threat has been examined as one method of understanding and alleviating the differences in performance between African Americans and European Americans on personnel selection tests. Several empirical studies have investigated the generalization of stereotype threat to tests administered in the applied setting. Researchers in these studies failed to find the typical stereotype threat effect of lower performance for African Americans in the control condition.

UNDERLYING MECHANISMS

Although researchers have provided support for the existence of stereotype threat across a range of groups and settings, we still do not have a clear understanding of how stereotype threat negatively affects performance processes such as anxiety, stereotype endorsement, and self-handicapping. Some of these processes have been tested, but none has been identified as the means by which stereotype threat affects test performance.

—Lela Strong

See also Race Norming; Stereotyping

FURTHER READING

- Mayer, D. M., & Hanges, P. J. (2003). Understanding the stereotype threat effect with “culture-free” tests: An examination of its mediators and measurement. *Human Performance, 16*(3), 207–230.
- Sackett, P., Henderson, C., & Cullen, M. (2004). On interpreting stereotype threat as accounting for African American–White differences on cognitive tests. *American Psychologist, 59*(1), 7–13.
- Steele, C., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology, 69*(5), 797–811.
- Steele, C., & Aronson, J. (2004). Stereotype threat does not live by Steele and Aronson (1995) alone. *American Psychologist, 59*(1), 47–48.

STEREOTYPING

In a social or organizational context, *prejudice* refers to an attitude, usually negative, toward a person or a group of people because of their group membership. When this attitude is expressed behaviorally, the result

is discrimination. At the core of prejudice are stereotypes and stereotype-based assumptions.

THE STEREOTYPING PROCESS

Although researchers have debated the precise definition of a *stereotype*, the term generally refers to a set of beliefs about the characteristics, attributes, and behaviors of members of a certain group. Stereotypes about groups of people are a by-product of categorization processes. Just as we categorize cars and foods, we also categorize people. Once categorized, generalizations about what we believe to be the defining features of a category (e.g., cars have four wheels) are assumed to characterize individual category members. When applied to individuals, generalizations based on categorization are called *social stereotypes*. Though people can be categorized along innumerable dimensions, distinctions are commonly made based on highly visible characteristics such as sex, ethnicity, and age.

Research evidence suggests that stereotyping serves multiple functions. First, social stereotypes can be cognitively useful. Because human processing is limited, categorizing people into groups and extrapolating about them on that basis can be functional by allowing us to simplify complex situations. Furthermore, because stereotypes create expectations, they allow us to make inferences about people’s characteristics that are more remote and abstract and serve a preparatory function. Second, stereotypes can serve a variety of social motivations, including self-enhancement needs. For example, social identity theory argues that humans have a need to belong to an in-group with a positive identity, and negatively stereotyping members of other groups may help bolster that positive identity.

The categorization of individuals and the social stereotypes that categorization produces serve multiple functions. Irrespective of its purpose, however, one of the most remarkable features of categorization is how rapid and automatic a process it can be. Another remarkable feature is how powerful and tenacious the resulting stereotypes can be. Once an individual is categorized and stereotypes are in play, we tend to process information about that individual based on generalized knowledge and expectations about the group he or she is a part of, not based on his or her unique individuality. Consequently, social stereotypes, which are inherently overgeneralizations,

can become the basis of faulty reasoning and, ultimately, result in prejudice.

IMPACT ON INFORMATION PROCESSING

Several processes that result from stereotypes can lead to biased judgments and decisions. These same processes also serve to maintain and perpetuate social stereotypes by insulating them from potentially disconfirming information.

Perception

Stereotypes can influence the extent to which information is attended to. For example, individuals have a tendency to recognize stereotype-consistent information and process it faster than stereotype-inconsistent information, which sometimes is ignored altogether. Additionally, stereotypes promote a confirmation bias. If an individual is trying to understand why a particular outcome occurred, once that individual finds information that is consistent with his or her stereotype-based expectation, the information search is halted.

Causal Attribution

When stereotype-inconsistent information is not ignored, it is often causally attributed in a manner that is consistent with the stereotype. For example, research has documented that although stereotype-consistent information is often attributed to stable dispositional attributes, stereotype-inconsistent information is often attributed to temporary elements of the situation. Therefore, the inconsistent information is written off as a fluke.

Interpretation

Stereotypes influence the manner in which individual actions are interpreted. For example, the same behavior performed by people from differing social groups may be interpreted through a different lens. For example, the same work demeanor may be seen as “relaxed” when an employee is White but as “lazy” when an employee is Black. This suggests that potentially individuating information, which is often contrary to the stereotype, is assimilated into it and consequently disregarded.

Memory

Stereotypes have been shown to influence what people remember about a particular individual. Typically, memory is biased in the direction of expected stereotype-consistent attributes—what fits the stereotype is remembered more completely and more accurately than what does not fit the stereotype. There is also documentation of a tendency to “remember” stereotype-consistent events and behaviors even when they did not actually happen.

ORGANIZATIONAL FACTORS THAT MODERATE STEREOTYPE USE

The impact of stereotypes, although powerful, is not inevitable or invariable. Many organizational factors can promote or inhibit the activation or use of stereotypes in the evaluation process.

Contextual Salience

Only when it is salient does a feature of an individual become the basis of categorization. Though certain highly visible features such as sex or race are often the basis of categorization, contextual elements such as uniqueness or scarcity can highlight their visibility. Thus, a woman’s sex is more likely to stand out when she is in the company of nine men than when she is with five men and four other women. More balanced proportional representations reduce stereotype use in evaluations.

Ambiguity in Performance Outcome

Stereotypes prevail in ambiguous circumstances. To the extent that a performance outcome is ambiguous in its implications and inference is required to interpret it, stereotypes will play a greater role in its evaluation. When information about performance is definitive, the output is objectively measurable, or there is broad consensus about its quality, the impact of stereotypes will be attenuated and the distortion they create avoided.

Ambiguity in Evaluation Methods

Ambiguity in the decision-making process can prompt the use of stereotypes. In the absence of explicit criteria to attend to, evaluators often selectively attend to different aspects of information, such

that the information processed is congruent with stereotyped expectations. Structured decision making can preclude the use of stereotypes by forcing the consideration of multiple sources of information about an individual, requiring attention to explicit criteria, and ensuring that the same attributes are assessed and weighted equally for everyone.

Ambiguity About the Source of Performance

Stereotypes are likely to predominate when it is unclear who is responsible for a performance outcome—for example, when an individual is working in a group, with a partner, or under the tutelage of a mentor. In such situations, the stereotyped individual is apt to be seen as making less of a contribution to a successful outcome than others, a situation that can be avoided if work situations are structured so that individual inputs are clear and indisputable.

Motivation of the Perceiver

The motivation of the perceiver is a critical determinant of whether stereotypes are used. The more motivated an individual is to be accurate in his or her impression formation, the less likely he or she is to rely on stereotypes. Instances that are likely to be motivating are those in which the perceiver has a personal stake in the outcome of a decision, such as having to work with the person selected, or those in which the perceiver is accountable for his or her decisions and must justify them to a third party.

SUMMARY

Social stereotypes are the result of the human tendency to categorize people, places, and things. They create a powerful tendency to distort information to conform to stereotype-based expectations, and they are highly resistant to change. Despite the force of stereotypes, their effects are not inevitable; organizational conditions can both facilitate and hinder their use and the prejudice they promote.

—*Madeline E. Heilman and Michelle C. Haynes*

See also Adverse Impact/Disparate Treatment/Discrimination at Work; Affirmative Action; Civil Rights Act of 1964; Civil Rights Act of 1991; Diversity Training; Sexual Discrimination

FURTHER READING

- Fiske, S. T. (1998). Stereotyping, prejudice, and discrimination. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 2, pp. 357–411). New York: McGraw-Hill.
- Fiske, S. T. (2004). Intent and ordinary bias: Unintended thought and social motivation create casual prejudice. *Social Justice Research, 17*(2), 117–127.
- Heilman, M. E. (2001). Description and prescription: How gender stereotypes prevent women's ascent up the organizational ladder. *Journal of Social Issues, 57*(4), 657–674.
- Hilton, J. L., & von Hippel, W. (1996). Stereotypes. *Annual Review of Psychology, 47*, 237–271.

STRATEGIC HUMAN RESOURCES

See HUMAN RESOURCES STRATEGY

STRATEGIC PLANNING

Strategic planning is a process by which organizations put business plans into action in the marketplace. This process differs from the annual planning process in which most organizations engage in that it is typically geared toward a longer-term planning horizon. Most organizations today consider the duration of a strategic plan to be anywhere from three to five years. However, in rapidly changing industries, strategic planning timelines may be shorter.

The purpose of developing a strategic plan is to determine the long-term direction of the organization and to set it up to succeed in its endeavors. In the business world, this often means identifying “white space” in the marketplace—that is, areas in which there are few or no competitors—and identifying areas of competitive advantage for the organization. When it is crafted properly, a strategic plan can be used as a framework for decision making, provide a basis for more detailed planning, explain the purpose and goals of the business to others, engage and motivate others, and facilitate benchmarking.

In broad terms, the development of a strategic plan is typically based on a rigorous analysis of the competitive landscape in which the organization operates or wants to enter. This analysis examines competitors and competitor activity, identifies existing and emerging

consumer trends, identifies market opportunities, and forecasts the growth potential of entering a particular area of the market.

Although there are many ways to approach the strategic planning process, these can all be broken down into three basic steps: (1) an analysis of the current state and resources, (2) an explication of the desired future state, and (3) a description of the steps needed to reach the future state.

STEP 1: ANALYSIS OF THE CURRENT STATE

The analysis of the current state and resources consists of conducting an internal and external environmental scan to assess the organization's goals, resources, and competitors. Many organizations conduct what is known as a *SWOT analysis* during this phase. A SWOT analysis is a form of competitor analysis that is characterized by an in-depth look at the organization's strengths, weaknesses, opportunities, and threats for the purpose of understanding how it fares against competitors in a particular industry, market space, or even market segment.

According to Michael Porter, a renowned strategist and Harvard professor, a sophisticated competitor analysis is essential to a well-conceived strategy because, without it, faulty and dangerous assumptions about competitors can creep into management thinking. For example, senior leadership may make invalid assumptions about a competitor's plans or activities based on prior knowledge and experience that may no longer be relevant. In addition, Porter recommends conducting an industry analysis. This entails examining five essential factors: rivalry, supplier power, buyer power, threat of substitutes, and barriers to entry. Both types of analyses help to ensure that an organization's strategic plan is based on a thorough understanding of its external environment, its competitors, and its own resources.

STEP 2: DEFINITION OF THE FUTURE STATE

In this step, most organizations construct a vision and a mission statement that describe what the future of the organization should look like. This phase often follows the environmental scan. The development of these statements, which are really guiding principles, is done by a small group—usually the company's senior management team. The purpose of the vision statement is to identify the ideal future toward which

the organization will move as a result of the implementation of its strategic plan. The mission statement typically indicates the purpose of the organization—the reason it exists. Mission statements generally contain a mixture of components that describe the company's essence, either now or aspirationally in the future. For example, the business's purpose, its key products and services, customers, markets, competitive advantage, philosophical underpinnings, and key organizational values are all likely to be found in a mission statement. In combination, these documents help to keep the organization on course as it implements its strategy. The idea is that the strategy should always support and guide the organization toward the achievement of its vision and mission.

Once the vision and mission are in place, detailed strategy formulation can begin. This entails using data gathered from the environmental scan and competitive and industry analyses to form a plan of attack for key products or markets.

STEP 3: IMPLEMENTATION OF THE STRATEGIC PLAN

The final step is focused on the activation and evaluation of the strategic plan. As a rule, in large organizations, those who are involved in crafting the plan are not the people who implement it. Therefore, it is essential that the plan is communicated in sufficient detail to ensure that it is carried out correctly. Moreover, careful monitoring and evaluation of progress is essential to the long-term viability of the strategy. As business conditions and competitor actions shift, the plan must be modified. For these reasons, many organizations dedicate a great deal of time, energy, and resources to the strategic planning process.

—Janine Waclawski

FURTHER READING

Porter, M. E. (1980). *Competitive strategy: Techniques for analyzing industries and competitors*. New York: Macmillan.

STRESS, CONSEQUENCES

Work-related stress can negatively affect individual employees as well as entire organizations. Many

organizations are negatively affected by the economic costs associated with stress-related workers' compensation claims, employee absenteeism, and turnover. In 2001, for example, the U.S. Bureau of Labor Statistics documented 5,659 cases of anxiety, stress, and neurotic disorder involving days away from work. Rates declined 25% between 1992 and 2001, from 0.8 per 10,000 full-time workers in 1992 to 0.6 in 2001. In 2001, most cases involved workers who were ages 25 to 54 (78.3%), female, and White non-Hispanic (64.8%). Two occupational groups accounted for more than 63% of all anxiety, stress, and neurotic disorder cases in 2001: technical, sales, and administrative support (39.9%) and managerial and professional specialty occupations (23.6%).

OCCUPATIONAL STRESSORS

A wide variety of work-related environmental conditions and occupational stressors affect the well-being of employees. These work-related factors trigger a stress response characterized by the activation of the body's physiological systems that prepare it for fight or flight. Some occupational stressors may be intrinsic to the job, such as excessive workload and work pace, abnormally long work hours, shiftwork, or harmful environmental and ergonomic conditions.

Role stressors refer to the lack of clarity or ambiguity in the way that job expectations are communicated to employees and the necessity of dealing with many, often conflicting, job responsibilities. Job insecurity resulting from downsizing, layoffs, and reengineering is a common stressor. Interpersonal stressors include workplace violence, sexual harassment, discrimination, mobbing, and other forms of workplace incivility. Many employees experience conflict between work and family. Work-family conflict exists when the role pressures of the work and family domains are mutually incompatible. Prolonged exposure to these occupational stressors has been linked to harmful physiological, psychological, and behavioral outcomes.

PHYSIOLOGICAL CONSEQUENCES

Physiological stress response affects the musculoskeletal system, the autonomic nervous system, and the hormone secretion and immune systems. Excessive work-related stress has been linked to negative changes in cardiovascular, hormonal, and

immune system functioning. Stress affects the biochemical processes in the body by triggering hormone secretion. For example, an increase in levels of the hormone cortisol has been associated with chronic occupational stress. Employees in stressful occupations experience higher blood pressure than employees in other types of jobs. Stress also tends to exacerbate the metabolic and hemostatic risk factors, such as increased serum cholesterol levels, associated with coronary heart disease. High levels of stress are detrimental to individuals' immune functioning through changes in the number of white blood cells and antibodies in the blood. Individuals under stress report more muscle tension, accelerated muscle fatigue, and discomfort that is associated with these symptoms. As a consequence, employees exposed to work-related stress are at risk of developing musculoskeletal disorders of the back and upper extremities.

PSYCHOLOGICAL AND EMOTIONAL CONSEQUENCES

Job dissatisfaction or a negative emotional state associated with one's job situation is a common psychological reaction to adverse job conditions. Job dissatisfaction is consistently and positively correlated with work stress. Negative changes in other job attitudes are also associated with work-related stressors. For example, employees who experience chronic occupational stressors are less committed to the organization and more likely to think about quitting. Stressors are also associated with a variety of mood disturbances such as depression, psychosomatic complaints, disturbed sleep, and anxiety. Burnout, a common response to prolonged stress, is characterized by emotional exhaustion, depersonalization or job alienation, and reduced feelings of personal accomplishment. Burnout is also associated with such dysphoric symptoms as fatigue, loss of self-esteem, and depression. Job stress may also lead to increased feelings of hostility, irritability, and negativity.

Statistics on occupational illness and injury indicate a link with organizational stressors. Stressful work conditions are believed to interfere with workplace safety and lead to workplace injury. Stress has a negative influence on the predominate antecedent of safety behavior, the safety climate of the organization. Under stressful conditions, the perceived importance of safety decreases. As a consequence, occupational injuries become more frequent.

BEHAVIORAL CONSEQUENCES

In laboratory settings, reduced performance is often observed in stressful situations. In many field studies, the relationship between stressors and performance found mixed support. Some stressors, such as situational constraints, may impede work performance. Stressors may also indirectly affect performance by decreasing motivation, impairing cognitive functioning, and increasing fatigue. However, overall job performance does not always suffer. A stronger relationship has been found between stressors and contextual performance, a type of performance that is not formally required of employees. This pattern indicates that in stressful situations, employees assign a higher priority to formally required tasks and are more likely to neglect discretionary behaviors.

Moreover, to elevate the tension that is caused by stressful work conditions, employees sometimes engage in counterproductive coping behaviors such as cigarette smoking or alcohol and drug abuse. These behaviors exacerbate the harmful effects of stress. Stressors are also associated with counterproductive behaviors such as sabotage, interpersonal aggression, and hostility. Stressful work conditions lead to costly organizational outcomes such as turnover intentions and actual turnover.

FACTORS INFLUENCING STRESS REACTIONS

Several individual and organizational factors are known to influence the strength and severity of stress reactions. Personality and dispositional characteristics such as negative affectivity and type A personality have been found to exacerbate the detrimental effects of stressors. Individuals who are predisposed to negative emotionality and self-concept and those who are generally hostile and impatient tend to report stronger reactions to occupational stressors.

Conversely, some individual factors are associated with less severe stress response. Individuals who believe that they control important aspects of their lives have an internal locus of control. These individuals experience fewer negative stress reactions compared with those who have an external locus of control. Self-esteem or favorable self-appraisal has been found to moderate the relationship between role stressors and health outcomes, such that individuals who have high self-esteem are less vulnerable to stress. The individual characteristic of hardiness is a

combination of commitment, control, and readiness to respond to challenges. People who are high on hardiness appear to report fewer negative effects of workplace stressors.

Some studies suggest that organizational factors, such as work control or the extent to which employees have the potential to influence their tasks and work environments, may have a buffering effect on stress reactions, such that employees who exercise considerable work control experience less strain in response to stressors than do those who are in high-stress, low-control jobs. This relationship appears to be influenced by individual differences. For example, self-efficacy, or one's level of self-confidence in carrying out the appropriate strategy in a given job situation, influences an individual's ability to benefit from work control. Individuals who lack self-efficacy demonstrate negative reactions to highly demanding jobs despite high control levels.

Social support has also been found to buffer some of the effects of occupational stress. Specifically, the relationship between stressor and strain is thought to be stronger for individuals who lack social support. However, there is only partial empirical support for the mediating effect of social support on the stressor-strain relationship.

—Olga L. Clark

See also Emotional Burnout; Empowerment; Job Satisfaction; Occupational Health Psychology; Stress, Coping and Management; Stress, Models and Theories

FURTHER READING

- Barling, J., Kelloway, E. K., & Frone, M. R. (Eds.). (2005). *Handbook of work stress*. Thousand Oaks, CA: Sage.
- Jex, S. M. (1998). *Stress and job performance: Theory, research, and implications for managerial practice*. Thousand Oaks, CA: Sage.
- Nelson, D. L., & Burke, R. J. (Eds.). (2002). *Gender, work stress, and health*. Washington, DC: American Psychological Association.
- Sonnentag, S., & Frese, M. (2003). Stress in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 453–491). New York: Wiley.
- Stellman, J. (Ed.). (1997). *Encyclopaedia of occupational health and safety*. Geneva, Switzerland: International Labour Office.
- Sulsky, L., & Smith, C. (2005). *Work stress*. Belmont, CA: Thomson/Wadsworth.

STRESS, COPING AND MANAGEMENT

A considerable amount of research has been devoted to the manner in which individuals cope with stressful situations in daily organizational life. Coping efforts can either mitigate feelings of stress, have no impact on felt stress, or exacerbate felt stress when coping efforts fail. During the last two decades, as coping research has evolved, some researchers have focused on the trait-like aspect of coping, emphasizing the stable coping styles of individuals. Others have taken a state or situational approach, emphasizing the dynamic features of coping and viewing it as a process. Still others have taken the middle ground, treating coping patterns as stable, situation-specific styles that individuals develop over time and deploy in stressful situations.

One of the first models of stress, labeled the *general adaptation syndrome*, posits that, under stress, an individual senses alarm and either flees or adapts to the situation. Focusing on how individuals adapt to stress, R. S. Lazarus and his colleagues provided perhaps the most studied model of coping, often referred to as the *appraisal* or *transactional model* of stress. According to this model, coping comprises behavioral, cognitive, and emotional efforts aimed at managing external and internal demands, thereby managing felt stress and restoring an individual's sense of equilibrium. The transactional model of the stress process includes both a primary appraisal of the stressor and a secondary appraisal of the coping mechanisms available to the individual.

The primary appraisal of a stressor will differ among individuals because perceptions of a particular stressor can vary given personality characteristics (e.g., negative affectivity, optimism, locus of control), knowledge of a stressor, or experience with a stressor. For example, a new graduate who is hired to prepare complex tax returns by the April 15 deadline will likely perceive the seasonal volume of work to be more threatening than does an experienced tax preparer who is familiar with the laws, required forms, and recurring deadline. An individual with high self-efficacy within a specific domain will perceive stressors within that domain differently than an individual who feels less efficacious and less in control. Finally, individuals with an external locus of control may perceive

that sources of stress at work are beyond their control (e.g., organizational policies) and withdraw more quickly from a source of stress than an individual with an internal locus of control who is actively engaged in influencing his or her outcomes. Individuals' reactions to stressors also differ given their perceptions of the coping choices available within the organizational context, relationships with a supervisor, and other organizational resources. In sum, individuals assess the means by which they can regain control of the situation that is generating negative feelings of stress. A large body of literature suggests that perceptions of greater control aid in reducing felt stress.

Lazarus and his colleagues argue that strain results when a person feels unable to cope with an identified threat. In other words, not every potential stressor becomes a source of strain for an individual. In the appraisal model, individuals assess whether events in the work environment have implications for their well-being. Those deemed irrelevant have no bearing on well-being. Events that could affect well-being trigger a secondary appraisal in which individuals determine the adequacy of their coping resources. In a related approach, the *cybernetic model* of stress and coping proposes that the discrepancy between the individual's current state and desired state affects psychological well-being and activates coping as the individual seeks to restore well-being directly or alter the source of stress. Feelings of stress spur individuals to find a method of coping that restores a sense of cognitive and emotional balance.

COPING STRATEGIES

Coping strategies have been defined and operationalized in a variety of ways. Different coping strategies serve different functions, such as avoiding a stressor, confronting a stressor, or analyzing a source of stress. In general, styles of coping fall into one of two categories: emotion-focused (sometimes referred to as *avoidant* or *escapist* coping) or problem-focused (sometimes referred to as *instrumental* or *control* coping). Emotion coping efforts focus on improving the feelings experienced, whereas problem-solving coping refers to proactive actions and cognitive reappraisals that are take-charge in tone. For example, running five miles after work may make one feel better after a long day at the office (emotion-focused coping), whereas making a priority list or asking for

additional help from a coworker (problem-focused coping) may alter the source of the felt stress. Thus, emotion coping, in contrast to problem-solving coping, excludes any efforts to change or adapt to the stressor but instead engages in wishful thinking or avoids the stress-inducing situation through passive behavioral, cognitive, and emotional responses.

Coping efforts are also context specific, and therefore, a coping strategy may be effective or ineffective, generating different consequences in different situations. Nevertheless, the preponderance of research on coping choices has focused on individual differences, such as personality types (e.g., negative affectivity), perceptions of skills (e.g., self-efficacy), and gender, as antecedents of coping strategies. Far less research has directly assessed the relationship between situational factors and individuals' choice of coping strategies. This is an important omission, for not only do individuals perceive and interpret potentially stressful cues from the environment differently; context may also determine which coping strategy works best for individuals given the immediate situation. For example, are coworkers available, able, and willing to help?

Individuals also assess the reactions of others in coping with stress. Will a supervisor react negatively to the coworker stepping in to help? Will a coping approach be acceptable to others in the workplace or tarnish one's reputation? Given cultural influences on the appropriateness of emotional expressiveness among males and females, it is probable that in the United States, female employees feel much more comfortable expressing their anxiety in the workplace through conversations with coworkers, whereas male employees feel compelled to maintain an image of being strong and in charge.

In sum, individuals deploy specific coping strategies to assess and react to stressful situations. Different coping strategies carry different costs and benefits, including time invested, likelihood of success, risks of failure, and others' perceptions of coping behavior in the work setting. A particular coping strategy becomes attractive when the benefits outweigh the costs.

Although individuals often have a preferred coping style, they use both problem-solving and escapist forms of coping. Some researchers have argued that, in general, emotion-focused coping is not as effective at reducing experienced stress as problem-focused coping because such efforts do not alter the source of stress. For example, avoiding one's supervisor or

having a drink after work may minimize one's felt stress for a few hours, but inevitably, the negative emotions return as the effects of alcohol fade and the source of the stress remains unchanged.

An overreliance on emotion or escapist strategies can eventually have a negative influence on one's self-image, self-confidence, and job performance. Some evidence suggests that individuals who rely exclusively on avoidant or escapist strategies report higher levels of negative consequences, including burnout, job dissatisfaction, physical symptoms, and intentions to quit. However, within limits, escapist coping is not necessarily a negative strategy. For example, exercise and relaxation techniques are helpful in the overall coping process. Additionally, cognitive approaches to escapist coping may be valuable in situations in which the individual is not ready to actively undertake the problem or the situation is resistant to change. Finally, at least one form of emotion-focused coping, seeking and receiving emotional support, appears to provide a buffer against job burnout.

SOCIAL SUPPORT

Social support influences the way individuals cope and adapt to challenges. Social relationships increase an individual's confidence in facing stressful situations, or alternatively, they may provide the information one needs to solve a stressful problem. Evidence suggests that individuals with more social support experience less strain and greater well-being. For example, sales clerks who perceive more support from their supervisors in dealing with difficult customers or a greater willingness of coworkers to take a shift for them experience less anxiety and strain when an unexpected conflict prevents them from reporting to work on time. Alternatively, social support can simply show employees that others understand their difficulties. Research suggests that individuals with greater social support experience higher levels of arousal without the negative effects associated with high-strain jobs. Because arousal, or positive stress, can motivate individuals to accomplish tasks more quickly, social support may be key to an individual's interpretation of stressors as challenges and opportunities rather than threats.

The relationship between support and strain needs further examination. The exact nature of the support-strain relationship (antecedent, mediator, or moderator) continues to be debated, as does the importance of

the source and content of support. In a series of studies, T. A. Beehr and his colleagues investigated the content of social support and identified three types of affective communication among workers: non-work-related, negative work-related, and positive work-related communications. Results indicate the content of social support expressed through conversations among coworkers appears to significantly influence the outcomes of felt stress. When workers gather at lunch to engage in gripe sessions, the “support” received may exacerbate one’s feelings of stress. Alternatively, engaging in conversations at work regarding hobbies, common interests, or the activities of one’s children may provide momentary relief from a stressor, thus allowing a worker to return to work calm and ready to reassess the problem and search for a solution. Conversations that imply others at work simply care about an individual’s well-being may also provide the necessary calming influence to allow workers to think more clearly about possible solutions.

Level of perceived social support has been linked to individual coping styles. Individuals with supportive family networks tend to use more active, problem-focused coping strategies than do individuals with less social support, who are more likely to engage in avoidant coping strategies. Personality traits also appear to influence the seeking and receiving of social support. For example, the extroversion trait may cause some individuals to consistently seek out more support, thereby influencing the amount of support received. Further work is needed to investigate how personality characteristics affect the amount of support received in the workplace.

IMPROVING COPING AT WORK

Increasingly, organizations are attempting to train their employees to be more proactive in coping with workplace stress and thereby reduce the psychological and physical health problems that accompany chronic stress. Training programs vary from online courses to multiday comprehensive programs. Approaches that focus on the individual include stress management techniques (e.g., yoga, exercise, diet), time management skills, mandatory breaks and vacations, and wellness programs.

However, situational conditions created by the organization’s goals, culture, processes, or compensation packages can significantly influence employees’ coping

strategies. Therefore, some organizations are assisting in employees’ coping efforts by focusing on the job itself. Stress management at the organizational level includes job rotation, ergonomic solutions, task or work redesign, increased staffing, and role clarification.

A growing number of organizations have adopted family-supportive work policies and programs such as flexible scheduling. Providing employees with alternative work schedules can reduce the strain arising from competing work and nonwork obligations. The success of such programs largely depends on managerial support for employee use of such programs. For example, employees are more likely to use a policy that allows them to arrive at work late in order to resolve a problem at a child’s school if they are confident that their manager supports such a program. Many organizations with family-friendly policies leave the implementation to the discretion of managers, who operate on a case-by-case basis. Such an approach may leave some employees vulnerable to the whims of a manager and inequitable treatment of employees within the same organization.

The stressor–strain relationship unfolds over time—that is, it is a process. The appraisal model of stress provides for a feedback loop, positing that an individual chooses a coping technique and subsequently assesses one’s feelings. If the felt stress remains, an individual may continue coping with the same technique or opt to try another technique. Although it is widely recognized that the experience of workplace stress and coping is a process, there are few published longitudinal studies. There is a critical need for more longitudinal studies to better understand the choice of a coping strategy and the decision to change strategies.

Given the economic costs of long-term job strain and its influence on productivity and turnover, organizations have a strong incentive to identify factors in the organizational environment that contribute to employees’ perceptions of stressors, influence coping choices, and generate chronic strain.

—Kelly L. Zellars

FURTHER READING

Beehr, T. A. (1985). The role of social support in coping with organizational stress. In T. A. Beehr & R. S. Bhagat (Eds.), *Human stress and cognition in organizations: An integrated perspective* (pp. 375–398). New York: Wiley.

- Edwards, J. R. (1992). A cybernetic model of stress, coping, and well-being in organizations. *Academy of Management Review*, *17*, 238–244.
- Fenlason, K. J., & Beehr, T. A. (1994). Social support and occupational stress: Effects of talking to others. *Journal of Organizational Behavior*, *15*, 157–175.
- Lazarus, R. S. (1999). *Stress and emotion*. New York: Springer.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Perrewé, P. L., & Ganster, D. C. (Eds.). *Research in occupational stress and well being*. Oxford, UK: JAI Press/Elsevier.
- Zellars, K. L., & Perrewé, P. L. (2001). Affective personality and the content of emotional social support: Coping in organizations. *Journal of Applied Psychology*, *86*, 459–467.

STRESS, MODELS AND THEORIES

Occupational stress research refers to the study of the negative impact of organizational environments on employees. In the last half century, occupational stress has become an important topic within the field of industrial and organizational psychology, and there is no reason to believe this will change in the near future. In this entry, some of the most common models and theories that have guided occupational stress research are described.

Before providing an overview of the models and theories, it is important to define these two terms. In science, a *model* is a replica or abstraction of some phenomenon or process. A *theory* is very similar to a model; the difference, however, is that a theory is more abstract. Specifically, a theory presents a set of ideas and propositions about something, whereas a model represents a detailed description of how those ideas fit together to explain some process or phenomenon.

In the social and behavioral sciences, models and theories are useful to both researchers and those who apply research findings in real settings. For researchers, models and theories help to guide investigations and serve as benchmarks by which research findings can be evaluated. Many research studies are either direct tests of models or theories or use models and theories to set them up. It is common to evaluate research findings on the basis of whether they are or are not consistent with some model or theory.

OCCUPATIONAL STRESS MODELS AND THEORIES

Before describing the specific models and theories used in occupational stress research, the manner in which they are used in this field of study must be discussed. Like other areas of industrial and organizational psychology, models and theories are used to guide occupational stress research and evaluate research findings. Unlike researchers in other areas, however, few occupational stress researchers conduct direct model tests (one notable exception will be described later). The most likely reason is that models and theories in occupational stress are generic, and thus they are hard to use to directly derive testable hypotheses.

In describing models and theories, a distinction can be made between *generic frameworks*, *general models*, and *testable theories*. Generic frameworks are general theories or theoretical propositions that guide research but cannot be empirically tested. General models represent a higher level of specificity than generic frameworks in that they describe specific steps in the stress process. Though general models can be tested, they rarely are, either because the components of such models are so general or because the models are very complex. Testable theories are the most concrete and, in that sense, represent the only truly testable hypotheses in the field of occupational stress.

Generic Frameworks

Most readers who have had any exposure to the field of occupational stress have heard of Hans Selye, whom many acknowledge as the “father of stress.” Selye, a medical researcher, was studying sex hormones when he noticed that the reactions to adverse physical conditions of the animals he used in his research tended to follow a similar pattern. From these observations, he came up with the *general adaptation syndrome* (GAS) as a response to stressors, and this has become a common generic framework in stress research.

According to the GAS, when faced with a stressor, an individual will progress through three stages: *alarm*, *resistance*, and *exhaustion*. In the alarm stage, the body’s physiological systems react to a stressor or threat in the environment. This is represented by increased heart and respiration rates, as well as increased production of adrenal hormones; in a sense,

the body is preparing for battle. In the resistance stage, the body continues to fight the stressor threat using the same mechanisms that kicked into action in the alarm stage. In some cases, the effort that the body puts forth in the resistance stage is enough to mitigate or at least neutralize the stressor or threat. If this is not the case, the body can only hold out so long, and if the stressor persists, it will ultimately reach the third stage, exhaustion. In this final stage, the mechanisms the body uses to fight the stressor will wear down and sustain damage; in the animals Selye observed, the exhaustion stage often ended in death.

Although the GAS cannot be directly tested in organizational settings, it can be an important lens through which to understand the stress process. Consider, for example, an employee who works for an abusive, rude supervisor. When this employee first encounters the supervisor's abusive behavior, the stressor is likely to evoke a number of physiological and psychological reactions, which could be considered alarms. If the abusive behavior continues over time, the employee will attempt to cope with the situation in some way, perhaps by trying to reason with the supervisor, fighting back, or simply trying to interact with him or her as little as possible—all of these responses could be considered forms of resistance. Over time, however, if these efforts do not reduce the abusiveness of the supervisor, the employee may develop emotional or physical problems or perhaps leave the organization altogether, which would represent exhaustion.

Another notion that is prevalent in occupational stress research and may be considered a generic framework is that of *person–environment fit*. The basic idea of person–environment fit, which certainly could be applied to many areas of psychology, is that people tend to be happier and adapt better when they fit into the environment they are placed in. Organizational research—and occupational stress research in particular—has focused on the skill and ability requirements of jobs and the skills and abilities possessed by job incumbents. As one might imagine, the most stressful work situations are those in which an employee lacks the skills and abilities to perform his or her job. It may also be problematic if an employee possesses skills and abilities that are far above those required by the job that he or she is performing.

Though early work on person–environment fit focused on skills and abilities, more recent work has expanded the concept to other areas, such as the fit

between organizational culture and an individual's personality, the fit between work content and an individual's interests, and the fit between specific types of work organization (e.g., team-based work) and an employee's skills and preferences. In general, research has supported the basic notion of person–environment fit.

General Models

By far, the most popular general model of occupational stress was developed by researchers at the Institute for Social Research (ISR) at the University of Michigan during the early 1960s. The *ISR model*, as it is known, was developed to serve as a guide for one of the first large-scale studies of occupational stress funded by the National Institute for Occupational Safety and Health.

The ISR model proposes that all employees in organizations encounter objective characteristics of the work environment, such as the amount of work they are assigned. These objective characteristics of the work environment are perceived or appraised by the employee, and based on this appraisal, there is some short-term reaction that may be psychological, physical, or behavioral in nature. If an employee exhibits these short-term reactions for a long period of time, his or her response may ultimately lead to poor mental or physical health.

In addition to describing the process by which stress leads to mental and physical health problems, the ISR model proposes that each step in this process may be affected by characteristics of the individual (e.g., demographic characteristics, personality traits), as well as the interpersonal relations within the individual's work environment. This aspect of the model has become very important, particularly in recent years, because much occupational stress research has focused on how individual differences influence the stress process.

Although occupational stress researchers have not focused on testing the ISR model, its importance to the field of occupational stress cannot be overstated. Its focus on the psychological interpretation of the work environment, in particular, has influenced the way researchers measure stressors. Specifically, most occupational stress researchers assess work-related stressors by using employees' perceptions of stressful aspects of the work environment. Unfortunately, however, this focus on perceptions led researchers to pay

too little attention to the objective environment—a criticism often leveled at occupational stress research conducted by social and behavioral scientists.

The other general model of occupational stress that has influenced a great deal of research was described by Terry Beehr and John Newman in an extensive review published in 1978. According to this model, characteristics of the individual interact with characteristics of the work environment through perceptual or appraisal processes. Based on the precise nature of this interaction, there may be consequences for both the individual employee and the organization in which he or she works. For the individual, these consequences may include health problems, whereas the organizational consequences may include decreased productivity and increased health care costs. The final step in the model is represented by adaptive responses on the part of both the individual and the organization. This simply represents actions that people and organizations take to mitigate the effects of stress when they are recognized.

The final component of Beehr and Newman's model, which cuts across all other components, is time. This component simply recognizes that all of the steps in the stress process are embedded in a temporal framework. For example, in some cases, stressful conditions at work may occur suddenly—an unexpected layoff or a violent incident, perhaps. In other cases, stressful conditions take much more time to manifest themselves—a relationship with a coworker deteriorates over time, or physical working conditions gradually deteriorate. Employee and organizational responses to these conditions will likely be much different.

Readily Testable Models

Over the past 25 years, the most tested occupational stress model has been the *demands-control model* developed by Robert Karasek during the late 1970s. The basic idea put forth in this model is very straightforward: The most stressful situations are those in which employees are subjected to high work demands yet have low control over decisions concerning their work. Another way to look at the demands-control model is that demands and control interact in such a way that job demands are related most strongly to strain when control is low. Many blue-collar jobs fit this high demand–low control pattern; that is, employees are expected to do or produce a great deal, yet have little say in how they do their jobs or how the organization operates.

Since Karasek proposed the demands-control model in the 1970s, the model has been modified based on research findings. Specifically, research has shown that the demands-control interaction is stronger among employees who lack high levels of social support from others. Thus, it has become common for researchers to refer to Karasek's model as the *demands-control-support*, or DCS, model. A small number of empirical studies have shown that the interaction is stronger among individuals with high self-efficacy. Self-efficacy refers to an individual's belief that he or she is capable of carrying out some task or course of action; individuals with low self-efficacy are less likely than their high-self-efficacy counterparts to derive the benefits of high control. As yet, however, self-efficacy has not been included as a part of the demands-control model by most researchers.

Support for the demands-control model has been quite mixed, for a number of reasons. Perhaps the most important reason is that there is no agreement as to exactly what constitutes support for the model. According to Karasek, minimum support for the model is represented by the additive effects of job demands and control, even if the interaction between the two is not supported. By this criterion, the model has received abundant support. Some, however, view the true test as the interaction between demands and control. If this criterion is applied, support is much more modest.

The other model that is quite testable—though it has not been tested as extensively as the demands-control model—is the *effort-reward-imbalance model* developed by Johannes Siegrist in Germany. According to this model, people evaluate their work situation in terms of the effort they put into it relative to the rewards they derive. In stressful situations, employees feel as though they are putting a great deal into their job or doing a great deal for their organization, yet they feel as though they are not receiving rewards that are commensurate with these efforts.

A final model proposed relatively recently (1992) is the *cybernetic model* developed by Jeff Edwards. Edwards proposed that employees compare their current work situation with what they desire their work situation to be. If this comparison results in a negative discrepancy, or if the current situation is not what the employee wants it to be, the employee experiences the job as stressful. The model goes further, however, and describes the process by which employees attempt to change this negative discrepancy. Although Edwards's

theory is complex, it is also much better at describing the stress process in real time than many other stress theories. As yet, this theory has not been explicitly tested, but in the future, it has a great deal of potential in occupational stress research.

—Steve M. Jex

See also Emotional Burnout; Empowerment; Occupational Health Psychology; Role Overload and Underload; Stress, Consequences; Stress, Coping and Management

FURTHER READING

- Barling, J., Kelloway, E. K., & Frone, M. R. (Eds.). (2005). *Handbook of work stress*. Thousand Oaks, CA: Sage.
- Beehr, T. A. (1995). *Psychological stress in the workplace*. London: Routledge.
- Cooper, C. L., & Dewe, P. (2004). *Stress: A brief history*. Oxford, UK: Blackwell.
- Edwards, J. R. (1992). A cybernetic theory of stress, coping, and well-being in organizations. *Academy of Management Review*, 17, 238–274.
- Jex, S. M. (1998). *Stress and job performance: Theory, research, and implications for managerial practice*. Thousand Oaks, CA: Sage.
- Siegrist, J. (2002). Effort-reward imbalance at work and health. In P. Perrewé & D. Ganster (Eds.), *Research in occupational stress and well-being: Vol. 2. Historical and current perspectives on stress and health* (pp. 261–291). Boston: JAI.
- Sulsky, L., & Smith, C. (2005). *Work stress*. Belmont, CA: Thomson/Wadsworth.

STRUCTURAL EQUATION MODELING

Structural equation modeling (SEM) refers to the use of a general framework for linear multivariate statistical analysis that includes as special cases less general models, such as linear regression, factor analysis, and path analysis. Researchers can use SEM in a hypothetico-deductive context to test complex hypotheses or in an inductive context to estimate parameter values (effect sizes). For example, one might test a model of job performance or assume such a model to estimate effect sizes of different explanatory variables. Somewhat more controversially, researchers can also use SEM as an exploratory method for hypothesis generation. Structural equation modeling applies equally

well to experimental, quasi-experimental, and passive observational research designs. Like other statistical models, SEM can facilitate causal inference, although nothing inherent to SEM requires a causal interpretation. It does require a clear understanding on the part of the researcher as to what models do and do not entail, specialized software, and reasonably large samples. In general, SEM analysis supports useful, substantive conclusions in proportion to the firmness and precision of the substantive theory brought to the analysis.

STATISTICAL MODELING WITH SEM

The prototypical structural equation model includes several *latent* (unobserved) continuous variables, each measured by several *manifest* (observed) continuous variables. The latent variables typically serve as *common factors* for their manifest indicators. The factor loadings and the regression weights connecting the latent variables together account for the observed patterns of association between the manifest indicators. For example, several latent job competencies, each measured by several continuous items, might predict several job performance dimensions, each similarly measured. Structural equation modeling allows the expression of all of these relationships within one inclusive model rather than requiring the researcher to break up the relationships into a series of discrete hypotheses tested by separate analyses.

Like other latent variable models, SEM also allows researchers to estimate effect sizes controlling for measurement error. In the previous example, the regression weight connecting a latent job competency to a latent job performance dimension will generally exceed (in absolute value) the regression weight connecting two manifest measures of these constructs in a model without latent variables. This difference occurs because of measurement error in the manifest measures.

Multiple regression constitutes a special case of SEM with one manifest endogenous variable and several correlated manifest exogenous variables. *Path analysis* generalizes regression to multiple endogenous variables by combining a system of equations into one model. *Confirmatory factor analysis* limits itself to the effects of latent variables on manifest variables but allows the latent variables to covary. *Multiple indicator, multiple cause* models allow manifest exogenous variables to affect latent endogenous

variables, measured by endogenous manifest variables. For example, a researcher might use such a model if he or she has multiple measures of job performance but not each job competency and wants to predict latent job performance from observed competency measures.

Latent growth curve models model individual variation in change over time in terms of latent slopes and intercepts. For example, employees may vary in how their job performance changes over time, some starting at different levels than others and some growing at different rates than others. *Recursive* models contain no loops, whereas *nonrecursive* models do. For example, if job motivation affects job knowledge, job knowledge affects job performance, and job performance affects job motivation, this forms a loop.

Model Specification

Structural equation modeling analysis typically proceeds from model specification to parameter estimation to assessment of fit to model interpretation. Model specification involves selecting the manifest variables for analysis, specifying the latent variables, and specifying the parameters (effect coefficients and residual variances) that connect them. For example, a simple regression involves specifying one dependent variable, one or more independent variables, regression weights, and a residual term. Users can do this with algebraic equations (such as regression equations) or *path diagrams* in which boxes and circles represent manifest and latent variables, single-headed arrows represent effects, and double-headed arrows represent covariation. Path diagrams differ from *directed graphs* in that they explicitly represent all of the statistical parameters in the model, allowing most software programs to accept path diagrams instead of program syntax as input.

Model specification may involve specifying *free* parameters for estimation, *fixed* parameters with user-specified values, and *constrained* parameters set equal to a free parameter or restricted to some range of values. Fixing a parameter to zero corresponds to omitting the parameter from the model. For example, a regression weight of zero indicates no effect. Model specification involves many untested and sometimes untestable assumptions guided by substantive theory. For example, SEM typically assumes residual variances that are uncorrelated with predictor variables and assumes that no nonzero effects are omitted from the model.

Parameter Estimation

In addition to meeting the statistical assumptions discussed previously, a model must allow for the statistical identification of all of its parameters to permit parameter estimation. For example, one cannot freely estimate all of the factor loadings and the variance of the common factor because the same patterns of association can be reproduced by increasing the variance and decreasing the loadings or vice versa. This follows the familiar principle requiring more equations than unknowns to solve a set of equations. A *just-identified* model will always have zero degrees of freedom (*df*), an *overidentified* model will always have positive *df*, but an *underidentified* model may have positive, zero, or negative *df*. Textbooks provide various rules of thumb for identification. Structural equation modeling software typically provides a choice of specialized methods for estimating the values of the parameters, and these methods differ in their statistical assumptions.

Parameter estimation requires fewer assumptions than the statistical tests used in SEM. However, SEM classically assumes that the data follows a multivariate normal distribution and comprises independent observations from the same population distribution. Every endogenous manifest variable (e.g., competency and performance measure) should have a normal distribution for each combination of values of the other variables. For example, skewed performance rating distributions would violate this assumption. Furthermore, the values of the variables for one employee should not depend on the values for any other employee—a situation that might result from using supervisor ratings when some employees share the same supervisor but others do not. Researchers and software developers have maintained a relentless assault on these classical restrictions, extending SEM to include statistical interactions, multiple groups, some categorical variables, partially missing data, clustered data, and more.

Model Fit

Just-identified models, like regression models, always fit the data perfectly. Overidentified models, however, seek the best possible fit within the constraints imposed by model specification. For example, SEM software allows the user to run a regression analysis with the regression weights constrained to equal one another. If the weights differ in the population, then the constrained model will not fit perfectly. Estimation will select a compromise value estimated for both

regression weights that maximizes the fit of the model to the data. The more parameters the researcher can fix or constrain, the greater the *df* and the more risky the test of the model, all else being equal.

Software provides an ever-expanding selection of fit measures. *Fit statistics* (e.g., chi-square, root mean square error of approximation) have statistical distributions and allow for probability values and statistical tests, whereas *fit indexes* (e.g., comparative fit index, normed fit index) do not. However, different statistics and indexes measure different aspects of fit, making it preferable to consider some combination of them. One can multiply certain indexes by a *parsimony ratio* to get a measure of fit that adjusts for the flexibility to fit different patterns of data afforded by free parameters. Some indexes, such as information criterion indexes, adjust for the number of estimated parameters instead.

Poor fit typically results from some combination of *sampling error* and model *misspecification*. Misspecification can result from the omission of parameters, incorrectly constrained or fixed parameter values, or the violation of statistical assumptions. Misspecification can produce both biased parameter estimates and biased statistical tests.

Model Interpretation

Effect parameters generally have the same rate-of-exchange interpretation as in regression or factor analysis. If job knowledge predicts job performance, for example, then the regression weight gives the change in job performance per unit change in job knowledge. Typically, SEM provides unstandardized estimates (such as regression weights) but can also provide standardized estimates (such as beta weights in regression). Effect parameters describe effect direction and size. Effect, variance, and covariance parameters typically come with individual standard errors for use in confidence intervals or statistical tests. However, one can also conduct statistical tests by comparing a sequence of *nested models* produced by adding constraints to an initial model. As noted previously, it only makes sense to interpret parameters for correctly—or nearly correctly—specified models.

CAUSAL MODELING WITH SEM

Typically, SEM holds the most substantive interest when the statistical effects carry a causal interpretation. In the previous example, one may want to model the job

competencies as causes of job performance, not just predictors. Some methodologists favor assuming an accurate statistical model and asking whether it supports a causal interpretation, whereas others favor assuming a causal interpretation and asking about the statistical and causal accuracy of the model. Theories differ as to how best to characterize causal relationships, some seeking a more general characterization than others. Some, but not all, seek a sense of causation that applies to both experimentation and passive observation. Most agree that typical applications remain uncomfortably vague about causation. Different causal interpretations can have different implications for research design.

As noted earlier, one can use SEM to analyze experimental data while controlling for measurement error in both the manipulation and outcome variables. However, the overwhelming majority of applications involve passive observation. Using time-ordered data rather than cross-sectional data can help to establish causal order among the variables and reduce the chances of misspecification.

The model fit aspect of SEM allows for the testing of causal models. For example, a model in which job knowledge affects job motivation and job motivation affects job performance will not fit the same data patterns as a model in which job motivation affects job knowledge and job knowledge affects job performance. As a result, poor fit can rule out certain causal models.

Generally, however, more than one model will fit any given data pattern. For example, a model in which job motivation affects both job knowledge and job performance will fit the same data as a model in which job knowledge affects job motivation and job motivation affects job performance. *Statistically equivalent* models fit the same data and thus require additional information to choose between them. This information can take the form of additional variables or theoretical considerations, such as time order or plausible causal mechanisms. Just-identified models will fit any data, and thus all just-identified models bear statistical equivalence to one another. For example, all models of the foregoing three variables with three recursive effects, as well as all models in which two correlated variables affect the third variable, fall into this category.

SEM RESOURCES AND ALTERNATIVES

Resources

The many books on SEM basically break down into three categories: general introductory texts, texts

introducing specific software, and edited collections of current work. Reviews in methods journals, particularly *Structural Equation Modeling*, provide current information about available books. Web pages of SEM software developers provide current information about software capabilities and related developments. Most also provide free student versions of software that anyone considering a purchase should download first. Edward Rigdon's SEMNET e-mail list provides a friendly and supportive forum for questions about SEM.

Alternatives

Researchers with categorical latent and manifest variables might consider latent class analysis as an alternative to SEM. Those concerned with the measurement of a continuous latent variable by categorical indicators might consider item response theory. Multilevel modeling offers an alternative to latent growth curves. Partial least squares offers an alternative to SEM that is useful for exploratory modeling and smaller samples. Finally, TETRAD offers an alternative for exploratory applications, and exploratory factor analysis remains a useful alternative to the confirmatory factor analysis available through SEM.

—Keith A. Markus

See also Construct; Experimental Designs; Factor Analysis; Item Response Theory; Moderator and Mediator Variables; Multilevel Modeling; Multitrait–Multimethod Matrix; Nomological Networks; Nonexperimental Designs; Quantitative Research Approach; Quasi-experimental Designs; Reliability; Statistical Power; Survey Approach; Validity

FURTHER READING

- Bollen, K. A. (1989). *Structural equations with latent variables*. New York: Wiley.
- Bollen, K. A., & Long, J. S. (1993). *Testing structural equation models*. Thousand Oaks, CA: Sage.
- Glymour, C., & Cooper, G. F. (1999). *Computation, causation, and discovery*. Menlo Park, CA: AAAI Press.
- Hoyle, R. H. (1995). *Structural equation modeling: Concepts, issues, and applications*. Thousand Oaks, CA: Sage.
- McKim, V. R., & Turner, S. P. (1997). *Causality in crisis? Statistical methods and the search for causal knowledge in the social sciences*. Notre Dame, IN: University of Notre Dame Press.

Sosa, E., & Tooley, M. (1993). *Causation*. Oxford, UK: Oxford University Press.

West, J. (2000, August 19). *Structural equation modeling*. Retrieved March 9, 2006, from <http://www.gsm.uci.edu/%7Ejoelwest/SEM/index.html>

SUCCESSION PLANNING

Succession planning, the process by which an organization makes sure that it will have the right leaders in the right place at the right time, has always been one of the most important accountabilities of the chief executives and top leaders of organizations. However, the importance of succession planning to business success has never been greater or more widely recognized than it is now—a result of the globalization of industry, demographic and generational shifts, and the ever-changing challenges of leadership in today's organizations. In fact, corporate boards have become more actively involved in CEO succession and are holding CEOs accountable for making sure that succession planning is in place below them.

The term *succession planning*, along with the scope and primary focus of this managerial function, has evolved over the last half century. During the 1950s and 1960s, the economies of developed nations were growing and a lean Depression generation was rising through the leadership ranks. The focus was on *replacement planning*, in which key positions were targeted and slates of candidates were identified as possible backups in case the current incumbent retired, was promoted, or was “hit by a bus.” The impetus was the realization that there were not a lot of candidates to fall back on, especially as the postwar economic expansion began to heat up, resulting in the need for more leaders to manage growing businesses.

Human resources (HR) practitioners had few tools in these years, but assessment center methodology, created during the late 1930s and first applied to business during the 1950s in the AT&T Managerial Progress Study, laid the scientific foundation for the major contribution of industrial and organizational (I/O) psychology to the practice of succession planning: the definition of managerial competencies and the prediction of managerial success.

During the 1970s and 1980s, the process evolved into *succession management*. As the baby boom generation bulged its way through organizations, the

focus was on figuring out a way to select and develop the right people from a plethora of possibilities so that the best would rise to the top—not by accident or good fortune, but by plan. The goal was no longer to just identify replacements for key positions at the top to minimize risk but also to develop a robust pipeline of leaders at all levels of the organization to ensure its continued growth and success. Included in this process at each major level (frontline, middle, and executive leadership) was the identification of high-potential individuals, appraisal of their strengths and skill and experience gaps, and plans for their development. Especially at the executive level, the people in this pipeline of future leaders came to be called *corporate assets* because they were valuable leadership resources of the whole company, not just the particular function or business unit in which they were based.

Companies such as AT&T, IBM, General Electric, and Exxon were on the leading edge in creating and using this kind of system. Industrial and organizational psychologists at these companies and in consulting firms serving a wide spectrum of companies were busy developing assessment centers, administering cognitive tests and personality inventories to screen for leadership potential, gathering observations of on-the-job performance and estimates of future potential through multiperspective interviews, and conducting in-depth behavioral interviews to help companies get data for promotion decisions and individual development planning. Today, General Electric is still touted as a leading example of succession management, with its Session C review of A, B, and C players, multilevel management curriculum, and decades-long dedication to building such a rich leadership pool that it has been able to “export” CEOs to other companies.

Despite auspicious progress in the field, there was so much change and churn in corporations during the 1980s and 1990s as a result of massive downsizing, major technological breakthroughs, and considerable merger and acquisition activity that many companies found themselves rebuilding their knowledge base around their key people and rediscovering or reinventing their expertise in managing succession during these decades.

Now, in the early 21st century, we are seeing the next stage in this evolution emerging—*strategic talent management*—which is marked by a broadening of the corporate view of global talent management and a keener awareness that leaders are critical, but there are

other pivotal talent pools (e.g., as diverse as global account managers and Disney World’s street sweepers) that must be acquired, developed, and managed proactively to achieve and sustain competitive advantage in a dynamic, global economy. In fact, a whole new HR decision science is beginning to emerge that provides theory and tools for tying business strategy to talent pool identification, development, and investment.

Succession planning began as a very secret process; charts were often placed on the walls of a locked “war room,” and people were not told that they were on them. In smaller, entrepreneurial companies, planning was frequently ad hoc, and plans were often sketched on the back of an envelope. In large corporations, succession plans were carefully compiled and elaborately detailed in heavy binders. The irony is that these plans were rarely used for real decision making. When the time actually came to pass the baton, the name on the replacement chart or key talent pool might no longer be seen as high potential, or the individual might no longer be available, interested, or willing to move.

The reasons were many: The needs of business were changing rapidly, and most plans were out of date almost as soon as the ink was dry. Unlike previous generations, the personal priorities and career aspirations of employees at this time were not always in sync with the corporation’s plans for them. Wars for talent were beginning to erupt, especially in the technology sector; the managers of high potential employees tended to hoard them because they were not willing to give up their power, privilege, and precious talent to submit to someone else’s plans for them. And executive leaders just didn’t trust the evaluations of performance, potential, and readiness that were served up by lower levels.

The key components of a comprehensive process have been evolving over time to cover the essential aspects of the succession or leadership continuity solution, including the following:

- **Business review:** An update of the current state of business strategies and priorities; clarifying the implications of the business strategy and vision for leadership roles and pivotal talent pools
- **Talent needs forecast:** An estimate of the number and kinds of talent needed to fill roles in a defined future time frame, including outlines of the performance challenges, competencies, and selection criteria for key positions and pivotal roles
- **Talent inventory:** Identification and appraisal of key position candidates and high-potential pools in terms

of their performance, potential, and readiness for advancement; sometimes summarized in an overall estimate of bench strength at key leadership levels

- Talent review: A review, discussion, and documentation of key position plans and development plans for key individuals and talent pools by a representative group of organization leaders (usually the top management team for the business unit or a special committee or board established for this purpose)
- Follow-up and progress review: A process for regular review, update, and oversight of the execution of succession and development plans

At the heart of the talent inventory are four key decisions about people:

- Who are proven *performers* who deliver the right results in the right way?
- Which of these has the *potential* to grow into positions at a higher level?
- What do they need to get *ready for promotion*, and how fast will they be ready?
- Which candidate is the best all-around *fit* for a particular role or opening?

Companies address these four questions in different ways. Some use simple managerial input, whereas others use more rigorous methodologies, but most rely on performance observations and appraisals that are not calibrated across the organization and provide necessary but not sufficient input for predicting success at higher levels. As any good I/O psychologist knows, current performance is a good predictor of future performance only if the context of performance (level, scope, challenges, competency requirements) is similar. This is where I/O psychology has the most to offer—defining the performance requirements of key jobs, measuring peoples' current capabilities and future capacity, and accelerating the development of individuals and groups.

Starting with the definition of performance requirements in terms of the position responsibilities and the person capabilities to match them, I/O psychology has well-developed expertise and tools for job analysis. The terms currently in use are *job modeling* or *strategic performance modeling*, which recognize the highly dynamic nature of today's organizations and the need to constantly reshape the critical roles within them.

In the domain of assessment, I/O psychologists provide tools and processes for in-depth and comprehensive assessments of leadership capability that can

be used to supplement or check insiders' observations, predictions, and plans. The lenses that internal managers look through are foggy, at best, and misleading, at worst. The I/O psychologist's tools (e.g., measures of cognitive and personality traits that predict leadership potential, multimethod assessments of current leadership capability and readiness for more responsible roles) add significant value, especially when an individual's capabilities are not well-known by decision makers, when he or she hasn't been in situations that approximate the challenges of the target role, or when cultural and individual biases have a significant effect on organizational decisions.

Psychologists in the field of learning design and organizational development have additional wisdom and methodologies to offer succession management practitioners. These include powerful techniques such as intensive individual coaching, action learning methods, multilevel curriculum design, and process consultation.

Companies that are successful at managing succession embed the expertise of I/O psychology into their processes and follow several basic principles:

- Make it an ongoing, integral business process. Succession planning must be an ongoing process, not a onetime or annual event, with business and people plans refreshed and discussed on a regular basis.
- Link succession planning to the vision, values, and strategy of the business. People plans should support the business strategy, especially the core competencies and values of the corporation that give it its distinctive, sustainable competitive advantage. These should be reflected in the performance requirements and selection criteria for all key roles.
- Use credible, valid data for talent assessment. The right tools and processes should be designed to provide credible and accurate data that is objective and calibrated so that comparisons of people can be made across business units and geographies. Data must also be updated to capture critical transitions and changes in capabilities.
- Invest in active and systematic talent development. It must include not only identification of potential and assessment of current strengths and development needs but also proactive and systematic strategies for accelerating the development and measuring the growth of key individuals and talent pools.
- Provide incentives for developing. People identified as "high potentials" should be given no guarantees of a promotion or a specific position, but they should know they are valued by the company and will be

supported and rewarded if they are willing to take on stretch assignments that entail significant personal risk. In addition, talent builders (managers who sacrifice their own status and comfort to grow and promote others) should be made heroes and provided incentives to continue this work on behalf of the company.

- Make sure succession planning is owned by the line but facilitated by a strong HR function. The process must be owned by line managers and sponsored and directed by the chief executive of the business unit, but it must be supported by a strong, skilled, and credible HR function.

Industrial and organizational psychology has a lot to offer, not only in providing accurate data for decision making and powerful tools to accelerate development but also in providing guidance for designing and managing the entire process. However, to be effective sources of expertise in this domain, I/O psychologists must become interdisciplinary in their research and practice and skilled in tapping into and connecting different specialty areas to create the multifaceted and systemic solutions required. They also need to do a better job of explaining and marketing their expertise, so that they don't leave the field of succession management to the fads and fancies of the constantly changing marketplace.

—Elaine B. Sloan

See also Executive Selection; Selection Strategies

FURTHER READING

- Berger, L. C., & Berger, D. R. (Eds.). (2004). *The talent management handbook: Creating organization excellence by identifying, developing, and promoting your best people*. New York: McGraw-Hill.
- Boudreau, J. W., & Ramstad, P. M. (2005). Talentship, talent segmentation, and sustainability: A new HR decision science paradigm for a new strategy definition. *Human Resource Management, 44*(2), 129–136.
- Bray, D. W., Campbell, R. J., & Grant, D. L. (1974). *Formative years in business: A long-term AT&T study of managerial lives*. New York: Wiley.
- Byham, W. C., Smith, A. B., & Paese, M. J. (2002). *Grow your own leaders: How to identify, develop, and retain leadership talent*. Upper Saddle River, NJ: Prentice Hall.
- Charan, R., Drotter, S., & Noel, J. (2001). *The leadership pipeline: How to build the leadership-powered company*. San Francisco: Jossey-Bass.
- Eastman, L. J. (1995). *Succession planning: An annotated bibliography and summary of commonly reported organizational practices*. Greensboro, NC: Center for Creative Leadership.
- Fulmer, R. M., & Congers, J. A. (2004). *Growing your company's leaders: How great organizations use succession management to sustain competitive advantage*. New York: AMACOM Books.
- Hogan, R., Curphy, G. J., & Hogan, J. (1994). What we know about leadership: Effectiveness and personality. *American Psychologist, 49*(6), 493–504.
- Howard, A., & Bray, D. W. (1988). *Managerial lives in transition: Advancing age and changing times*. New York: Guilford.
- Levit, R. A., & Gikakis, C. (Eds.). (1994). *Shared wisdom: Best practices in development and succession planning*. New York: Human Resources Planning Society.
- Mahler, W. R., & Drotter, S. J. (1986). *The succession planning handbook for the chief executive*. Midland Park, NJ: Mahler.
- McCall, M. W., Jr. (1998). *High flyers: Developing the next generation of leaders*. Boston: Harvard Business School Press.
- Rothwell, W. J. (2001). *Effective succession planning: Ensuring leadership continuity and building talent from within* (2nd ed.). New York: AMACOM Books.
- Schippman, J. S. (1999). *Strategic job modeling: Working at the core of integrated human resources*. Mahwah, NJ: Lawrence Erlbaum.
- Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin, 124*, 262–274.
- Sloan, E. B., Hazucha, J. F., & VanKatwyk, P. T. (2003). Strategic management of global leadership talent. In W. H. Mobley & P. W. Dorfman (Eds.), *Advances in global leadership* (Vol. 3, pp. 235–274). New York: JAI/Elsevier Science.

SURVEY APPROACH

A survey can be broadly defined as a detailed investigation of a topic. Although interviews and focus groups are often included under this broad umbrella, the term *survey* has become synonymous with a questionnaire approach to research. Surveys are arguably the most common approach to data collection in organizations, primarily because of their broad applicability. They can be used to gather information both inside and outside the organization. Surveys can be used to assess

employee attitudes, gauge readiness for organizational change efforts, gather performance feedback, or measure customer satisfaction. To gather accurate information for any of these purposes, certain steps need to be followed; however, users often underestimate the time necessary to do a survey properly. The critical steps of planning, designing, communicating, administering, analyzing, and addressing the results of a survey are a serious undertaking for any organization.

DEFINING THE PURPOSE AND GOALS OF THE SURVEY

Before any survey project can begin in earnest, the goals and expected outcomes of the project must be clearly defined. The goals will drive the content to cover, the questions to ask, the people to ask, and the format to use. Therefore, the researcher needs to determine whether the survey is intended to take the pulse of the organization, identify necessary action to take, or explore new products, policies, or other changes. The researcher also needs to include key stakeholders in the planning process. Organization members who will be asked to address the results of the survey must be included at the earliest stages of the process. This is also a good time to gather the support of senior management, not to mention union officers, if applicable. Without the buy-in of the people at the top of the organization, a survey project can easily be subverted.

Once support from key players has been obtained, the process of identifying the information to be gathered can begin. This process is driven by how the information will be used. If retention of key talent is the goal, for example, employee satisfaction surveys need to address topics that influence employee engagement (supervision, the work itself, coworkers, growth opportunities). Customer satisfaction surveys must address key products and services and how they are delivered. The goal of any survey is to gather information that will help to improve the organization.

DESIGNING THE SURVEY

Designing the Instrument

Some initial decisions need to be made about the type of questions that will be asked. First, the balance of open-ended (i.e., write-in) versus closed-ended (Likert-type) questions must be considered. Open-ended questions provide a wealth of information but also take significantly longer to code and interpret.

Open-ended questions also provide an opportunity for respondents to ramble, so the questions need to be very specific to prevent unintended or uninterpretable responses. Closed-ended questions are much easier to summarize but don't provide respondents with any real opportunity for elaboration. Closed-ended questions present different problems, though, in terms of their construction. In an attempt to gather more information, survey designers often create unintentionally double-barreled questions that ask for two separate pieces of information (e.g., asking respondents in one question to rate their pay *and* benefits). Post hoc interpretation is impossible because the focus of the respondents is not clear (e.g., did they rate pay or benefits or both?). Questions need to address issues that respondents know about, avoid jargon or acronyms that respondents may not know, and use the simplest language possible. Always put the most sensitive questions toward the end of the survey to avoid losing potential respondents before they really begin.

To ensure that questions ask what is intended, a brief pretest of items can prevent headaches later. Ask a small group to review the questions to ensure that they are worded properly. You also want to test how long the survey takes (so your invitation letter doesn't lie about the time required) and skip patterns to ensure respondents see the right questions. The flow and naturalness of the question order can also be assessed during the pretest. For online surveys, URLs and hyperlinks must be tested to ensure the survey tool does what you hope it will and that the final survey looks the way it should.

Deciding How to Administer

Before the survey can be administered, several additional decisions need to be made. Will the survey go to all employees or a smaller sample of them? Will the survey be done online or using paper and pencil? If paper surveys are used, will they be administered by mail or in group administrations at work locations? Are incentives for participation needed? When is the best time to administer?

The decision to do a census or sample survey is related to other stages of the survey process. If the survey is intended to harness commitment to further action or change, then the entire organization should be included. If results will be shared within every department in the organization (with the expectation that department-level action will be taken), a census is

required. If the survey is intended to take the pulse of how the organization as a whole feels about an issue (or issues), then a sample may be sufficient. Sample surveys allow the organization to survey more often without running the risk of survey fatigue. Sample surveys may raise suspicion about why and who was actually invited, however, and they may be easier for the respondent to ignore because everyone around them is not taking it as well. Sample surveys require support from human resources (and potentially information technology) to be able to identify eligible employees and then select them randomly. If results will be broken down into smaller groups (e.g., by divisions, geographic regions, or demographic groups), a stratified sampling approach may be needed to ensure valid results for relevant subgroups.

COMMUNICATING THE SURVEY

The next step in administering the survey is communicating that it will be happening. Response rates suffer if the survey is not communicated well. The level of communication needed is a function of the survey culture of the organization. In companies that have not done surveys before, extensive communication before the survey is needed to indicate why the survey is being done, why responses are critical, how the results will be used, and how the organization is committed to action. In organizations that have had negative experiences with surveys in the past, the communication needs to focus on how things will be different this time. The medium of communication will vary from company to company. E-mails from senior managers may be enough, whereas public addresses may be needed in other organizations. The medium of communication that is usually used in the organization to communicate important events should be used for the survey as well.

ADMINISTERING THE SURVEY

The medium by which the survey is administered is a critical decision. If all employees have access to the Internet or an e-mail system, an online or network survey may be advisable. Online surveys allow for easier tracking of response rates and remove the need for the data entry involved with paper surveys. As a result, online surveys are generally more cost-effective compared to other approaches. However, online surveys can fall prey to network problems and suspicions that

responses are not truly anonymous. Online surveys also require that access to the survey be controlled. If the workforce does not have ready access to the Internet or company network, then paper surveys may be required. Paper surveys are what most people think of automatically, and thus there is some comfort with this format. They also allow for group administration, which can help to increase response rates. Voice-response surveys can be done by phone but typically require the survey to be very short and not very complex. Fax-based surveys are still used but have faded in popularity.

Incentives for participation are usually less of a concern for internal employee surveys because people are expected to participate. However, for external surveys (e.g., customer satisfaction surveys), incentives may help boost response rates. Research continues on the most effective incentives, but lotteries based on responses seem to actually reduce responses below levels with no incentive at all. More immediate incentives appear to be more effective. The promise of sharing results can also motivate some respondents.

Finally, the timing of the survey is critical. Organizations should avoid exceptionally busy times (April for accountants, November and December in retail) or times when many employees are expected to be away (summertime or holidays). Organizations need to provide employees with enough time to respond and must accommodate individual travel, vacations, and leave. Having a survey available for only one week may cause employees to miss the opportunity to respond. Two weeks is a short administration period, and two months is relatively long. Of course, online surveys may require a shorter window, and mail surveys need to allow time for postal service. Similarly, the timing of survey action planning must be considered. The survey should be timed so that immediate communication of results and preliminary follow-up action can be taken shortly after the survey is complete and results have been analyzed.

ANALYZING THE SURVEY RESULTS

There are as many ways to analyze survey results as there are questions to be asked. The analysis approach must be geared to the audience that will be receiving the information. Although regression analyses and other higher-level statistics may provide very useful information, they are not appropriate for every audience. Generally, the percentage of favorable responses

to individual questions or groups of questions is summarized. The mean values of items or groups of items may also be compared. For example, categories or questions with relatively high mean values identify areas of strength and categories or questions with relatively low mean values represent opportunities for improvement.

PRESENTING THE SURVEY RESULTS AND TAKING ACTION

The culture within an organization influences how survey results are fed back to employees. Some organizations share results at the department level and then move up the hierarchy, with senior management actually receiving lower-level results last. Other organizations ask for results to be presented at the top first, and then results are rolled out from the top to the bottom of the organization. The direction of the rollout is another opportunity for the company to communicate the importance of the survey and where they expect action to occur.

The results shared depend on the audience and should focus on “what’s in it for them.” Therefore, the results shared with a frontline department will be very different from those shared with the senior management team. Departments want to know how the group felt, where they are up and where they are down, and how they compare with other groups (or the rest of the chain of command). Senior managers want to know which parts of the organization are working well and which require their immediate attention. They also want to know how the results of the organization compare with industry (or competitor) norms.

This raises the important question of whether the focus of analysis and interpretation should be internal or external to the organization. For a first survey, external norms may be an unnecessary distraction when analysis should focus on internal strengths and weaknesses. After initial internal baselines are established, making comparisons to benchmark norms on subsequent surveys can be useful. Once again, the purpose of the survey drives the organization’s focus.

When improvement areas are identified, the organization (or department) must decide where to begin—it cannot necessarily take on every challenge. At this point, commitment from senior management (or department management) is critical. Those who need to make the changes will not be on board unless they believe they will have the needed resources and

support. (Other entries in this encyclopedia provide more detail on taking action in organizations.)

SUMMARY

Surveys are a popular tool in organizations but suffer from the fate that nearly everyone believes that he or she can conduct a survey well. Unfortunately, it is very easy for a survey to be done poorly. By following the steps outlined here, some of the key pitfalls in survey research can be avoided and the benefits of an effective survey can be achieved.

—Peter D. Bachiochi

See also Job Satisfaction; Linkage Research and Analyses; Organizational Surveys; Quantitative Research Approach

FURTHER READING

- Church, A. H., & Waclawski, J. (1998). *Designing and using organizational surveys: A seven-step process*. San Francisco: Jossey-Bass.
- Kraut, A. I. (1996). *Organizational surveys: Tools for assessment and change*. San Francisco: Jossey-Bass.
- Rogelberg, S. G., Church, A. H., Waclawski, J., & Stanton, J. M. (2002). Organizational survey research. In S. G. Rogelberg (Ed.), *Handbook of research in industrial and organizational psychology* (pp. 141–160). Malden, MA: Blackwell.
- Stanton, J. M., & Rogelberg, S. G. (2001). Using Internet/intranet Web pages to collect organizational research data. *Organizational Research Methods, 4*, 199–216.

SURVIVOR SYNDROME

Downsizing is the planned elimination of jobs and positions in order to decrease the number of workers employed by an organization; it is often a response to changing technology, market demands, and institutional pressures. Downsizing occurs in a large number of organizations, and it is increasingly being accepted as a legitimate management tool even in economically healthy organizations. The effects of downsizing extend beyond employees who lose their jobs. Downsizing alters the work environment of the workers who remain in the organization, who are described in the literature as *survivors*. Downsizing can alter the

conditions of survivors' jobs and change their perceptions of the organization. Some studies show that after downsizing, survivors become narrow-minded, self-absorbed, and risk averse. Furthermore, morale sinks, productivity drops, and distrust—especially toward management—increases. This constellation of symptoms is termed *survivor syndrome*.

There are many definitions of survivor syndrome. In general, this syndrome relates to the negative effects experienced by the remaining workforce after a major organizational change. It also refers to the way survivors react when many of their friends are forced to terminate their employment in the organization. Survivor syndrome is described as a mixed bag of emotions exhibited by employees following organizational downsizing—a set of attitudes, feelings, and perceptions. These symptoms can be broken down into four clusters of feelings: (1) fear, insecurity, and uncertainty; (2) frustration, anger, and resentment; (3) sadness, depression, and guilt; and (4) injustice, betrayal, and guilt. These psychological states can affect survivors' work behavior (e.g., motivation, performance) and attitudes (satisfaction, commitment).

Survivors experience apathy, disengagement, distrust, powerlessness, and loss of motivation, morale, and commitment. Their feelings of powerlessness and the uncertainty of their job security can cause severe stress reactions. Furthermore, the high increase in workload following the downsizing may lead to burnout and decreased performance. In situations in which downsizing is perceived as merely a cutback in personnel, commitment and loyalty to the organization among survivors decreases significantly. Survivors feel they have to cope with an additional role while getting little or nothing in return.

Researchers suggest several explanations for survivor syndrome. Some focus on increased job insecurity, perceptions of procedural and distributive injustice, and diminishing intrinsic motivation of the job. Others point to violation of the psychological contract, perceptions of unfairness on the part of the organization, and the organization's lack of future vision. Two concepts are core to the survivor syndrome phenomenon: psychological contract and distributive and procedural justice.

The *psychological contract* refers to the unwritten reciprocity of the relationship between the employer and the employee. It is voluntary, subjective, and informal, and it evolves with time. The essence of the old psychological contract was that the employee

gives his or her complete loyalty and trust to the organization, and the organization takes care of the employee for life. When downsizing occurs, employees feel the psychological contract has been violated by management. Thus, employees feel their psychological contract with the employer has been broken, and they blame management for breaking the contract. Blame among survivors may be a projection defense mechanism that helps them cope with their guilt over surviving the cutback.

Distributive justice refers to the perceived fairness of the way resources are distributed among people. One approach to distributive justice, *equity theory*, proposes that individuals strive to ensure that their own outcome/input ratios are equal to the outcome/input ratios of others to whom they compare themselves. When downsizing occurs, survivors compare themselves to those who have been laid off and experience inequity.

Procedural justice refers to perceptions of the fairness of the procedures used to determine outcomes. In the case of downsizing, it relates to perceptions of the fairness of the procedures used to lay off employees. Studies show that when procedural justice is perceived—fairness in implementing the layoff process—it minimizes survivors' guilt and blame.

Thus, research shows that the following are antecedents of survivor syndrome and decreased performance: downsizing through attrition, leading to skill shortage; no overall work reduction in the organization; inappropriate elements in the reward and appraisal system; and pursuing downsizing without quality improvement programs and redesign.

Several studies have focused on the outcomes of survivor syndrome. A field study investigating the impact of repeated layoffs showed that organizational commitment is negatively related to the severity of the layoff. In a survey of senior managers after downsizing, most reported that their employees had low morale, feared future cutbacks, and distrusted management. Lack of communication before and during cutbacks causes low morale, loss of trust in the organization, and increased stress. Low morale and lack of trust have a ripple effect on all dimensions of activity: Research shows that after layoffs, most survivors have diminishing future expectations, indicating low commitment.

Some researchers have found an inverted-U relationship between the job insecurity of survivors and their work efforts. Positive relationships have been

found among survivors whose economic need to work is high. Laboratory experiments demonstrate that regardless of whether a layoff is accompanied by job insecurity, it elicits an increase in performance among survivors. Survivors who experience job insecurity work harder because they believe that by doing so, they can reduce the threat of layoff. Survivors who do not experience job insecurity work harder to alleviate their feelings of survivor guilt produced by positive inequity.

Findings concerning survivors' coping demonstrate that they cope in ways that are not good for them or their organization. They are reluctant to take personal and organizational risks and demonstrate reduced innovation and productivity. They distance themselves from the layoff victims or, when they identify with them, distance themselves from the organization. Though some survivors try to reduce their feelings of guilt over their peers' layoffs by increasing their output, others redress their feeling of inequity by convincing themselves that those who were laid off were poor performers. Thus, in some cases, the job insecurity of survivors leads to temporarily heightened productivity, but in most cases, it is accompanied by low morale.

Another defense mechanism found among survivors coping with feelings of uncertainty and threat is *identification with the aggressor syndrome*: Some survivors cope with their impotence by identifying with the executive, the perceived aggressor. This enhances their self-esteem by creating a kind of merger with the powerful figure, making them feel like winners and reinforcing their distance from the layoff victims. They feel equity and legitimacy in scapegoating the victims, the losers.

Longitudinal studies following survivors show that wounds do not seem to heal and symptoms intensify with time. Findings from several studies indicate that some procedures can reduce the negative reactions of survivors. These include giving clear explanations of the reasons for the downsizing and providing information

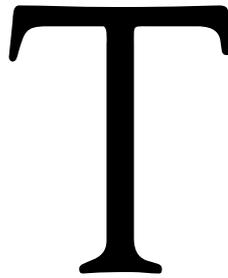
about the compensation given to leavers, as well as the fairness of the organization's decisions (procedural justice), the way management breaks the news, and the level of job insecurity. One recommendation is to treat leavers fairly to prevent survivor syndrome. Managers in downsizing organizations must realize that survivors have experienced a traumatic event that they have little or no control over; therefore, they need reassurance if they are to maintain their commitment to the organization. Managers must realize the need for human resource policies to cope with the effects of downsizing. Organizations should find ways to nurture confidence in organizational support and to make the employees believe the organization cares about their well-being. Organizational support can be fostered by redesigning jobs using job enrichment procedures and implementing employees' empowerment strategies. Creating a future vision that survivors can identify with is also recommended.

—Mina Westman

See also Downsizing; Psychological Contract

FURTHER READING

- Brockner, J., Grover, S., Reed, T., & Dewitt, R. (1992). Layoffs, job insecurity, and survivors' work effort: Evidence of an inverted-U relationship. *Academy of Management Journal*, *35*, 413–425.
- Brockner, J., Wiesenfeld, B., Stephan, J., Hurley, R., Grover, S., Reed, T., DeWitt, R., & Martin, C. (1997). The effects of layoff survivors on their fellow survivors' reactions. *Journal of Applied Social Psychology*, *10*, 835–863.
- de Vries, K., & Balazs, K. (1997). The downside of downsizing. *Human Relations*, *30*, 11–50.
- Sahdev, K. (2004). Revisiting the survivor syndrome: The role of leadership in implementing downsizing. *European Journal of Work and Organizational Psychology*, *13*, 165–196.



TEAM-BASED REWARDS

Rewards for performance are commonly used to maximize work output and productivity. With the increased use of team-based work, a variety of team-based reward systems have been developed, with the intent of maximizing performance and satisfaction in work teams. A *team-based reward* is commonly defined as any formal incentive provided to a work team or at least one of its individual team members. Rewards may be based on organizational, team, or team member performance or other outcomes (e.g., sales, customer satisfaction, and profit).

Rewards provided to teams can be categorized as monetary or nonmonetary. Monetary team-based rewards include one-time cash bonuses, permanently increased base salary, and variable pay (i.e., earning a specified percentage of base salary). Nonmonetary team-based rewards include achievement awards, time off work, and special dinners. Team-based rewards can be distributed equally across team members, so that all members receive the same reward (e.g., amount of money, recognition award), or nonequally, either based on individual performance within the team (i.e., equitably) or in proportion to individual base salary.

There are seven major categories of team-based rewards:

- *Team gainsharing/profit sharing.* Team rewards are tied to organizational outcomes; rewards are generally cash in nature and shared equally among all teams in the organization. With profit sharing, the

organizational outcome is financial in nature (e.g., organizational profit); *gainsharing* refers to nonfinancial organizational outcomes (e.g., overall company customer satisfaction, improvements in organizational productivity or quality).

- *Team goal-based rewards.* The organization (often in conjunction with the team) formulates goals or targets for each team that are believed to reflect effective short- or long-term performance outcomes (e.g., predetermined production objectives, customer service goals). When the team meets its goal(s), it earns predetermined reward(s).
- *Team discretionary rewards.* Also known as *spot rewards*, these team-based rewards, like goal-based rewards, evaluate team outcomes (e.g., customer satisfaction, team productivity) when determining whether a specific team should be provided with incentives. Unlike in goal-based systems, however, the team is not provided with a predetermined performance standard that will guarantee the receipt of a specific predetermined reward. Instead, when the organization determines a team has done an outstanding job, the team is provided with a reward.
- *Team skill rewards.* Teams are rewarded for acquiring valued skills (e.g., collaboration, cooperation, interpersonal understanding) regardless of team outcomes, following the rationale that if such skills improve, desired outcomes will eventually be achieved. Skills are generally evaluated by supervisors.
- *Team member skill rewards.* Individual team members are rewarded for acquiring team-related skills (e.g., adaptability, communication, leadership, initiation of ideas). Skills are generally evaluated by other team members and/or supervisors.
- *Team member goal-based rewards.* Individual team members are rewarded when they achieve

predetermined performance goals, often in conjunction with quarterly or annual formal performance evaluations.

- *Team member merit rewards.* Individual team members are rewarded when they make an outstanding contribution to the team, as determined by other team members and/or supervisors.

RESEARCH ON TEAM-BASED REWARDS

Research on team-based rewards has generally lagged behind other categories of work team research. Although much additional research is required, existing work suggests that team-based rewards may have greater impact on the productivity of lower-performing team members. Additionally, highest-performing employees appear to prefer individually based rewards. An accumulating body of evidence suggests that as team interdependence increases, team-based rewards are most effective when based on equal rewards for team members; otherwise, group cohesiveness and performance may be negatively affected.

TEAM-BASED REWARD EFFECTIVENESS

To date, practical experience suggests that several factors need to be considered when choosing a team reward system. As noted above, the majority of these guidelines have not been the target of substantial research.

- *Team interdependence.* High within-team interdependence (e.g., need for cooperation in performing tasks and meeting team goals) suggests the need for equal distribution of rewards among team members. Current research does not clearly support the belief that such reward systems encourage slacking among team members. Equitable reward systems may be more useful for less interdependent teams. To the extent team cooperation is required throughout the organization (i.e., high between-team interdependence), profit-sharing systems may be most effective.
- *Full- versus part-time teams.* Full-time work teams may benefit most from clear, predetermined performance targets. Skills incentive systems may be useful for these teams, as they encourage team members to learn one another's tasks. When tenure on a work team is part-time and temporary, an important consideration is ensuring that team-based rewards are not so enticing that they conflict with other (non-team) job responsibilities.
- *Line-of-sight.* As the basis for reward is further outside of the team's immediate control (commonly termed

the *line-of-sight problem*), reward systems may become less effective. This is a particular concern in large organizations, where individual teams may perceive little direct control over organizational outcomes as a whole (e.g., organizational profit).

- *Measurable performance standards.* It is important to ensure that it is possible to measure aspects of performance that are the basis for rewards. This may be particularly critical when it is necessary to assess contributions of team members relative to team outcomes; otherwise, rewards may be perceived as unjust.
- *Additional factors.* Other factors that influence team-based reward effectiveness may include team composition (same or mixed gender; same or mixed occupation teams); organizational context factors (e.g., type of industry, size of organization); and team pressures (e.g., time pressure, stress), to name a few.

—Jody Hoffman

See also Compensation; Gainsharing and Profit Sharing; Group Cohesiveness; Groups; Incentives; Intrinsic and Extrinsic Work Motivation; Performance Appraisal; Social Loafing

FURTHER READING

- Beersma, B., Hollenbeck, J. R., & Humphrey, S. E. (2003). Cooperation, competition and team performance: Toward a contingency approach. *Academy of Management Journal*, 46(5), 572–590.
- Hoffman, J. R., & Rogelberg, S. G. (1998). A guide to team incentive systems. *Team Performance Management*, 4(1), 23–32.
- Jenkins, G. D., Mitra, A., & Gupta, N. (1998). Are financial incentives related to performance? A meta-analytic review of empirical research. *Journal of Applied Psychology*, 83(5), 777–787.
- Johnson, D. W., Maruyama, G., Johnson, R., Nelson, D., & Skon, L. (1981). Effects of cooperative, competitive, and individual goal structures on achievement: A meta-analysis. *Psychological Bulletin*, 89, 47–62.
- Rynes, S. L., Gerhart, B., & Parks, L. (2005). Personnel psychology: Performance evaluation and pay for performance. *Annual Review of Psychology*, 56, 571–600.
- Stoneman, K. G., & Dickinson, A. M. (1989). Team member performance as a function of group contingencies and group size. *Journal of Organizational Behavior Management*, 10, 131–150.
- Wageman, R., & Baker, G. (1997). Incentives and cooperation: The joint effects of task and reward interdependence on group performance. *Journal of Organizational Behavior*, 18, 139–158.

TEAM BUILDING

Teamwork has always been an important feature of successful organizations, but the use of teams as a business strategy and structure was relatively rare until the 1980s. Now, in the 21st century, work teams have become a common feature in many manufacturing and product development organizations, service organizations, and government agencies. They range from ongoing work teams on the floor of a manufacturing plant, to white collar teams, teams of managers or executives, problem-solving committees, project-based teams, or task forces that exist only for the duration of a given problem.

Although the effectiveness of these teams varies considerably from organization to organization, teams work best when they are composed of employees who have interdependent jobs and the best subject matter knowledge of the work to be accomplished, and when the leadership of the organization plays an active role in establishing and supporting them.

People often equate team building with trust building or relationship building, but that is only half of what is needed to develop a group of individuals into a highly functioning team. Teams exist to perform, to accomplish something for the organization. Thus, team building must also include knowledge of business objectives and the development of goals, roles, and procedures needed to get the job done. Team-building efforts must be task-oriented as well as relationship-oriented.

How teams are built will be, to some extent, a function of the type of team being implemented, but all team-building efforts need to include the following characteristics:

- Alignment around goals
- Clarification of roles
- Establishment of policies and procedures
- Building effective working relationships
- Working with the environment, including support systems

Team building can be done within the team, or at the organizational level, where multiple teams, or even a team-based organization, is desired. Team building can also be done within the team itself.

ORGANIZATIONAL LEVEL

Organizational team building generally begins with a steering committee composed of the leadership of the organization (at the local level). For example, a steering committee in a manufacturing plant would typically be composed of the operating committee of that plant, as well as the local union leadership in unionized plants. (In unionized settings, the authors strongly recommend bringing the union in at the beginning of any team-development effort.) The steering committee would determine the following framework for the teams:

- *Goals.* Often established with a charter or mission statement. Why is the organization developing and launching teams? What are goals for having teams in the organization?
- *Roles.* How teams would be structured. Within functions? Cross-functionally? How many teams? How many members for a given team? How will we deploy and use talent? To whom do the teams report? Are there leaders on each team? Will members be expected to learn one another's jobs and rotate among the jobs? Who is to make which decisions?
- *Policies and procedures.* How are members and leaders selected? How are team meetings conducted? What kinds of issues can the team address on its own? Are team decisions to be made by consensus?
- *Relationships.* How do we ensure that the teams function effectively? How will the teams manage conflict? How will we reinforce good team behavior?
- *Environment.* How will the various organizational systems (e.g., finance systems, personnel systems, communications systems, rewards systems) support the teams?
- *The plan for rolling out teams in the organization.* What will be the timing? Will the teams process be piloted in some areas of the plant?

Once the steering committee has established this framework, the organization can begin the actual implementation of its teams. Implementation will consist of preparing the organization, providing training in the necessary skills, management of the relevant support systems, and the actual launching of the teams. The steering committee/leadership team will also have to provide ongoing direction and support to the teams. Direction may be in the form of policy deployment, in which business goals are established for each team. Support will be ensuring that the team is able to get its issues resolved and its ideas

implemented. Direction and support from leadership is absolutely critical in any successful organizational team-building effort.

Launching of the teams may well begin with one or more pilots of the proposed team structure. Pilots are often helpful, particularly in brownfield sites (usually underused or abandoned commercial/industrial property that may also be environmentally contaminated), where the organization or plant has been in operation with the same employees over a period of time without teams. Pilots enable the steering committee to test its strategy for its teams and to see what adjustments it should make before rolling out teams throughout the entire organization. Pilots are also a confidence builder for the organization (including management, the union, and employees generally), proving that it has a workable and successful process. Teams should be implemented at a pace that is supportable by the organization. Launching teams that fail, because they are not supported or because they lack direction or skills, will substantially impede the overall team implementation process.

Preparing the organization consists generally of communication to midlevel management and other employees—answering their questions about the teams' process and addressing their concerns. Questions can be expected to include how a given employee's job will change when the teams are implemented (i.e., What will my new job look like? Will I need to learn new skills?).

Selection of team members and team leaders is important. Often teams will be composed of the existing employees of the organization. If new members are being brought in, selection procedures should support teamwork. Selection procedures should also be established to ensure that new team leaders have good people skills and also will work to help the organization achieve its goals.

Skill development—of both team members and leaders—is also critical. Generally, new or additional skills are required for team members to perform effectively. These skills usually cluster into three groups:

- Technical skills (to get the job done)
- Teamwork skills (the interpersonal and facilitative abilities needed to help people work and solve problems together)
- Business skills (understanding of business metrics, how the organization functions regarding quality, timing and material flow systems, and the computer systems relevant to team members' jobs)

Ensuring systems support for teams is also critical. Team efforts in some organizations are hindered by some of the systems already in place in the organization. (Systems to monitor in a manufacturing plant would be the engineering, finance, information, and human resource systems.) For example, if the finance systems in a plant discourage team development by penalizing teams for meetings, training, implementation of ideas, and so on, organizational leadership will need to manage this, or the teams' process will continually be swimming against the current. If major support systems are congruent with the team-building effort, they will aid considerably in the long-term health of the teams.

The final piece of organizational team building is evaluation (and adjustment where required). Teams should be evaluated on a regular basis to ensure they are using the right processes and that they are achieving anticipated results. If teams are not achieving the goals set out for them, leadership needs to ask why and to take the actions required to help the teams become more successful.

TEAM LEVEL

Team building within the team will also be critical. Generally, this team building will be ongoing rather than a one-shot session and will be composed of training and discussion specific to that team. Also, team-building training, as opposed to training for skill development, is conducted with the entire intact team, rather than with individuals. Topics might include the following:

- *Goals.* Training/discussion may be focused on how to set clear goals. Many organizations insist on teams negotiating a team charter between the team and responsible managers (and union leaders) to empower the team to accomplish things on behalf of the organization.
- *Roles.* It is important that each member of the team understand the roles and responsibilities he or she is expected to fulfill for this team to succeed. An understanding of the talent that exists on the team, and how best to use it, allows members to understand why clear roles are important. Group dynamics roles should be clarified in addition to task-related roles.
- *Procedures.* Training/discussion should be focused on how to identify and resolve problems, how to reach consensus decisions, and how to conduct effective and efficient meetings. Time may also be dedicated to the establishment of specific work task procedures. This standardization of work may be especially important if the team members are

expected to learn one another's jobs and to rotate among positions on the team.

- *Relationships.* Training/discussion may be focused on improving communication skills (especially effective listening and providing constructive feedback) and how to enhance conflict resolution skills. Sessions may also be dedicated for team members to get better acquainted, in the hope that this will lead to greater trust among members. (An area that probably deserves more research is to investigate whether these bonding activities actually lead to greater performance or whether greater performance of a team leads to increased bonding among team members.) Regardless of the causal relationship between these elements, it is generally thought that respect, trust, and embracement of the benefits of diversity are key dimensions of the relationship side of team development.
- *Environment.* Teams are not closed systems. It is critical that they interact effectively with their external environments. Teams need good diplomatic relationships with key managers, union officials, other teams, and the functions that affect their performance. Team members must feel free to disagree with each other during team meetings but should present a united, positive front to the rest of the organization.

Virtually all teams experience times when they feel stuck. This can occur if teams have resolved the easy problems and are now confronted by more complex problems. Teams can become snagged on political issues. Also, teams are often changed by the introduction of new members or the loss of some old members. It is important to monitor the health of teams and take steps to intervene to help them stay viable. These steps may include revisiting the team-building steps described earlier in this chapter and especially asking the team to revisit its charter. Teams should be asked to apply the problem-solving and planning skills they have learned in their team-building sessions to the problems underlying their own performance.

SUMMARY

Team building can be done at the organizational level and within the team itself. All team-building efforts will address goals, roles, policies and procedures, relationships, and the environment. Team building at the organizational level will also require preparation of the organization, skills development, management of support systems, and evaluation of the teams.

—Lee O. Sanborn and Gregory E. Huszczo

See also Group Cohesiveness; Group Development; Group Dynamics and Processes; Groups

FURTHER READING

- Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management*, 23, 239–290.
- Hackman, J. R. (2002). *Leading teams: Setting the stage for great performance*. Boston: Harvard Business School Press.
- Huszczo, G. E. (2004). *Tools for team leadership: Delivering the X-factor in team excellence*. Palo Alto, CA: Davies-Black.
- Katzenbach, J. R., & Smith, D. K. (2002). *The wisdom of teams: Creating the high-performance organization*. New York: Harper Business Essentials.
- Shonk, J. H. (1982). *Working in teams: A practical manual for improving work groups*. New York: AMACOM.
- Weldon, E., & Weingart, L. R. (1993). Group goals and group performance. *British Journal of Social Psychology*, 32, 307–334.

TEAM DEVELOPMENT

See GROUP DEVELOPMENT

TEAM MENTAL MODEL

The notion of a team mental model was introduced in 1990 to account for the fluid, implicit coordination frequently observed in effective teams and to advance the understanding of how teams function in complex, dynamic, and ambiguous situations. For example, the seemingly effortless execution of a blind pass in basketball illustrates a well-known situation in which team members correctly predict the positioning and readiness of other team members on the court. In contrast, postincident investigations of many catastrophic aviation incidents reveal breakdowns in teamwork, as well as ambiguity with respect to who is responsible for specific tasks. Therefore, both team successes and failures speak to the necessity of being “on the same page” with respect to what to do, with whom, and when to do it.

Team mental models are thus defined as team members' shared, organized understanding and mental

representation of knowledge about key elements of the team's relevant environment. The general thesis of this emerging literature is that team effectiveness will improve if team members are mentally congruent and have an adequate shared understanding of the task, team, equipment, and situation. Teams whose members share mental models of both task and team variables are expected to have more accurate expectations of team needs and be better positioned to anticipate the actions of other members, as compared with teams whose members do not have a shared mental model.

THE IMPORTANCE AND FUNCTION OF TEAM MENTAL MODELS

At the most basic level, a *mental model* is a cognitive structure or network of associations between concepts in a person's mind. The information stored in mental models, which helps to explain and predict events, enables individuals to interact more efficiently with their environment. Having built its foundation on this earlier individual-level research, the current mental model literature has been expanded to incorporate cognitive processes at the team level, thus helping to account for team actions and behaviors. Although cognition is normally thought of at the individual level of analysis, the existence of group-level cognitive structures is receiving widespread acceptance because of the increasing emphasis on teams in research and in organizations.

Team mental models bring explanatory power to team performance by directly affecting team processes and enabling members to formulate accurate teamwork and task work predictions. Individuals involved in teams must devote their efforts not only to completing the task at hand but also to synchronizing their efforts with other team members. Thus, team mental models fulfill multiple purposes, including description, prediction, and explanation. Not surprisingly, team mental models are especially crucial to team functioning in emergency situations because of the way in which they allow team members to anticipate and initiate the exchange of information and required resources when there is not enough time for explicit communication.

THE NATURE OF TEAM MENTAL MODELS

The studies of mental model type and mental model similarity have been at the forefront of some of the

earliest work in the team mental model literature. Team members develop multiple mental models to represent their environment, but researchers have primarily focused on two types of mental models. Whereas task-focused mental models include representations of the equipment, procedures, and performance requirements, team-focused models include information about the interpersonal interaction requirements and skills of other team members.

Mental model similarity is defined as the level of congruence across team members' mental models. Rather than being dichotomous in orientation, mental model similarity is generally measured along a continuum. At one end, team members hold incongruent mental models, in that their mental representations of people, places, and things related to the task at hand are strikingly different from one another's. At the other end of the continuum, the mental models of each team member are seemingly identical. It is worth noting, however, that the optimal level at which information should be shared among team members remains a prominent focus of the team mental model literature. At present, the consensus seems to be that the degree of information overlap needed for effective team functioning depends on a number of factors, including the nature of the task and the type of mental model in question.

THE MEASUREMENT OF TEAM MENTAL MODELS

The concept of team mental models is undoubtedly complex. It is further complicated by the fact that various researchers have measured the construct in different ways. One of the most common measurement techniques collects relatedness ratings from participants by asking them to provide quick, intuitive judgments regarding the similarity between concept pairs. These judgments, which are individually analyzed via a computerized scaling program, are then graphically transformed to represent the way in which elements are organized within each individual's mind. The similarity of element structures among each of the team members can then be compared by means of statistical indexes.

Concept mapping, another team mental model measurement technique, requires individuals to select pre-labeled concepts that best depict their actions during a task, and then place these concepts in the appropriate rows on a concept map. Respondents are also asked to indicate which concepts depict the actions of

their teammates during a task. Given the complexity and multidimensional nature of team mental models, researchers propose that multiple measures are often necessary for thorough assessment.

RESEARCH ON TEAM MENTAL MODELS

Empirical work on team mental models has substantially lagged behind conceptual development. Nevertheless, the team mental model literature has seen a flurry of activity and research in the last decade. Although many of the studies have engaged team members in computer-based flight/combat simulations, more recent work has begun to investigate how mental models converge in organizational teams performing actual tasks. As this research is still in its formative stages, there is a need for continued conceptual development of the construct and empirical support linking team mental models to antecedents and outcomes.

ANTECEDENTS

Research from several studies has provided evidence to suggest that team members can be trained to mentally organize incoming performance-relevant information in such a way as to facilitate the development of mental models that are shared among the majority of team members. Shared mental model training interventions (e.g., self-correction training, computer-based instruction) have shown promise, owing in large part to their ability to foster various teamwork skills, such as monitoring and backup behaviors that allow team members to observe one another's needs. In addition, team planning has been shown to increase mental model similarity among team members. Because little work has focused on antecedents, researchers have called for more studies to investigate the individual-, team-, and organizational-level variables that contribute to the development of team mental models.

OUTCOMES

The construct of a team mental model was developed to help explain performance differences between teams. Therefore, a common theoretical assumption is that they are precursors to effective team performance. Indeed, several studies have demonstrated that both shared teamwork and task-work mental models relate

positively to team processes and performance. When team members share similar mental models, their interpersonal interactions appear more effective, thus enabling them to perform more successfully.

Although most of the research has been devoted to the degree of sharedness among team member mental models, the quality of teammates' mental models is another concept that has been examined. Researchers have argued that team mental model similarity alone does not ensure success. They have pointed out that certain mental models may in fact be inaccurate, thus leading to potentially more detrimental (rather than successful) performance. Consequently, most researchers have concluded that highly convergent mental models, in combination with those that are of high quality, will yield the greatest performance benefits for teams.

SUMMARY

As a result of an increasingly global marketplace, the formation of teams whose members are often separated, temporally and/or geographically, has instigated a renewed interest in identifying the keys to successful team performance and effectiveness. Given the promising results from a number of team mental model studies, researchers have become increasingly confident that at least one of these keys lies within the team mental model domain. They have argued, first and foremost, that we cannot begin to understand team actions and behaviors until we begin to understand team cognitive processes. Thus, despite its relative infancy, the construct of team mental models has the potential to advance our understanding of work teams, therefore warranting further investigation in coming years.

—Susan Mohammed and Lori Ferzandi

See also Group Dynamics and Processes; Groups; Team-Based Rewards; Team Building

FURTHER READING

- Cannon-Bowers, J. A., Salas, E., & Converse, S. A. (1993). Shared mental models in expert team decision making. In N. J. Castellan Jr. (Ed.), *Current issues in individual and group decision making* (pp. 221–246). Hillsdale, NJ: Lawrence Erlbaum.
- Klimoski, R., & Mohammed, S. (1994). Team mental model: Construct or metaphor? *Journal of Management*, 20(2), 403–437.

- Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Cannon-Bowers, J. A., & Salas, E. (2005). Scaling the quality of teammates' mental models: Equifinality and normative comparisons. *Journal of Organizational Behavior, 26*, 37–56.
- Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Salas, E., & Cannon-Bowers, J. A. (2000). The influence of shared mental models on team process and performance. *Journal of Applied Psychology, 80*, 191–195.
- Mohammed, S., & Dumville, B. (2001). Team mental models in a team knowledge framework: Expanding theory and measurement across disciplinary boundaries. *Journal of Organizational Behavior, 22*, 89–106.
- Mohammed, S., Klimoski, R., & Rentsch, J. (2000). The measurement of team mental models: We have no shared schema. *Organizational Research Methods, 3*(2), 123–165.
- Smith-Jentsch, K. A., Campbell, G., Milanovich, D. M., & Reynolds, A. M. (2001). Measuring teamwork mental models to support training needs assessment, development, and evaluation: Two empirical studies. *Journal of Organizational Behavior, 22*, 179–194.

TEAMS

See GROUPS

TELECOMMUTING

The idea for *telecommuting* started in the early 1970s. A scientist stuck in Los Angeles traffic reasoned that a good deal of time and stress could be saved by moving the work to the employee instead of always moving the employee to the work. Since that time, communication technologies (e.g., fax, mobile phones, e-mail, the Internet, and instant messaging) and information technologies (e.g., the personal computer) have become more common. Subsequently, work has begun to move out of the traditional work space. Employees have become freed of time and place constraints to work whenever and wherever they choose.

Telecommuting and *teleworking* are often used interchangeably when referring to working outside of an organization. However, *telework* is usually considered the more general term and refers to any use of communication or information technologies to substitute for work-related travel. Virtual teams of coworkers

who are scattered around the world can be considered teleworkers even if all of them work within an office.

Telecommuters are a subset of teleworkers. These are employees who work outside of a main office. There are four main types of telecommuters. The first, and most well known, are telecommuters who work from their homes. These telecommuters may have a dedicated home office space or may simply set up their laptop on the kitchen table. Although some home-based telecommuters work from their home every day, most do not. Some telecommute from home only one or two days a week, and some only once a month.

The second type of telecommuter is found in satellite offices that are located outside the home and outside the main office. Satellite offices provide an organizational location convenient to customers or to the employees, but it is still considered a type of telecommuting because even though employees may be close to other employees of their organization, they may be separated from their primary coworkers and teams.

A third type of telecommuter works in a neighborhood office. This telecommuting arrangement is similar to the satellite office except that the office is not dedicated to one organization. Instead it is occupied by employees from several different organizations. Thus, telecommuters interact with other employees, but not necessarily ones from their own organization.

Mobile workers are the final type of telecommuter. These employees work on the road in their car, hotels, and airplanes. These employees have no dedicated work location and no colleagues with whom they regularly interact while working.

Home-based telecommuting is the most common form of telework. In 2004, 24.1 million employees engaged in home-based telecommuting at least one day per month. An additional 20.3 million self-employed workers can also be classified as telecommuters. That means that nearly 20% of the workforce works at home at least part-time. It is expected that the number of home-based telecommuters will grow as technology improves and it becomes more acceptable for employees to work outside of an office.

How do employees become telecommuters? Telecommuting programs are either informal or formal. Informal telecommuting occurs when employees irregularly work away from the office. Employees and their managers may decide that the employees should work at home occasionally to focus on a particular

project or to save commuting time for specific personal obligations (e.g., a doctor's appointment).

Formal telecommuting programs involve an arrangement between the employees and their human resources department. A formal program may mean changing the employees' classification to signal to other employees their telecommuting status, providing training on setting up a home office, and creating monetary allowances for purchasing home office supplies.

Historically, telecommuting was offered primarily to high-performing, trustworthy employees. Managers were more likely to grant their best employees the benefit of working without immediate supervision. Many organizations made it clear that telecommuting was not for employees who just wanted the convenience of working at home. The arrangement had to be mutually beneficial to the organization and the employee.

However, as telecommuting becomes more common, employees of all types are starting to work outside the office. Additionally, a new generation of employees with significant experience and comfort with technology is coming on the market. Organizations may offer telecommuting to these employees as a competitive hiring perk. Managers may soon be faced with a growing number of employees with whom they do not have regular face-to-face contact.

ADVANTAGES AND CHALLENGES TO TELECOMMUTING

As telecommuting becomes more common, we are learning about the advantages and challenges it brings to working. Telecommuting can offer many benefits to the individual employee, the organization, and society. For the individual, telecommuting can be less stressful. Telecommuters have more autonomy and flexibility in how they structure and conduct their work. Telecommuters can work in a comfortable work environment (e.g., their home) with fewer distractions. They are often less involved in the normal office politics, a source of stress for many traditional employees.

One of the most common perceived benefits for telecommuters is the ability to balance their work and family obligations. By reducing their commuting time, they are able to spend more time with their family. Eliminating a 40-minute one-way commute allows telecommuters an additional 6.5 hours a week to spend with their families or working at home.

Additionally, telecommuters' flexibility allows them to schedule their work around family obligations—for example, starting work early in the morning so they can stop work early to attend a daughter's soccer match. Overall, telecommuters are more satisfied than traditional employees.

Organizations also benefit from telecommuting. Organizations report a higher quality and a greater quantity of work from their telecommuters. Telecommuters report that they work better because of the fewer interruptions they experience by working at home compared with at the office. Additionally, telecommuters benefit their organization with lower turnover and lower absenteeism. Telecommuters are less likely to call in sick to stay at home when they are already working at home.

Telecommuting also reduces the overhead that organizations have to spend on housing their employees. Estimates are that organizations save \$5,000 per year on every employee who telecommutes full-time. Some organizations have even implemented wide-scale telecommuting programs as part of an effort to reduce their costs.

Society benefits by the reduction in commuting time and the number of commuters on the road. Less pollution and traffic congestion benefit everyone and are the main reasons why many traffic-dense urban communities support telecommuting initiatives. Some communities also believe that when employees work at home, it makes neighborhoods safer and residents more active in community life.

Telecommuting is not, however, without its challenges. Telecommuting can isolate employees both socially and professionally. Socially, telecommuters lose their informal interactions with their coworkers, often known as *water cooler talk*. Although these informal interactions can be considered interruptions to work, they serve as important conduits of social, political, and organizational knowledge. Without these interruptions, telecommuters may work more productively, but they know less about the norms and culture of their coworkers and the organization. They are out of the loop with the rest of the organization and may become less committed and attached to the organization.

Professionally, telecommuters have less access to mentoring and other developmental relationships at work. Telecommuters might actually work with managers and coworkers whom they have never met face-to-face. Career development may be impeded because

telecommuters are “out of sight and out of mind” when managers consider promotions and additional job responsibilities.

Managers’ control over the employee and their efforts at performance management and monitoring are more challenging. Managers who are used to seeing their employees working hard at their desks may feel uncomfortable at the thought of supervising an absent employee. Managers of telecommuters have to move to a results-oriented style of management; they have to learn to focus more on outcomes and project completion than on effort.

Teleworkers also have to change their work style. They must become more proactive and take charge of their job responsibilities. They have to become more structured in managing their days and their work to be effective.

Telecommuting may be particularly challenging for teams. The lone telecommuting member of a team may be less influential. Work coordination is particularly a problem if employees do not have adequate technology at their home. Broadband Internet is an essential technology for employees who need to share data and files and use the standard business communication technologies. The use of broadband Internet at home is increasing from 4.4 million telecommuters in 2003 to 8.1 million in 2004. However, this number still represents only around one-fourth of home-based telecommuters. Therefore, team members of telecommuters without broadband still face challenges sharing their work.

Ironically, work–family balance is also a challenge for the home-based telecommuter. Whereas telecommuting’s flexibility and autonomy can help telecommuters meet their family needs, this same flexibility can make balancing work and family obligations difficult. If family members are home during regular work hours, telecommuters may struggle to ensure that young children, spouses, and even neighbors understand that they are really working. Telecommuters may also feel pressure to complete household chores during paid work time when they see a kitchen full of dirty dishes or laundry in the hamper. If telecommuters do combine their work, domestic, and child-care responsibilities during work hours, they may have to extend the amount of time they work to accommodate all of these roles.

Additionally, employees who work at home never get to leave work. Because all their work information and communication technologies are at home,

telecommuters may feel more pressure to answer the work phone or check their work e-mail outside their paid work hours. Pressure may also come from knowing that with their reduced visibility, they need to compensate by being available to their colleagues at any time.

Telecommuters who work with global teams may be expected to be available at odd hours of the day and night. Although this is true for all global team members, telecommuting team members are particularly susceptible because they have access to their work communication technologies 24 hours a day. For example, a telecommuter on the East Coast of the United States may need to be available for early morning meetings with coworkers in western Europe and late evening meetings with coworkers in Australia. Thus, telecommuters may work longer hours than the traditional office-bound employee.

Interestingly, some research doesn’t support the idea that telecommuters work more hours than traditional employees. It may be that telecommuters perceive that they are working more hours because signs of work are constantly visible. They may also report working more hours to justify the flexibility they have for working at home.

FUTURE CONCERNS

As telecommuting becomes a more popular work option, employees and organizations will have to pay attention to important emerging issues. One important concern is ensuring that the home environment is conducive for work. Some organizations require that telecommuters arrange day care for their young children. Other organizations encourage telecommuters to have a dedicated work space (e.g., a separate room with a door) to provide physical as well as psychological boundaries from the rest of the house. For example, a shared space near the family’s living area is not as conducive to work as a dedicated office space in an isolated part of the house. These physical and psychological boundaries are important to maintaining work–family balance and to keep work from overtaking the home and vice versa.

Technological support will also be important. Although broadband use is increasing, it is still at a level much lower than the number of telecommuters. Additionally, as work technology at home becomes complicated, organizations will need to determine how to support home workers when these technologies

are upgraded or inevitably break down. Organizations will need to focus on distributed training as well as providing help desks that can assist with the unique configurations of telecommuters.

The lack of informal communication with coworkers continues to be a problem. Currently, no communication technology can replace water cooler talk. Organizations and managers may need to pay particular attention to including social small talk with their work communications to keep telecommuters informed about and connected to the organization.

Finally, new employees who start as telecommuters will be a challenge. Employees who never work face-to-face with others may not adequately be socialized into the organization's culture. They may operate as free agents with little commitment to the organization and a higher likelihood of turnover. As telecommuting and teleworking rates increase in our workforce, organizations may need to focus on ensuring that these employees participate as full-fledged members of the organization.

—Anita Blanchard

See also Job Design; Organizational Communication, Informal; Virtual Organizations; Virtual Teams; Work-Life Balance

FURTHER READING

- Cooper, C. D., & Kurland, N. B. (2002). Telecommuting, professional isolation and employee development in public and private organizations. *Journal of Organizational Behavior*, 23(4), 511–532.
- Golden, T., & Viega, J. (2005). The impact of extent of telecommuting on job satisfaction: Resolving inconsistent findings. *Journal of Management*, 31(2), 301–318.
- Hill, E. J., Ferris, M., & Martinson, V. (2003). Does it matter where you work? A comparison of how three work venues (traditional office, virtual office and home office) influence aspects of work and personal/family life. *Journal of Vocational Behavior*, 63(2), 220–241.
- Kurland, N. B., & Bailey, D. E. (1999, Autumn). Telework: The advantages of working here, there, anywhere, everywhere. *Organizational Dynamics*, 53–67.
- Madsen, S. R. (2003). The effects of home-based teleworking on work-family conflict. *Human Resources Development Quarterly*, 14(1), 35–58.
- Raghuram, S., Wiesenfeld, B., & Garud, R. (2003). Technology enabled work: The role of self-efficacy in determining telecommuter adjustment and structuring behavior. *Journal of Vocational Behavior*, 63(2), 180–198.

TEMPORARY WORKERS

See **OUTSOURCING**

TERRORISM AND WORK

On September 11, 2001, in the largest terrorist attack in history, four passenger planes were commandeered by terrorists and flown into the office buildings of the World Trade Center Twin Towers and the Pentagon, killing an estimated 3,000 people and injuring another 250. This tragic event was an extreme example of the many acts of terrorism that have been targeted at workplaces. Workplaces may be particularly attractive targets of terrorism for several reasons. A large number of people congregate in workplaces and are present at predictable times during the day, providing a social address where a targeted individual or group can be accessed. Attacks on workplaces are also likely to gain significant public attention. In addition, workplaces may be perfect targets from an ideological perspective, as certain workplaces may be selected because they represent an ideology to which the terrorists are opposed.

Given that there is a great deal of variation in the targets of terrorism, the nature of terrorist organizations, and the strategies used by terrorists, *terrorism* has been defined in a number of different ways. However, common to the majority of these definitions are the notions that terrorism involves intentional violence or aggression, is motivated by a political agenda, focuses attention on the cause or ideology underlying the attack, and is conducted for the purpose of creating fear among a populace, wherein this fear is leveraged to achieve a particular goal. Terrorism can be distinguished from other forms of organizational violence by the fact that one of the main motivations of acts of terrorism is the creation of fear.

POSTTERRORISM RESEARCH FINDINGS: THE INDIVIDUAL AND THE ORGANIZATION

Research suggests that organizations may be greatly affected by terrorism both as an immediate result of the attack itself and in the aftermath of an attack. As a direct and immediate result of a terrorist attack, an organization may suffer the loss of employees,

employees may sustain injuries, and physical structures and resources may be damaged or destroyed. Employee and organizational suffering may continue in the aftermath of a terrorist attack. Employees may suffer clinical or subclinical psychological trauma. A number of studies have suggested that people who are victimized by terrorist attacks may develop clinically significant symptoms severe enough for a diagnosis of posttraumatic stress disorder or clinical depression. The likelihood of developing clinical symptoms has been found to be heightened with increasing proximity to the location where a terrorist attack took place and with increasing extremity of the attack. Although clinical psychological diagnoses are common following a terrorist attack, subclinical symptoms are even more widespread. In the aftermath of terrorism, one frequent response is a heightened feeling of personal vulnerability and lack of safety. For instance, following the September 11 terrorist attacks, studies found that people continued to fear future attacks as long as six months after the attacks. An increase in somatic ailments such as headaches and sleep disruptions can also be associated with the strain of having experienced a terrorist attack. Although most of the research to date on the aftermath of terrorism has focused on the general populace, rather than employees of targeted organizations, it is reasonable to assume that the effects on the populace are fewer than the effects on members of a targeted organization.

One organizational outcome of the grief, bodily injury, and psychological and physical symptoms resulting from the stress and fear of terrorism is an increase in employee absenteeism. There may be a number of reasons why employees want to stay away from their workplace. Employees may be afraid to return to work, concerned about the possibility of another attack. Employees may also be grieving the loss or harm of coworkers and may need time to recover from their grief before facing the workplace. Employees may also be physically incapable of returning to work as a result of sustaining injuries during an attack, or because they are coping with the strain from the attack. Although absenteeism has negative implications for organizations in terms of lost productivity and the disruption of routine, following a terrorist attack, absenteeism might have some positive benefits, as a period of employee absenteeism may ultimately prevent turnover resulting from the accumulation of stress that can lead to chronic depression or disability.

Another organizational outcome of terrorism is that the work environment is likely to be disorganized, and

role ambiguity may result. If coworkers have been killed or injured, if the resources required to perform one's job have been destroyed, or if the workplace itself has been destroyed, employees' routines may be completely disrupted. Under these circumstances, individuals may be unsure how to go about performing their normal job-related tasks. Lacking job clarity can impair people from accomplishing their job-related goals, and individuals' job performance may suffer.

As a result of a terrorist attack, organizations may incur a number of financial costs, as physical structures and resources may need to be rebuilt or replaced. Organizations may also lose employees through death, injury, or turnover, making it necessary for them to hire, socialize, and train new employees. Organizations may also need to assist workers with medical or psychological treatments. This may involve the use of in-house employee assistance programs or may involve making payments for these services to external treatment centers. These financial costs to the organization may lead to other organizational problems, to the extent that the attention of the organization is diverted from other workplace issues. Finally, as a result of absenteeism and the loss of people, resources, and the ability of employees to focus on their job tasks, an organization's productivity may suffer greatly, which can contribute to the extensive financial costs that may be incurred from a terrorist attack.

One unique outcome of terrorist attacks is that an individual does not have to work for the targeted organization to experience psychological distress or a disruption of work following an attack. For instance, some people may work in organizations that are similar to the one targeted for attack. People in these organizations may feel an increased level of vulnerability and fear. Other people work in occupations that force them to deal with the aftermath of a terrorist attack. Such is the case for occupations such as investigators, emergency service personnel, and body handlers. Following the terrorist bombing in Oklahoma City in 1995, there was an increase in alcohol consumption and physical ailments among people whose job was to handle the bodies of the victims.

IMPLICATIONS FOR ORGANIZATIONAL PRACTICE AND POLICY

The organization plays a critical role in facilitating recovery of a devastated workforce and the future of the organization. A variety of organizational responses may

be required, and the best strategies for implementing these responses may be to have the necessary infrastructure in place prior to a terrorist attack and to have an existing plan for a response to such an event. Developing an emergency response plan may also help employees to retain or regain a sense of personal control before, during, and following a terrorist attack. Training people how to maximize their safety and how to help others in need may help increase chances of escape from potentially dangerous situations. These formal responses to emergency situations can give employees reason to feel that their organization is supportive of their needs, and this perceived support may in turn encourage employee loyalty to the organization.

Formal organizational responses to terrorism might include the use of employee assistance programs (EAPs). Following a terrorist attack, EAPs may provide employees with easily accessible counseling and support, help diagnose serious distress or psychopathology among employees, and provide treatment or referrals for employees suffering trauma. In conjunction with EAPs, organizations can help to identify people who may be at higher risk for subsequent strain following a terrorist attack, such as people who sustained injury or who were close with people who suffered or died. Outreach services may also be a vital conduit for accessing at-risk populations. Although the efficacy of EAPs following a terrorist attack has yet to be established definitely, the utility of these programs has been confirmed in studies examining other stressors.

Should an act of terrorism occur, workplaces are responsible for providing on-site intervention. Immediate and short-term responses often include Critical Incident Stress Debriefing (CISD) that can be administered through their EAPs. Critical Incident Stress Debriefing is a structured group meeting facilitated by a trained team and involving only the personnel directly affected by the critical incident. The purpose of the debriefing is to mitigate acute stress resulting from trauma and accelerate the normal recovery of ordinary people who are suffering through typical but painful reactions to an abnormal event. Critical Incident Stress Debriefing is typically conducted 24 hours after the event by a trained mental health professional. It is an early response intervention and not intended to act as a stand-alone intervention. It is important to note that recent meta-analytic results indicate that caution should be exercised in using CISD as a routine response to organizational crisis and disasters.

Ongoing, supportive organizational practices can have a great impact on employees during periods of stress. Empathic leaders can buffer the strain resulting from devastating organizational events. In fact, it is during times of crisis that leaders can exert their greatest influence. Leaders can provide compassion and social support, reduce role ambiguity, and communicate a vision for the future of the organization. Organizations and their representatives can also provide a variety of instrumentally supportive functions, such as providing psychological or economic counseling or holding blood drives. Organizations can also offer informational support, keeping employees up-to-date on new developments as events unfold. Communication networks within the organization and between the organization and community can facilitate timely information exchange.

Overall, although workplaces are often targets of terrorism, they also have an important role to play in the protection of employees and the recovery efforts. Some of the most important roles organizations can play are in the provision of social, instrumental, and informational support.

—Michelle Inness and Julian Barling

See also Workplace Safety

FURTHER READING

- Byron, K., & Peterson, S. (2002). The impact of a large-scale traumatic event on individual and organizational outcomes: Exploring employee and company reactions to September 11, 2001. *Journal of Organizational Behavior*, 23, 895–910.
- Ryan, A. M., West, B. J., & Carr, J. Z. (2003). Effects of the terrorist attacks of 9/11/01 on employee attitudes. *Journal of Applied Psychology*, 88, 647–659.
- Van Fleet, E. W., & Van Fleet, D. D. (1998). Terrorism and the workplace: Concepts and recommendations. In R. W. Griffin & A. O'Leary-Kelly (Eds.), *Dysfunctional behavior in organizations: Violent and deviant behavior* (Vol. 23, Part A, pp. 165–201). Greenwich, CT: Elsevier Science/JAI Press.

TEST SECURITY

Tests and other forms of assessment give important insight into key human characteristics that drive performance. These tools are used widely in both business and

educational settings, with the goals of their use ranging from low stakes (such as personal insight and development) to extremely high stakes (such as selection or promotion into coveted job positions). The fairness and accuracy of tests are critical to enable valid inferences about human behavior and to protect examinees from the misuse of test results. For this reason, psychologists have a professional and ethical obligation to ensure the security of these processes and materials at all times. *Test security* in this context refers to the continuous maintenance and control of all test material within a testing program by only those individuals who are qualified and/or designated to have access to them. *Test material* is used broadly throughout this discussion to include any document, device, or process used to assess human characteristics (psychometric tests, behavioral simulations, structured interview protocols, etc., are all included under this definition).

Psychologists are concerned with test security because of the strong impact that a breach of security can have on the standardization of the test, the integrity of the results, and the long-term value of the test itself. If the data collected from a test do not accurately reflect the examinee characteristics that the test was designed to measure, then the inferences that can be made from it may be meaningless. Proper interpretation and use of test results thus relies on the assumption that test security was maintained throughout the assessment process—that, simply stated, the test questions, answers, and/or scoring protocols were not known to any of the examinees prior to the point of assessment.

COMMON FORMS OF SECURITY BREACH

Individuals or organizations willing to breach test security may do so for any number of reasons, ranging from a single test taker's efforts to be hired for a job to an organized attempt to profit from the unauthorized release of high-stakes test material. Breaches of test security come in many forms; some common examples include the following:

- Unauthorized removal of test materials from a test site
- Posting of test answers over the Internet
- A test taker asking another person to take the test in his or her place
- Unauthorized copying of copyrighted test materials
- Hacking into data storage locations to gain access to test results

Steps should be taken to identify the potential threats to test security for any operational testing program.

CONSEQUENCES OF SECURITY COMPROMISE

Breaches in test security not only affect measurement integrity and reliability; they also diminish the potential financial and social benefits associated with testing. Several significant risks associated with a poorly secured testing program are elaborated as follows.

- *Decreased validity and reliability.* Security breaches in test content and scoring affect validity and reliability. Test scores affected by a breach of security may not reflect the target construct of the assessment; this impinges on the ability to draw inferences between other constructs and outcomes and restricts the ability to measure consistently over time.
- *Ineffective selection procedures.* Reduced validity in testing processes can have a significant impact on the effective selection of examinees into organizational settings; as validity declines, the number of selection errors increases.
- *Decreased organizational performance.* Ineffective selection procedures may further affect organizational performance outcomes and eliminate any advantage provided by the use of well-constructed assessments.
- *Lowered confidence in psychological assessment.* High-profile cases of cheating and pirating of copyrighted content may also have an impact on social perceptions of the overall fairness of specific testing applications or even of the testing industry in general.

Although these risks may differ in the level of importance for different test applications and user groups, they each represent significant concerns that can arise when test security is not maintained.

ENSURING THE SECURITY OF TEST MATERIALS

Several practical challenges in securing test content, processes, and data exist. Threats to test security may be thought of as a series of factors that interact to influence test responses, test reliability, and validity. These factors include the following:

- The physical and electronic security of testing sites, content, and data
- Appropriate qualification levels of test users and administrators
- Differences in delivery technology (e.g., paper-and-pencil, interactive voice response, and computer-based)
- Differences in stakes (e.g., educational admissions vs. self-development)
- Cultural values within which the tests are administered

Although this list is not exhaustive, each item can have some influence over the need to monitor and protect test materials.

To maintain security, test publishers and users follow several sets of guidelines and recommendations that help both to directly protect testing-related property and information and to guide safer practices. The *Standards for Educational and Psychological Testing* includes suggestions for maintaining safe and secure testing protocol and content. The Society for Industrial and Organizational Psychology provides guidance for maintaining the security of tests and assessments used within personnel selection systems in the *Principles for the Validation and Use of Personnel Selection Procedures*. Similarly, the International Testing Commission (ITC) has developed standards for test security through their *International Guidelines for Test Use*. The ITC has also issued guidelines that are specific to computer-based tests (the *International Guidelines on Computer-Based and Internet Delivered Testing*); these guidelines make several suggestions regarding test administration, data storage, and ensuring test-taker authenticity.

METHODS FOR SECURING TESTING PROGRAMS

Psychologists and other test users have devised several methods for protecting testing material and procedures, including developing alternate/parallel test forms; proctoring testing sites; physically and electronically securing locations of test materials and results; monitoring and analyzing test response data for abnormal response patterns; regularly searching the Internet for test content and test preparation materials; and copyrighting all testing materials. Advances in testing procedures and electronic security software work toward enhancing our ability to protect tests, test materials, and information. For example, the

expanded use of computer adaptive testing (in which examinees with different ability levels are likely to receive different test questions) will help to reduce opportunities for cheating by limiting the number of times a test question is presented to examinees. Although these methods can be effective at controlling for some loss of materials and content, ways to circumvent test protection are often found when the stakes associated with the assessment are high. In these cases, psychologists and other testing professionals may take legal action to protect the security of a testing process (e.g., by asserting and defending the copyright on testing materials).

One of the most challenging threats to test security arises when a party to a legal or regulatory action requests test materials. Psychologists may be asked to provide, to lawyers and other individuals, confidential results, test content, and scoring keys as evidence or support for a case. However, the individuals who request the information may not be ethically or legally required to maintain test security. Test materials may then become part of a public record, thereby putting the test materials and examinee information at risk. In these situations, psychologists may ask that the requested material be delivered only to other qualified psychologists who are ethically and legally obligated to maintain the confidentiality of the material. If this is not an option, psychologists may ask that the materials be covered under a protective order and that the materials be returned directly to the psychologist following litigation.

Social awareness of test security issues will also help to enhance test security and discourage individuals or groups from obtaining testing materials for the purpose of compromising the usefulness of an assessment process. One sign of the growing importance of test security is the emergence of specialists who can assist those who are responsible for testing programs with the development of policies and practices that facilitate test security.

Over time, test security may be enhanced by the continued development of the knowledge base surrounding security issues. Research in this area can help build an understanding of the factors that contribute to the likelihood of a security compromise, as well as the factors that help maintain the quality of a test under conditions in which security compromise may be likely, such as when a test is provided over the Internet. Advances in test security are also directly

related to innovations in the techniques used to monitor and analyze test data for aberrant or unlikely patterns in test data, so that security breaches can be identified quickly.

SUMMARY

The security of testing material has both a direct and an indirect impact on the validity of the inferences that can be made from a test result. However, test security is a concern not only because of the impact a security breach may have on the psychometric qualities of a test and its proper interpretation, but also because of the financial and social implications that compromised assessment processes can have within organizations and the public. As the use of testing increases in organizational settings, across international borders, and through an increasingly technology-based delivery framework, careful attention to the enhancement of security has become more critical than ever before.

—Doug Reynolds and Joseph Jones

See also Ethics in Industrial/Organizational Practice; Selection Strategies; Standardized Testing; Validity

FURTHER READING

- American Educational Research Association, American Psychological Association, and National Council on Measurement in Education. (1999). *Standards for educational and psychological testing*. Washington, DC: Author.
- American Psychological Association. (1999). Test security: Protecting the integrity of tests. *American Psychologist*, 54, 1078.
- American Psychological Association. (2002). Ethical principles of psychologists and code of conduct. *American Psychologist*, 57, 1060–1073.
- International Testing Commission. (2000). *International guidelines for test use*. Stockholm, Sweden: Author.
- International Testing Commission. (2005). *International guidelines on computer-based and Internet delivered testing*. Retrieved March 29, 2006, from <http://www.intestcom.org/guidelines>
- Naglieri, J., Drasgow, F., Schmit, M., Handler, L., Prifitera, A., Margolis, A., et al. (2004). Psychological testing on the Internet: New problems, old issues. *American Psychologist*, 59, 150–162.
- Schroeder, L. (1996). Examination security. In A. H. Browning, A. C. Bugbee, & M. A. Mullins (Eds.), *Certification: A NOCA handbook* (pp. 125–147). Washington, DC: The National Organization for Competency Assurance (NOCA).

Society for Industrial and Organizational Psychology. (2003). *Principles for the validation and use of personnel selection procedures*. Bowling Green, OH: Author.

THEFT AT WORK

Employee theft refers to the wrongful taking of money, goods, or property by an organization member. The target is most commonly the organization itself, but the definition would also encompass stealing from coworkers or customers. The psychological literature on employee theft focuses on money and physical goods, although the definition would also encompass intellectual property.

Theft is one example of a broader phenomenon, commonly known as *counterproductive work behavior* (CWB). Counterproductive work behavior includes any intentional behavior by an organization member that is viewed by the organization as contrary to its legitimate interests. Theft, sabotage, misuse of time and resources, unsafe behavior, drug and alcohol use at work, physical violence, and sexual harassment are all examples of CWB. After a long history of examining each of these separately, recent research documents a consistent pattern of positive correlations among CWB. Thus there is value in examining common antecedents and common interventions; for example, tests designed to predict theft have been found to also predict a range of CWB.

MEASUREMENT OF THEFT

Perhaps the most critical feature of employee theft is that it is difficult to detect. It is clearly undertaken by employees with the intent of going undetected and thus stands in contrast with most other organizational phenomena of interest to the industrial/organizational psychologist. This problem of detection has widespread implications for research and practice. One issue is that it makes it difficult to even document the extent of the problem. The proportion of employees caught stealing is generally very small. For example, a common strategy for test validation is to test applicants, put them on the job, measure the behavioral outcome of interest, and then examine the relationship between test scores and outcomes. When this is done with theft as the outcome of interest, rates of detected theft over the first year of employment among typical populations

(e.g., entry-level retail workers) are in the 1% to 3% range. Although there is general agreement that some theft goes undetected, there is no agreement as to the proportion. Published estimates of the extent and cost of the employee theft problem reflect untested assumptions about the rate of undetected theft.

A second implication of the difficulty-of-detection problem is that it makes research on employee theft hard to interpret. For example, in trying to document psychological characteristics of employee thieves, one faces the question of whether detected thieves constitute a random sample of all thieves, or whether those caught are different in important ways from those who steal and are not caught. Organizations using selection systems, for example, hope to screen out individuals prone to theft, not merely those prone to get caught while stealing. Another research implication is that the statistical tools used to examine the relationship between psychological variables and employee theft (e.g., the correlation coefficient) cannot be interpreted in the normal manner when a variable under study is highly skewed. The maximum value of a correlation drops as the proportion caught/not caught stealing departs from 50%. At a 98%-to-2% split, the maximum possible correlation is .39, rather than the expected 1.0, and thus correlations with theft need to be interpreted relative to this maximum value.

There are two common alternatives to reliance on detected theft in studying employee theft. The first is the use of self-report. Such measures are approximations to the true state of affairs, as respondents may perceive themselves to be at risk in admitting theft, even in situations in which anonymity is assured. Some settings are more conducive to accurate responding than others: An anonymous survey conducted by a university-based researcher is likely to be viewed differently than a survey conducted by one's current employer. A useful recent development is the use of techniques for ensuring anonymity, known as *randomized response techniques*.

The second alternative to detected theft measures is the use of aggregate measures, such as store-level sales, inventory valuation, or unaccounted losses (commonly known as *shrinkage*). Using time-series designs, monthly financial measures are tracked as a theft intervention is implemented. Such designs require the inference that change is caused by theft reduction, and thus care must be taken to ensure that the theft intervention is not confounded with other changes.

ANTECEDENTS OF EMPLOYEE THEFT

Antecedents of employee theft can be grouped into two main categories: person and situation antecedents. Although these categories reflect different perspectives, they are not necessarily in opposition. That is, situational characteristics, such as strong norms regarding theft or tight surveillance of employees, will probably affect the likelihood of theft. At the same time, regardless of the strength of any situation, employees will differ in their beliefs about the consequences of theft, the desirability of those consequences, the existence of norms about theft, and motivation to comply with perceived norms. So, within the same situation, individual differences will cause some employees to be more prone to steal than others. Therefore, to fully understand what causes theft, the optimal approach is one recognizing the interaction between person and situation variables. Keeping this in mind, it is still useful to understand the person and situation variables that covary with theft. The most widely cited research findings relating to the two broad categories are outlined below.

Person Antecedents

The most common within-person approach to prediction of theft is that of measuring individual differences in integrity. *Integrity* is best conceptualized as a compound trait mostly reflecting the Big Five personality traits of conscientiousness, agreeableness, and emotional stability. Integrity is typically measured via commercially marketed self-report instruments called *integrity tests* that contain items dealing either with admissions of theft and attitudes toward theft, or more personality-like constructs such as dependability, conscientiousness, social conformity, thrill seeking, trouble with authority, and hostility. A long line of criterion-related validity evidence, including extensive meta-analyses, supports the use of integrity tests for predicting theft.

Various demographic factors have also been shown to covary with theft. For instance, employees who are young; new to their jobs; work part-time; have low-paying, low-status positions; or abuse drugs or alcohol are more likely to steal. It is difficult to interpret such demographic factors, though. For instance, are younger employees more likely to steal because of their youth, or because they may hold less satisfying jobs?

Situation Antecedents

The most commonly cited situational antecedents of theft are organizational justice, organizational culture and norms, and control systems. In terms of organizational justice, there is considerable evidence demonstrating that employees are more likely to steal when there is inequitable distribution of rewards or punishments, formal procedures are unfair, or interpersonal treatment is poor. Concerning organizational culture and norms, research has shown that things such as strong company codes of ethics, average honesty level in the organization or work group, punitiveness of an organization toward theft, and informal understandings about acceptability of theft among work-group members are related to the occurrence of theft. Finally, concerning control systems (physical or procedural entities within the workplace, meant specifically to diminish theft occurrence through providing alternatives to, increasing the risk of, or increasing penalties for theft), despite the intuitive appeal of their relationship with theft, there is little empirical evidence for their effectiveness. As the opportunity to steal is reduced, though, some effect on the occurrence of theft should be expected.

THEFT INTERVENTIONS

Given that employee theft is caused by person and situation variables, it follows that two ways to reduce theft are to change the persons or change the situation.

Person-Oriented Interventions

The first way to attempt to reduce theft by changing the employees is to change the types of persons that are hired. That is, selection systems can be designed to select applicants with traits that covary with reduced likelihood of theft. Given the relationship between integrity test scores and theft, an organization wishing to reduce theft could hire employees based on their integrity test scores. This would create a workforce predisposed to integrity and would likely result in an organizational culture and norms of integrity.

The second way to attempt to reduce theft by changing the employees is through training and development. Ethics programs are probably the most common form of such training. Ethics programs are designed to create organizational cultures that sensitize employees to behaviors considered inappropriate (such as theft) and to discourage employees from

engaging in them. The content of ethics programs generally varies, but training programs designed to help employees understand ethical issues are common. There is very little empirical evidence that ethics programs reduce the incidence of theft, but preliminary evidence has been supportive.

Situation-Oriented Interventions

Another way in which to reduce the likelihood of theft is to change the situation in ways known to covary with the incidence of theft. Person-oriented ethics training, as discussed above, is commonly accompanied by situation-oriented features, such as formal codes of ethics, ethics committees, disciplinary practices, violation-reporting mechanisms, and ethics officers. These ethics programs are one form of control system; other types of control systems aimed at theft reduction include security systems (e.g., audits, surveillance); environmental design; posting signs reporting the amount missing or stolen in the past week; rewarding whistleblowers; and providing employees the opportunity to take merchandise that is dated or partially damaged or cannot be sold. There is little empirical evidence of the effectiveness of such control systems. Finally, because employee perceptions of injustice affect the likelihood of theft, interventions aimed to decrease injustice perceptions may have some effect on theft. Organizational justice perceptions can be broken down into three areas: distributive, procedural, and interpersonal justice. If distributive justice is suspected to be a cause of theft, the organization may address whether the allocation of rewards and punishments is equitable. If procedural justice is a concern, the organization may consider if changing the unfair procedure would have an effect on theft. If interpersonal justice is a cause of theft, attempting to create more positive interactions with employees may be an effective theft intervention.

—Paul R. Sackett and Christopher M. Berry

See also Counterproductive Work Behaviors

FURTHER READING

- Greenberg, J. (1990). Employee theft as a reaction to underpayment inequity: The hidden cost of pay cuts. *Journal of Applied Psychology, 75*, 561–568.
- Hollinger, R. C., & Clark, J. P. (1983). *Theft by employees*. Lexington, MA: D. C. Heath.

- Murphy, K. R. (1993). *Honesty in the workplace*. Belmont, CA: Brooks/Cole.
- Sackett, P. R., & DeVore, C. J. (2001). Counterproductive behaviors at work. In N. Anderson, D. Ones, H. Sinangil, & C. Viswesvaran (Eds.), *International handbook of work psychology*. Thousand Oaks, CA: Sage.
- Sackett, P. R., & Wanek, J. E. (1996). New developments in the use of measures of honesty, integrity, conscientiousness, dependability, trustworthiness, and reliability for personnel selection. *Personnel Psychology*, *47*, 787–829.

THEORY OF ACTION

Chris Argyris and Donald Schön's theory of action is a descriptive and normative framework that explains and prescribes behavior at the individual, group, and organizational levels. The intellectual roots of the theory of action are John Dewey's theory of inquiry and Kurt Lewin's formulations of action research. In particular, the theory of action aspires to the Lewinian ideal of contributing simultaneously to basic knowledge of human behavior and practical action in everyday life. In so doing, the theory of action integrates science and application to an extent that is unparalleled in the organizational behavior literature.

ESPOUSED THEORY VERSUS THEORY-IN-USE

At its core, the theory of action maintains that, for virtually everyone, there is a discrepancy between what people say and believe is motivating their actions and what is actually motivating their actions. The former is termed *espoused theory*, and the latter is termed *theory-in-use*. In other words, there is a gap in awareness between the explanations people have for their own actions (espoused theory) and the cognitive structures that actually govern their actions (theory-in-use). This gap exists not only at the individual level, but at the group and organizational levels, as well (i.e., the cognitive structures that govern individual behavior give rise to interpersonal structures that regulate group behavior).

Theory-in-use must be inferred from people's actual behavior and not from their descriptions of that behavior. Over decades of research with thousands of participants from a wide variety of cultures, Argyris and Schön have found overwhelming evidence of an implicit cognitive structure, or theory-in-use, that is

common to most everyone; the authors refer to this theory-in-use as *Model I*. Model I is the result of socialization early in life. Specifically, from an early age, virtually all people in modern industrial societies are socialized to (a) individually define the task at hand and the purposes to be achieved, rather than work interdependently to develop mutual definitions of task and purpose; (b) maximize winning and minimize losing; (c) suppress negative feelings; and (d) be rational and minimize emotionality. These socialized tendencies are referred to as the *governing variables* of Model I.

Model I socialization carries a behavioral imperative in which the underlying strategy is unilateral control over others and the environment. Based on their extensive research, Argyris and Schön concluded that people vary greatly in the way they attempt to control others and the environment but that the attempt to do so is nearly invariant. Because this behavioral strategy does not produce valid feedback from others, it leads individuals to be defensive and closed. At the group and organizational levels, this strategy leads to defensive relationships that reduce the production of valid information and reduce free choice among organizational members. In general, the consequences of Model I behavior in organizations are poor decision making, low commitment, wasted resources, unproductive conflict, and limited learning/change on the part of organizational members.

Automatic Nature of Model I Actions

According to Argyris and Schön, most people are unaware of the fact that their theory-in-use conforms to Model I. This means that the Model I strategy of unilateral control tends to be highly automatic (in the sense that it operates outside of conscious awareness). In fact, not only are implementations of this strategy automatic, they are often very sophisticated. The difficulty is that most people have little awareness of how and when they implement this strategy. Consequently, people's actions tend to remain consistent with the strategy of unilateral control—even when they say and believe otherwise. Especially when facing difficult human relations problems, people often unknowingly act in ways that are inconsistent with their words. That is, on the surface people may know—and espouse to others (i.e., espoused theory)—that unilateral control is a counterproductive strategy when attempting to resolve such problems,

yet when they themselves are immersed in such a problem, they blindly implement this very strategy to some degree. Moreover, the higher the stakes, and especially in the midst of stress, threat, or embarrassment, the more strongly the strategy of unilateral control is activated and the more it interferes with the ability to work effectively with others.

According to Argyris and Schön, this automatic Model I programming is *the* primary source of the toughest and most persistent problems of organizational behavior (e.g., low morale, withdrawal from work, poor group decision making and problem solving, dysfunctional behavior in teams, employee–management strife, and ineffective leadership). Thus, to begin resolving these problems, organizational members must first become aware of their Model I programming and the ways in which it causes organizational problems. Then, after gaining this awareness, the existing program must be unlearned over time and replaced with a more useful and self-aware action model. Argyris and Schön advocate a replacement model they simply call *Model II*, and the primary focus of their work has been to disseminate this model while helping others learn how to assimilate and practice it.

Model II

The governing variables of Model II are to (a) maximize the use of valid information for solving problems, (b) maximize free and informed choice in solving problems, and (c) maximize internal commitment to problem solutions and the monitoring of solutions over time. In contrast to the Model I strategy of unilateral control, Model II requires *mutual control* if its principles are to be realized. Therefore, the action strategies of Model II involve creating shared purposes, expressing one's own views openly while sharing the reasoning behind those views, inviting challenge from others while inquiring into one another's views, designing ways to publicly test differences in views, and holding one another accountable. Not surprisingly, the organizational consequences of Model II are very different from those of Model I. These consequences are effective decision making, high commitment, faster adaptation to change, strong working relationships (characterized by high trust and openness), and mutual learning.

The transition from Model I to Model II requires what Argyris and Schön call *double-loop*, as opposed to *single-loop*, learning. Single-loop learning occurs

when an individual learns new actions that are consistent with the core principles of his or her operative action model (e.g., Model I). Double-loop learning, by contrast, involves learning new core principles (e.g., Model II) and new actions that are consistent with those new principles. In numerous longitudinal studies, Argyris and Schön have found that the transition from Model I to Model II is generally neither fast nor easy, even for people who are highly committed to making the transition, because Model I actions tend to be highly automatic and deeply ingrained.

PRACTICING THE THEORY OF ACTION

The theory of action is unique because it is both a theory and a form of practice. As a form of practice, the theory of action has two key features: It is practiced both publicly and in real time. That is, groups of practitioners are brought together by a theory of action interventionist to inquire openly into their own work behavior and to identify whether Model I principles may be motivating their behavior and inhibiting organizational effectiveness. If Model I is found to be counterproductively operative, the interventionist then coaches the participants to behave consistently with Model II. With enough coaching and practice, the participants eventually learn to practice Model II on their own while becoming less and less dependent on the interventionist.

The theory of action approach stands in sharp contrast to the mainstream approach in organizational science. In the mainstream approach, organizational behavior is treated as an object of study separate from individuals' immediate actions. The goal of the mainstream approach is to learn as much as possible about this object of study and create a bookshelf of knowledge from which practitioners can presumably draw for guidance. Argyris and Schön essentially argue that, although this mainstream approach has generated many noteworthy findings, the separateness of those findings inevitably limits their applicability. In their theory of action approach, the generation of bookshelf knowledge is a secondary goal. The primary goal is to generate firsthand, *actionable* knowledge for the practitioners involved—that is, knowledge of the automatic Model I actions being produced, how those actions lead to unintended and counterproductive outcomes, and alternative Model II actions that are more likely to resolve difficult organizational problems.

—Paul W. Paese

See also Organizational Change; Organizational Change, Resistance to; Organizational Development

FURTHER READING

- Argyris, C. (1993). *Knowledge for action: A guide to overcoming barriers to organizational change*. San Francisco: Jossey-Bass.
- Argyris, C., & Schön, D. A. (1974). *Theory in practice: Increasing professional effectiveness*. San Francisco: Jossey-Bass.
- Argyris, C., & Schön, D. A. (1978). *Organizational learning: A theory of action perspective*. Reading, MA: Addison-Wesley.
- Argyris, C., & Schön, D. A. (1996). *Organizational learning II: Theory, method, and practice*. Reading, MA: Addison-Wesley.

THEORY OF REASONED ACTION/ THEORY OF PLANNED BEHAVIOR

The theory of reasoned action and theory of planned behavior have been influential cognitive models for understanding and predicting social behavior across a variety of domains. Both focus on the question of how to determine the likelihood that an individual will engage in a specific behavior. The theory of reasoned action examines determinants of volitional behavior, or behavior that falls under a person's individual control, whereas the theory of planned behavior provides an extension of the previous model to examine determinants of behavior over which individuals do not exert complete control. The theory of reasoned action and theory of planned behavior arose in response to discrepant findings in the social psychological literature regarding the relationship between attitudes and behavior. During this time, contrary to the common assumption of attitudes guiding behavior, there was increasing evidence that people's attitudes did not in fact predict their actions. The theories of reasoned action and planned behavior attempted to reconcile these findings by examining additional determinants of behavior and identifying specific conditions under which attitudes would guide behavior.

THEORY OF REASONED ACTION

The theory of reasoned action was developed by Martin Fishbein and Icek Ajzen with the aim of

identifying determinants of behavioral decisions that are volitional, or under an individual's control. The theory posits that attitudes, subjective norms, and intentions combine to determine the likelihood of an individual performing a specific action.

Attitudes are the evaluative beliefs surrounding the target behavior (i.e., Does one feel positively or negatively toward engaging in this behavior?). They are based on *behavior beliefs*, which are beliefs about the outcomes associated with doing a behavior. Additionally, attitudes are determined by the person's evaluations of the outcomes. Therefore, a positive attitude toward a behavior will occur when a person believes that a behavior results in a positive outcome and that outcome is one that is valued by the individual.

Subjective norms are perceived social pressure to perform a behavior. They are based on *normative beliefs*, which are beliefs about whether important others approve or disapprove of one engaging in a particular behavior. Additionally, the strength of the subjective norms is determined by how motivated a person is to comply with other people's wishes. Thus, for subjective norms to be strong, an individual must not only believe that others approve of him or her engaging in a behavior but must also consider it important to comply with the wishes of others.

In this model, it is suggested that rather than having a direct influence on behavior, attitudes and subjective norms will influence behavior indirectly, through their impact on *intentions*, people's motivations or willingness to engage in a particular action. Intentions are identified as the most immediate antecedent of behavior. If intentions to engage in a behavior are strong, it is more likely that an individual will actually perform the behavior; conversely, if intentions are weak, it is less likely that one will engage in the specified behavior.

In sum, the theory of reasoned action suggests a general sequence in which attitudes and subjective norms jointly determine behavioral intentions, which then determine actual behavior. If attitudes toward a behavior are favorable, an individual will have stronger intentions, consequently resulting in greater likelihood of engaging in the behavior. On the other hand, if attitudes are unfavorable, individuals will have weaker intentions to engage in the behavior and will therefore be less likely to carry out the behavior. Similarly, if subjective norms are high (others indicate approval of the behavior and one is motivated to comply with their wishes), an individual will express

stronger intentions and will consequently be more likely to actually engage in the behavior; if subjective norms are low (others disapprove of the behavior and/or one does not care about complying with others' wishes), an individual will have weaker intentions and be less likely to perform the behavior.

Application of the Theory of Reasoned Action

To provide an example, the theory of reasoned action could be used in an organizational setting to predict whether workers in a high-risk occupation will follow workplace safety regulations. The theory predicts that attitudes toward the safety regulations (beliefs about whether following these regulations is good or bad) and subjective norms toward the regulations (beliefs about whether important others would want one to follow the regulations) will both determine a worker's intentions to engage in these safe behaviors in the workplace. For instance, if people believe that following regulations at work will keep them safe, and they value this outcome, they will have a positive attitude toward engaging in safe workplace behaviors. Further, if they believe that it is important to their families and coworkers that they engage in these safe behaviors, and they want to comply with the wishes of these important others, they will have strong subjective norms surrounding the behavior. These positive attitudes and subjective norms will then translate into intentions, or motivation and willingness to follow the safety regulations, which will then determine actual behavior.

Limitations of the Theory of Reasoned Action

One important limitation of the theory of reasoned action is that it does not consider impeding or facilitating factors that might influence one's ability to engage in a behavior. The theory assumes that if a person is motivated to engage in a behavior, that particular action will be carried out. However, many behaviors require certain skills, resources, opportunities, or the cooperation of others to be carried out. For instance, individuals who are employed in high-risk jobs might have positive attitudes and subjective norms with regard to workplace safety (i.e., they are motivated to engage in behaviors that will keep them safe in the workplace); however, there may be external constraints, such as lack of funding, understaffing, or limited safety equipment,

that exert a strong influence on their ability to carry out specific safety behaviors. Although the presence or absence of such factors should influence how easy or difficult it is for individuals to carry out behavior, the impact of these factors on behavior is not examined in the theory of reasoned action.

THE THEORY OF PLANNED BEHAVIOR

The theory of planned behavior was developed by Ajzen as an extension of the theory of reasoned action to examine factors outside of one's control that might also exert influence on intentions and behaviors. Specifically, the theory of planned behavior asserts that if a behavior is less volitional in nature, it is important to consider the degree to which various factors either impede or facilitate an individual's ability to engage in that behavior. This determinant of behavior is referred to as *perceived control*, and it is examined in addition to the attitude, subjective norm, and intention components included in the theory of reasoned action. Perceived control is based on an individual's perceptions of how likely facilitating or constraining factors are to occur and to what degree these factors will influence the ease or difficulty of engaging in the behavior. Greater perceptions of perceived control lead to stronger intentions, resulting in greater likelihood of actually engaging in the behavior; less perceived control leads to weaker intentions and a lower likelihood of engaging in the behavior. Moreover, unlike attitudes and subjective norms, which are proposed to influence behavior only indirectly through their influence on intentions, perceived control is thought to exert a direct influence on behavior, as well as an indirect influence through its impact on intentions.

In summary, the theory of planned behavior asserts that attitudes, subjective norms, and perceived control will combine to influence intentions, which will then determine behavior. The theory of planned behavior differs from the theory of reasoned action, in that it examines the role of perceived control and therefore applies to a wider array of behaviors that are not fully under an individual's control. Additionally, in this model both intentions and perceived control exert a direct influence on behavior.

PREDICTING AND EXPLAINING BEHAVIOR

The theories of reasoned action and planned behavior have generated a large magnitude of research, the

majority of which has focused on the prediction and explanation of behavior. Typically, researchers have measured attitudes, subjective norms, and perceived control in relation to a specific behavior and then used these constructs to either explain existing intentions and behavior or predict future intentions and behavior. Meta-analyses indicate that the theories of reasoned action and planned behavior constructs account for up to 40% of the variance in behavior and intentions. Moreover, inclusion of the perceived control construct accounts for significant variance beyond that accounted for by attitudes and subjective norms. Of these constructs, subjective norms appear to be the weakest predictor of intentions and behavior.

The theories of reasoned action and planned behavior have predicted behavior across many domains. In the context of the workplace, these theories have been applied to explain and predict behavior related to diversity training, workplace technology, occupational safety and health, occupational deviance, and career decision making. Although the primary body of research generated by these theories has focused on predicting and explaining existing behavior, more recent work has applied these models to develop interventions designed to modify behavior.

—Jennifer L. Welbourne

See also Attitudes and Beliefs; Judgment and Decision-Making Process; Occupational Health Psychology

FURTHER READING

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckman (Eds.), *Action control: From cognition to behavior* (pp. 11–39). Berlin: Springer.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice Hall.
- Armitage, C., & Conner, M. (2001). Efficacy of the theory of planned behavior: A meta-analytic review. *British Journal of Social Psychology*, 40, 471–499.
- Conner, M., & Armitage, C. (1998). Extending the theory of planned behavior: A review and avenues for further research. *Journal of Applied Social Psychology*, 28(15), 1429–1464.
- Fishbein, M. (1980). The theory of reasoned action: Some applications and implications. In H. E. Howe Jr. &

M. M. Page (Eds.), *Nebraska Symposium on Motivation, 1979* (Vol. 27, pp. 65–116). Lincoln: University of Nebraska Press.

Fishbein, M., & Ajzen, I. (1975). *Beliefs, attitudes, intentions, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

THEORY OF WORK ADJUSTMENT

The theory of work adjustment (TWA) describes how and explains why workers adjust to their work environments. It depicts adjustment as the interaction of person (P) with environment (E). *Interaction* refers to P and E acting on as well as reacting to each other. P and E interact because, to begin with, each has requirements that the other can fill, and each has capabilities to fill the other's requirements. So long as each is satisfied with the outcomes, the interaction will be maintained. But when one or both are dissatisfied with the outcomes, adjustment will be attempted. The theory of work adjustment asserts that satisfaction and work adjustment depend not so much on P variables or E variables, but on the particular combination of P and E variables (TWA calls the combination *P–E correspondence*). Thus, in TWA, work adjustment is described and explained by two psychological propositions: (a) Satisfaction drives behavior, and (b) satisfaction is a function of P–E correspondence. (Here, *satisfaction* extends to dissatisfaction and *correspondence* to discordance.)

In TWA, P and E are described in parallel and complementary terms. P requirements are called *needs*, and E requirements are called *tasks*. Needs are requirements for specific reinforcers, such as compensation and opportunity to achieve. Tasks are response requirements to produce a product or perform an action. Needs differ in degree of importance, whereas tasks differ in degree of difficulty. P has response capabilities, called *skills*, to meet E tasks, and E has reinforcement capabilities, *reinforcers*, to meet P needs. Furthermore, TWA posits latent dimensions as underlying needs, called *values*, and latent dimensions as underlying skills, called *abilities*. To summarize, in TWA, P is described as having needs and skills, or values and abilities, whereas E is described as having reinforcers and tasks (but see the next paragraph).

To measure P–E correspondence requires that both P and E be described in the same terms. P needs are

defined as reinforcer requirements, which allows them to be compared with E reinforcers. E tasks can be redefined in terms of their *skill requirements*, which can then be compared with P skills. Thus, two P–E correspondences can be calculated: E reinforcer to P need (reinforcer requirement) correspondence, and P skill to E skill requirement correspondence. Two other P–E correspondence measures can be calculated by using P values and P abilities. This would require that latent dimensions be determined for E reinforcers and E skill requirements, which dimensions can be called *reinforcer factors* and *ability requirements*, respectively. These two P–E correspondences will therefore be E reinforcer factor to P value correspondence and P ability to E ability requirement correspondence.

Satisfaction is the affective evaluation of a situation. In TWA, P is satisfied when P needs are reinforced by E, and E is satisfied when E tasks are accomplished by P. To avoid confusion and to keep the focus on P, TWA calls E satisfaction *P satisfactoriness*. (*P satisfaction* extends to P dissatisfaction, and *P satisfactoriness* extends to P unsatisfactoriness.) P satisfaction and P satisfactoriness lead to *tenure* (length of stay on the job). For TWA, satisfaction, satisfactoriness, and tenure are the indicators of work adjustment in P.

In TWA, P satisfaction is predicted from P(need)–E(reinforcer) correspondence, or also from P(value)–E(reinforcer factor) correspondence. P satisfactoriness is predicted from P(skill)–E(skill requirement) correspondence, or from P(ability)–E(ability requirement) correspondence. Tenure is predicted from the P satisfaction–P satisfactoriness combination. Satisfaction in P and E results in *maintenance behavior*; whereas dissatisfaction in P and/or E leads to *adjustment behavior*. P dissatisfaction may eventually lead to P quitting the job, whereas P unsatisfactoriness may lead to P getting demoted or fired by E.

To improve prediction, TWA has recourse to moderator variables, in the use of which the prediction correlation increases with higher values in the moderator variable. Three moderator variables are used by TWA: P satisfactoriness, P satisfaction, and *P–E style correspondence*. P satisfactoriness moderates the prediction of P satisfaction from P(need)–E(reinforcer) correspondence or from P(value)–E(reinforcer factor) correspondence—prediction is better for more satisfactory than for less satisfactory Ps. P satisfaction moderates the prediction of P satisfactoriness from P(skill)–E(skill requirement) correspondence or from

P(ability)–E(ability requirement) correspondence—prediction is better for more satisfied Ps. P–E style correspondence moderates the prediction of both P satisfaction and P satisfactoriness from their respective P–E correspondence predictors—prediction is better when P–E style correspondence is higher. *P style* refers to distinctive characteristics of P's manner of responding and is described by four variables: *celerity* (response latency), *pace* (response intensity), *rhythm* (response pattern), and *endurance* (response duration). *E style* can be described by four parallel variables, which would then allow P–E style correspondence to be assessed.

The theory of work adjustment describes the work adjustment process further by introducing the concept of *adjustment style*, the distinctive characteristics of adjustment behavior. P's adjustment style can be described by four variables: *flexibility*, which refers to the amount of P–E discordance P is typically willing to tolerate before initiating adjustment behavior; *activeness*, or P's tendency to act on E to change E to reduce P–E discordance; *reactiveness*, or P's tendency to react to E by changing self to reduce P–E discordance; and *perseverance*, or how long P typically continues adjustment behavior before either giving up or leaving E. To change E means changing E reinforcers and/or E skill requirements, whereas to change P (self) means changing P needs and/or P skills. The purpose, then, of adjustment behavior is to change P–E discordance to P–E correspondence or, at the cognitive level, to change dissatisfaction to satisfaction. When P–E correspondence or satisfaction is attained, P and E return to maintenance behavior.

Whereas the above explication of TWA is written with the focus on P, it is also possible to view work adjustment with the focus on E—that is, TWA can view P and E as symmetrical. In this symmetrical view, E would have the kind of requirements and capabilities that P has, and vice versa. That is, E would have reinforcer requirements (E needs and E values) and response capabilities (E skills and E abilities) in addition to response requirements and reinforcement capabilities, whereas P would additionally have reinforcement capabilities (P reinforcers and P reinforcer factors) and response requirements (P skill requirements and P ability requirements). There would also be E satisfaction, E satisfactoriness, and E adjustment style (E flexibility, E activeness, E reactiveness, and E perseverance). The possibility of E style (E celerity, E pace, E rhythm, and

E endurance) has already been noted in the discussion of P–E style correspondence. And finally, for E, just as for P, (a) satisfaction drives behavior, and (b) satisfaction is a function of P–E correspondence.

—Rene V. Dawis

See also Person–Environment Fit; Person–Job Fit; Person–Organization Fit; Person–Vocation Fit

FURTHER READING

- Dawis, R. V. (1996). The theory of work adjustment and person–environment–correspondence counseling. In D. Brown & L. Brooks (Eds.), *Career choice and development* (3rd ed., pp. 75–120). San Francisco: Jossey-Bass.
- Dawis, R. V. (2002). Person–environment correspondence theory. In D. Brown (Ed.), *Career choice and development* (4th ed., pp. 427–464). San Francisco: Jossey-Bass.
- Dawis, R. V. (2005). The Minnesota theory of work adjustment. In S. D. Brown & R. W. Lent (Eds.), *Career development and counseling* (pp. 3–23). Hoboken, NJ: Wiley.
- Dawis, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment*. Minneapolis: University of Minnesota Press.
- Lofquist, L. H., & Dawis, R. V. (1969). *Adjustment to work*. New York: Appleton-Century-Crofts.

360-DEGREE FEEDBACK

The term *360-degree feedback* refers to an appraisal and feedback system in which an employee (typically someone in a managerial or supervisory position) is evaluated by one or more supervisors, peers, and subordinates. These systems, sometimes called *multisource appraisals*, are generally expensive, and the ratings produced by them should be used as a feedback tool only. That is, numerous scholars have recommended that 360-degree ratings not be used for any decisions often associated with appraisals; yet there is a fair amount of evidence that these ratings are often used for making decisions about merit pay raises and promotions.

Considerable research had led to proposals for 360-degree systems, and several papers have critically analyzed their use in practice. Most of these papers have focused only on the reasons why 360-degree feedback may not be as effective as organizations

would prefer, but very little research has actually evaluated the effectiveness of this feedback by using a strong research design.

THE DEVELOPMENT OF 360-DEGREE FEEDBACK SYSTEMS

The development of these systems grew out of research that tried to establish the construct validity of traditional performance appraisals. These studies compared ratings from appraisals generated by supervisors with ratings from appraisals generated by peers and subordinates, using a framework known as the *multitrait–multimethod matrix*. This framework examines ratings of common traits provided by raters who have different relationships with the ratee (e.g., peers and supervisors), as well as ratings of these common traits by raters who have the same relationship with the ratee. This approach also considers ratings of different traits provided by raters who have the same relationship with the ratee as well as those provided by raters who have different relationships with the ratee. Subsequent analyses of ratings search for convergence among ratings of common traits, provided by different sources as evidence of construct validity (as well as divergence among ratings of different traits provide by different groups of raters). But in many cases, the researchers failed to find the convergence that was critical for the demonstration of construct validity, which suggested that these ratings may not be valid at all.

Fortunately, some scholars argued that the failure to find convergence among ratings from different sources could be attributed to these different groups of raters observing different behaviors and interpreting those behaviors differently, based on the relationship they had with the ratee. This would suggest that each type of rating had some validity in its own right, but that each of these different ratings actually provided somewhat unique information about the ratee's performance. This suggestion was a major impetus for the development of 360-degree feedback. In addition, multisource feedback was used in several organizational change interventions as a tool to “unfreeze” the managers and make them more accepting of the need to change.

Eventually, these sets of efforts led to the fairly widespread use of 360-degree feedback systems in organizations in the United States. These systems grew in popularity, both in the United States and

around the world, and were the subject of many books and articles in the popular and practitioner literature, but the academic community paid little attention to them. Slowly, the academic community began investigating 360-degree feedback systems and began raising questions about potential problems. The practitioner community also became more critical of these systems, especially noting their use in decision making, despite the recommendations that they be used for feedback purposes only. Because these systems remain popular, it is important to understand the potential problems and limitations involved in their use and how to best use 360-degree feedback systems to minimize the problems and maximize the advantages.

TYPICAL 360-DEGREE SYSTEMS

The exact form of 360-degree feedback systems varies from organization to organization, but several aspects of these programs are common across most settings. The process usually begins with the target manager, or ratee, providing self-evaluations in all the areas to be covered. In many cases, the manager is then asked to nominate peers, subordinates, and possibly even superiors who would be asked to provide the additional evaluations. In other cases, someone in charge of the process selects random peers and others; in yet other cases, all the peers, subordinates, and supervisors are asked to provide ratings. In most situations, each rater is asked to provide evaluations in all areas under consideration, although, in some cases, the raters are told to provide ratings in some areas and not others, or are told to provide ratings only in areas where they feel competent to do so.

Once the ratings are collected and tabulated, the ratee is given a feedback report. In each area rated, she or he is provided with the self-evaluation, followed by the average ratings received from each of the other groups of raters. There is typically some form of notation indicating ratings that are significantly above or below the self-ratings. The target manager is then either left to sort out this information or provided with a coach who helps interpret the feedback and determine a plan for future development.

ADVANTAGES AND PROBLEMS

The major advantage attributed to 360-degree feedback systems is that the target managers receive feedback about their performance from a variety of

perspectives. This type of multisource feedback provides much more information to target managers, and the nature of that information is often much richer. Ideally, the managers will use this information to develop much more accurate insights into their behavior, which, especially with the help of a coach, will allow them to improve in areas where they are weak.

But, in fact, there is little unambiguous data to support the effectiveness of 360-degree feedback relative to other types of feedback. Several studies have found mixed results when examining change following 360-degree feedback, other studies have found improvement but suffer from a variety of methodological problems, as reviewed by Seifert, Yukl, and McDonald (2003), and very few studies have actually compared the effectiveness of feedback from multiple sources with feedback from a single source. In addition, several conceptual papers have suggested that there might also be psychometric issues with these ratings and problems with the effectiveness of the feedback as a result of the multiple sources employed in this process.

An additional problem can stem from the use of 360-degree ratings for decision making rather than simply for feedback. The problems come from the fact that ratings from different sources in the process typically don't agree—and aren't really supposed to agree. But when ratings from different sources are used to make a single decision, it is not clear how to deal with this inconsistency.

Ideally, an organization should determine which rating source would be best able to evaluate a manager in each area, and either ask for ratings only from the best source or only consider those ratings in forming an overall evaluation. For example, perhaps peers would be the best judges of "cooperation," whereas subordinates would be best to evaluate "delegation," and a supervisor best to evaluate "meets deadlines." Then, it would be possible to obtain ratings in these areas only from the source best able to evaluate the area. This would make interpretation simple, and it would be easy to combine these ratings into a single overall evaluation, but the logistics of putting together a rating instrument that reflected this would be significant. Alternatively, all three sources could rate the manager in all three areas (which is actually more typical), and the evaluator could consider separately the peer rating of cooperation, subordinate rating of delegation, and supervisory rating of meeting deadlines, and then combine these ratings to form an overall evaluation.

Unfortunately, in many cases, feedback from all sources is provided to the target manager, but only the ratings from the supervisor are used for decision making. In such cases, one would expect the manager being rated to pay more attention to the rating from the supervisor, which might negate the whole purpose of multisource evaluations. Of course, as noted earlier, the original proposers of 360-degree feedback suggested that these ratings be used for feedback only—partly because of the problems just discussed and partly because they believed the raters would be more honest if the ratings were not to be used for decision making.

EVALUATION OF 360-DEGREE FEEDBACK SYSTEMS

What, then, is the bottom line regarding the effectiveness of 360-degree feedback? As noted earlier, there have actually been very few rigorous tests of the effectiveness of these systems. What tests have been conducted have produced inconsistent results, although there is slightly more evidence that upward feedback (i.e., feedback from subordinates to their supervisors) is effective in improving performance. Furthermore, in no case has a 360-degree feedback system been directly compared with an alternative feedback delivery system. Clearly, there is the need for further evaluation, but even without additional data, there are some potential advantages that 360-degree systems can offer.

First, the fact that feedback is provided from so many different sources (and there are even feedback systems that add feedback from customers or clients) means that the manager can get a picture of how she or he is viewed that simply cannot be gained in any other way. Second, if the manager is provided with a coach to help interpret the feedback, it should be possible to get feedback in critical areas from the very best sources of that feedback. Thus, with some guidance, a manager can get critical information from the person or persons in the best position to provide that information. Third, by comparing feedback from different sources with self-ratings, the target manager can gain even more insight into him- or herself, and especially learn about those areas where the manager's self-perceptions are simply not shared by anyone else. This kind of feedback can have excellent potential for aiding in one's development both as a manager and as a person.

Therefore, the key to successful applications of 360-degree feedback systems is to develop ways to

gain these advantages without incurring some of the problems that may exist with these systems. Clearly, assigning coaches to help managers to interpret and act on the feedback they receive is one way to help maximize the effectiveness of 360-degree feedback. Problems that might derive from inconsistent feedback messages could be resolved by such a coach, who could help managers determine which feedback messages they should attend to.

There have long been calls for maintaining two separate rating processes within organizations—one for decision making and one for developmental feedback. Given the fact that 360-degree ratings were proposed for use as feedback tools only, and given that ratings are usually more honest when they are not going to be used for decision making, it would be useful if the results from the 360-degree process were used only for feedback. That would require a separate set of appraisals for decision making, and it would also require that the target manager be allowed to keep the results of the 360-degree feedback confidential if desired.

Finally, there have been several recommendations regarding any feedback intervention that would apply to 360-degree feedback as well. For example, feedback tends to be more effective when the recipient can see improvements over time. Hence, once an organization begins using 360-degree feedback, it should continue to do so over time to maximize the potential benefits of the ratings. Goal setting has also been found to be a useful addition to any feedback intervention, and so organizations should make sure that any 360-degree feedback is accompanied by specific, difficult goals that help serve higher-level organizational goals as well.

CONCLUSIONS

Systems employing 360-degree feedback have been quite popular in organizations based in the United States for at least the past 10 to 15 years. Furthermore, firms in other parts of the world are beginning to adopt 360-degree systems as well. Yet, there really is little compelling evidence that they are any more effective than alternative systems in improving performance. Nonetheless, 360-degree feedback offers a richness of feedback that is not available through other means, and so these systems *may* be justified from a broader perspective. For now, though, there is still a need for research to determine the relative

effectiveness of 360-degree feedback. Until the final word on effectiveness is available, organizations that wish to convey rich feedback information to employees (especially managers) may choose to use 360-degree systems, but they should be aware of the potential issues and establish procedures to maximize the usefulness of the feedback provided, while minimizing the problems these systems can cause.

—Angelo S. DeNisi

See also Multitrait–Multimethod Matrix; Performance Appraisal; Performance Feedback

FURTHER READING

- Dalessio, A. T. (1998). Using multisource feedback for employee development and personnel decisions. In J. S. Smither (Ed.), *Performance appraisal: State of the art in practice* (pp. 278–330). San Francisco: Jossey-Bass.
- DeNisi, A. S., & Kluger, A. N. (2000). Feedback effectiveness: Can 360-degree appraisals be improved? *Academy of Management Executive*, *14*, 129–139.
- Ilggen, D. R., Fisher, C. D., & Taylor, M. S. (1979). Consequences of individual feedback on behavior in organizations. *Journal of Applied Psychology*, *64*, 349–371.
- Kluger, A. N., & DeNisi, A. S. (1996). The effects of feedback interventions on performance: Historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, *119*, 254–284.
- Lawler, E. E. (1967). The multitrait-multirate approach to measuring managerial job performance. *Journal of Applied Psychology*, *51*, 369–381.
- London, M. L., & Smither, J. W. (1995). Can multi-source feedback change perceptions of goal accomplishment, self-evaluations, and performance-related outcomes? Theory-based applications and directions for research. *Personnel Psychology*, *48*, 803–839.
- Seifert, C. F., Yukl, G., & McDonald, R. A. (2003). Effects of multi-source feedback and a feedback facilitator on the influence behavior of managers towards subordinates. *Journal of Applied Psychology*, *88*, 561–569.
- Tornow, W. W. (1993). Perceptions or reality? Is multi-perspective measurement a means or an end? *Human Resource Management*, *32*, 221–230.

TIME MANAGEMENT

The term *time management* became familiar in the 1950s and 1960s as referring to a tool to help managers make better use of available time. The tool

was based on practical experience, in the form of dos and don'ts. The term appears to indicate that time is managed, but actually activities are managed over time. Time management is self-management with an explicit focus on time in deciding what to do; on how much time to allocate to activities; on how activities can be done more efficiently; and on when the time is right for particular activities. Much of the advice on time management concerns the standardization and routinization of activities to increase efficiency. The time gained with this increased efficiency can be used for other activities, deliberately chosen as worthwhile, rather than activities that serve only as means to achieve less worthwhile goals, so-called time wasters. In other words, time is gained for activities that deserve it, and full concentration can be devoted to these activities for a longer period of time.

Similar to self-management, time management is focused on solving problems. Examples of common problems are feeling overwhelmed by the workload; planning too optimistically; being unable to deal with distractions; deadline pressure; and procrastination. The core of time management is to prevent these problems by preparation and planning. Many scheduling techniques can be used that aim at obtaining an overview of tasks, subtasks, and actions and methods to remember them—for example, making a to-do list, organizing it according to priority based on importance (relevant to effectiveness) and urgency (relevant to timeliness), and scheduling tasks to months, weeks, and days.

In addition, time management may be seen as a way to stay on track in dynamic conditions. As such, it is more than planning, and it involves a cycle of goal setting, planning, keeping track of progress (monitoring), and the evaluation of goal achievement. In dynamic conditions, if-then rules help to quickly decide courses of action when situations change. For example, if a coworker requests to do a task unexpectedly, then there are four options, based on the judgment of importance and urgency. If it is both important and urgent, act on it immediately. If it is important, but not urgent, try to find out whether it may be done at a later time that suits your schedule. If it is urgent, but not important to your own priorities, try to delegate it to someone else. If it is neither urgent nor important, then do not do it at all. It is clear that apart from these decision rules, some social skills related to assertiveness are needed in dealing with such requests.

RESEARCH ON TIME MANAGEMENT

Despite the worldwide popularity of time management training, the research on time management has been relatively scarce. That is, although several studies have been conducted among students about study behavior and, to a lesser extent, among individuals in a work setting, there are only a few study results to substantiate the claims of time management to increased efficiency and better performance.

Therese Hoff Macan proposed a model of time management in which time management behaviors such as goal setting and organizing result in perceived control of time, which leads to outcomes such as increased performance and less tension. Research that investigated this model established the relationship between perceived control of time and tension several times. However, the relationship between certain types of behavior and control of time, and between control of time and performance, resulted in inconsistent research outcomes.

Apart from this model, the approach to time management has been largely atheoretical, focused on personal skills, without consideration of why the problems arise and why they are so common. Not much is known about the work context, which may play an important role in the pressures on and the enhancement of the use of time. A more comprehensive theoretical framework of time management than presented so far would have to involve task content and social influences, as well. Relevant issues, for example, are as follows: does a person have the autonomy to self-manage activities over time, to delegate activities, or to say no to certain requests? How heavy is the person's workload?

Some authors proposed that time management may be seen as an individual difference variable, and there are several indications that some people are more planful and attentive to time than others. Examples of these individual differences are time urgency (the degree to which a person is hurried and focused on time); polychronicity (the preference to handle several activities simultaneously); and time use efficiency. In the next section, procrastination is presented as one of these variables.

PROCRASTINATION

Procrastination may be seen as a specific time management problem that involves the delay of activities,

even though the person is aware that they are important and urgent. The moral undesirability of this phenomenon may aggravate the problem, and many self-help books and tools are devoted to conquering it.

Procrastination may be studied as a state—in effect, as delay at particular moments. Discounting delayed outcomes offers a good explanation as to why everyone engages in procrastination at least once in a while. That is, people generally prefer short-term outcomes over long-term outcomes. This may explain why impulsive reactions to short-term activities (time-pressing, urgent matters) may be more common than planful execution of longer-term goals, even if these are more important than the urgent matters. Both the avoidance of unpleasant tasks and the approach to appealing tasks may motivate procrastination, and training self-control may be seen as central to overcoming procrastination.

Most of the research on procrastination has devoted attention to the trait perspective, in which procrastination is seen as a generalized tendency to repeatedly engage in this type of behavior. Within the trait perspective, the overarching Big Five factor model of personality may be used. In this model, the factor *conscientiousness* refers to discipline, order, and achievement motivation. It is highly negatively related to trait measures of procrastination. *Neuroticism*, a factor that includes anxiety and depression, is a positively related factor, but it is only moderately related. *Self-efficacy* is also negatively related to procrastination.

The degree to which procrastination is common and influenced by the context at work has not been studied extensively. Most of the research results are students' self-reports, and a general bias in the self-perception of individuals who admit they procrastinate that generalizes to other traits may not be ruled out. Another point of discussion in the literature is whether procrastination is caused by deeply rooted psychological motives that need to be dealt with in therapy.

—Wendelien van Eerde

See also Goal-Setting Theory; Self-Regulation Theory

FURTHER READING

- Claessens, B. J. C., Van Eerde, W., Rutte, C. G., & Roe, R. A. (in press). A review of the time management literature. *Personnel Review*.
- Koch, C. J., & Kleinmann, M. (2002). A stitch in time saves nine: Behavioural decision-making explanations for

- time management problems. *European Journal of Work and Organizational Psychology*, 11, 199–217.
- Macan, T. H. (1994). Time management: Test of a process model. *Journal of Applied Psychology*, 79, 381–391.
- Van Eerde, W. (2003). A meta-analytically derived nomological network of procrastination. *Personality and Individual Differences*, 35, 1410–1418.

TOTAL QUALITY MANAGEMENT

Total quality management (TQM) is an organizational activity that has received many labels since its widespread introduction to the American workplace in the early 1980s. It has been labeled as a comprehensive approach to management, a managerial philosophy, a set of tools for improving quality and customer focus, and an organizational development (OD) intervention that can affect both the business and the people side of operations. It is practiced by statisticians and engineers, psychologists and other behavioral scientists, and by CEOs, general managers, and HR professionals. Total quality management has been praised as the panacea for business competitiveness and survival, and it has been maligned as nothing more than a passing fad that has failed to deliver. Clearly, it is difficult to provide a comprehensive, unified definition of TQM that would inspire consensus from the wide range of academics, managers, and consultants who are invested in such a definition.

However, it is possible to identify the primary architects of TQM and to summarize the principles and assumptions that can be extracted from their work. It is widely agreed that the founders of TQM are W. Edwards Deming, Joseph Juran, and Kaoru Ishikawa. The assumptions of their collective work have been summarized as follows: (a) Quality (of goods and services) is essential for organizational survival; (b) the key to quality is through people, who inherently want to contribute to quality and will do so when trained and supported; (c) because organizations are systems comprising interdependent parts, quality improvement efforts should focus on cross-functional processes; and (d) quality must be driven from the top, by senior managers who are committed to and responsible for quality. From these assumptions flow several important principles, including the use of structured problem solving, data-driven decision making, SPC (statistical process control) tools, and employee

involvement and development. From this, the essence of TQM can be distilled as a top-down commitment to quality, achieved through employee involvement in continuous process improvement.

THE EVOLUTION OF TQM

The proliferation of quality and process improvement techniques and programs that preceded and followed TQM has resulted in confusion about what is and is not TQM. Predecessors include American-born quality of work life (QWL) interventions, the industrial-democracy movement in Europe, and the quality revolution in Japan, from which quality circles emerged. It is widely agreed that these quality improvement and employee involvement initiatives of the 1960s and 1970s provided the foundation on which TQM was built. A combination of factors converged in the late 1970s and early 1980s that would cause TQM to surpass all of these in its scope and impact. These included the quality crisis in American industry, unprecedented global competition, the demands of workers for involvement and empowerment, and the adaptation of quality principles for the nonmanufacturing sector.

The legitimacy of TQM was established in 1987 when Congress established the Malcolm Baldrige National Quality Award (MBNQA). This annual award recognizes quality excellence in business, health care, and education in the areas of strategic planning; leadership; customer and market focus; measurement, analysis, and knowledge management; human resources focus; process management; and business results. Although the MBNQA has helped to provide a common framework for assessing the implementation of quality practices and has contributed greatly to the growth of TQM, it has not resulted in conceptual clarity. One major source of conceptual muddiness is the relationship between TQM and employee involvement (EI), Six Sigma, and business process reengineering (BPR).

TOWARD CONCEPTUAL CLARITY: TQM, EI, SIX SIGMA, AND BPR

As defined above, the major purpose of TQM is to improve the quality of goods and services. To do this systematically, an organization must fully engage all employees in the effort, which makes TQM a vehicle for employee involvement (EI). This places TQM into

the broad category of programs known collectively as *EI interventions*. Employee involvement interventions attempt to increase employees' input into decisions that affect performance and satisfaction. They are operationalized by the downward movement and diffusion of power, information, knowledge, and rewards. Formal EI approaches include older interventions such as quality circles, job enrichment, and sociotechnical systems. Two newer interventions, Six Sigma and business process reengineering (BPR), have also raised definitional confusion about how they differ from TQM. These boundaries are discussed below.

Six Sigma

Six Sigma is a particular approach to total quality management that emerged in the late 1980s from the quality improvement efforts at Motorola. Like TQM, it is a vehicle for employee involvement through structured quality improvement activities. Also like TQM, it has been embraced by companies around the world as a comprehensive framework for business management. Because it emerged from TQM, it shares the same assumptions described above. But it also has unique aspects that have made it the most popular form of TQM today. These include the use of a standardized improvement model (DMAIC, define-measure-analyze-improve-control), an extensive training program to prepare employees for varying levels of involvement, and the use of colorful terminology for these various levels. All employees receive Green Belt training, which prepares them to become members of Green Belt project teams. Green Belts are assisted by Black Belts, who are dedicated resources to support their organization's quality efforts and who receive extensive training in group dynamics, DMAIC, and SPC tools. Some organizations also have intermediate levels of involvement called Yellow Belts.

Business Process Reengineering

Business process reengineering was popularized in the 1993 best seller by Michael Hammer and James Champy, who first coined the phrase *reengineering*. They defined reengineering as the fundamental rethinking and radical redesign of business processes to achieve dramatic results. Business process reengineering and TQM are similar in that they both target

work processes for quality improvements; however, they differ in two very fundamental ways. The first difference is that TQM, as described previously, relies on employee involvement as a central tenet, whereas BPR often lacks this feature. Instead, employees may be passive recipients of BPR-mandated changes. The second difference is the magnitude of the change produced. Although TQM targets existing work processes for incremental and continuous improvements, BPR attempts to radically redesign these processes, often through the use of information technology. Once work processes have been redesigned, it is often necessary to restructure the organization to support the new processes. This often alters the shape and size of the organization through the use of teaming, delaying, and downsizing. These latter outcomes have led to criticism, which is often backed up by claims that many reengineering efforts do not produce the dramatic results that are hoped for.

IMPLEMENTATION OF TQM

Although implementation steps and timetables will be unique to each organization, the following steps are considered essential to a successful program.

1. *Senior management commitment and training.* Total quality management is a top-down approach that depends on the commitment and knowledge of senior-level leaders, who must champion the program and lead the culture change that it requires. Thus, they must receive formal training in quality principles and tools, allocate adequate resources to its successful implementation, and demonstrate their commitment to quality.
2. *Employee training.* Total quality management depends on employee involvement in quality improvement and requires extensive training to prepare employees for their role. Although training formats and time frames vary (ranging from two weeks to two years), all employees are expected to receive some minimal level of formal classroom training. Training content includes structured problem solving (using such tools as Six Sigma's DMAIC), quality tools (histograms, flowcharts, control charts, and Pareto charts), and team dynamics.
3. *Initiate quality improvement/Six Sigma projects.* Quality activities occur through quality improvement (or Green Belt) projects, which are ideally undertaken by teams of employees who share a common work process. However, some projects are undertaken by

individual employees working alone. Projects focus on mapping and measuring existing processes, and the application of quality methods to improve the processes (e.g., reduce the number of steps required) and their output (e.g., reduce variability). Deviations from targeted quality standards are monitored by the team via product control charts and customer satisfaction measures.

4. *Monitor progress and reward results.* Besides internal monitoring of process improvements, TQM also requires measurement against external standards. This usually involves benchmarking with “best-in-class” organizations, which are targeted as quality standard-bearers. Internal improvement efforts are designed to close the gap between the organization and its external benchmark. Management and employees may be rewarded for quality improvements through gainsharing or bonuses. Some organizations have tied involvement in quality projects to performance appraisals, although most programs rely most heavily on intrinsic rewards. A major reward for many employees is the opportunity to improve or streamline a faulty work process, which makes their job easier or more satisfying.

IMPLEMENTATION OF BPR

1. *Preparation and planning.* Because of the transformational nature of the change desired, extensive preimplementation planning and preparation is required. Preparation includes a thorough understanding of strategic direction and supporting work processes as well as the competitive environment. The diagnosis attempts to identify the core business processes that support the desired strategic direction and targets them for reengineering. This step also builds commitment to the intervention as organizational leaders communicate the need for radical change.
2. *Fundamentally rethink how work gets done.* During this phase, core business processes are analyzed, using the same tools used during the *analyze* phase of a TQM or Six Sigma project. Process mapping shows all the current steps in the process and produces an as-is map of the targeted process. Performance metrics for each key process are also examined, and dramatic improvement goals, often derived from benchmarking, are then set. Finally, new work processes are engineered that will produce these dramatic results. In the most extreme approach to this phase, old work processes are completely eliminated and a blank slate is used to design new, streamlined processes. A common theme to eliminating

steps and increasing value-adding activities is the use of information technology.

3. *Restructure the organization to support the new processes.* Although the structure must be aligned to support the specific aspects of the reengineered processes, some common characteristics include a change from functional departments to a process-based structure; flatter, leaner hierarchies; and the use of teams rather than individual jobs in allocating work. A systems approach must be taken to ensure the proper alignment of all human, managerial, information, and measurement subsystems.

RESULTS OF TQM AND BPR

It is estimated that about 75% of Fortune 1,000 firms have implemented some form of TQM. Survey results indicate that 87% feel their TQM experience has been positive. Results claimed attributed to TQM include improved financial performance, employee relations, product quality, and customer satisfaction. A study of 54 companies using TQM reported that they outperformed a similar group of organizations not using TQM. The study reported the performance gains resulted from employee involvement benefits rather than the tools and techniques of TQM. A comprehensive examination of popular management techniques, including TQM and BPR, reported that organizations using these programs did not enjoy better economic performance than other organizations. However, organizations using these programs were more admired, were perceived to be more innovative, and were rated higher in management quality than other organizations. Despite these positive results, it should be acknowledged that there are companies using TQM and BPR that do not reap these benefits, and there are many instances of organizations terminating their programs.

—Kim K. Buch

See also Organizational Development; Training

FURTHER READING

- Buch, K., & Rivers, D. (2001). TQM: The role of leadership and culture. *Leadership and Organization Development Journal*, 22(2), 365–372.
- Cummings, T. G., & Worley, C. G. (2005). *Organization development and change*. Mason, OH: Thomson/South-Western.

- Deming, W. E. (1986). *Out of the crisis*. Cambridge, MA: MIT Press.
- Hackman, R. J., & Wageman, R. (1995). Total quality management: Empirical, conceptual, and practical issues. *Administrative Science Quarterly*, 40, 309–342.
- Hammer, M., & Champy, J. (1993). *Reengineering the corporation: A manifesto for business revolution*. New York: HarperCollins.
- Juran, J. (1974). *Quality control handbook*. New York: McGraw-Hill.
- Lawler, E. E., III. (1992). *High involvement management: The ultimate advantage*. San Francisco: Jossey-Bass.

TRADE UNIONS

See UNIONS

TRAINABILITY AND ADAPTABILITY

Modern organizations are faced with dynamic pressures such as changing technologies, global competition, and organizational restructuring. Such demands require workers to be adaptable and demonstrate the capacity to quickly learn. To address these issues, researchers and practitioners in industrial/organizational psychology and related fields have sought to define, measure, and build interventions around the psychological concepts of *trainability* and *adaptability*. *Trainability* can be generally defined as the capacity to learn and be trained, and *adaptability* can be thought of as an effective response or change to meet demands of the environment, an event, or a new situation. Both trainability and adaptability can be considered from two different perspectives. First, we can consider how trainability and adaptability can be behaviorally manifested and measured in terms of demonstrated task or job performance. Second, we can investigate the underlying characteristics of people, such as their abilities, personality, and motivation, that make them more or less trainable or adaptable.

TRAINABILITY, ADAPTABILITY, AND PERFORMANCE MEASUREMENT

In terms of behavioral or observed evidence of trainability, trainability has been measured via the use of work samples. A work sample is a simulation of actual

training or job content in which individuals are assessed in terms of their ability to effectively perform a given set of tasks. As an example, consider a work sample in which candidates for a construction job have to learn via a short course how to interpret a specific type of blueprint or construction plan and then demonstrate use of this knowledge during an actual construction task. There is convincing research evidence that individuals who can perform well on a representative sample of training will improve more during an actual, full-scale training program. Thus, an individual's ability to acquire knowledge and learn job tasks can be observed and measured to some extent directly.

When looking at adaptability, initial research evidence suggests that various types (or dimensions) of adaptive performance can be identified, including (a) solving problems creatively, (b) dealing with uncertain or unpredictable work situations, (c) learning new tasks, technologies, and procedures, (d) demonstrating interpersonal adaptability, (e) demonstrating cultural adaptability, (f) demonstrating physical adaptability, (g) handling work stress, and (h) handling emergencies or crisis situations. Furthermore, researchers have demonstrated that such dimensions of adaptive performance can be measured directly by using behavioral scales that tell observers what to look for on the job to ascertain whether someone is performing adaptively. In addition, it may be possible to measure adaptive performance using the same type of work samples and simulations mentioned for measuring trainability.

TRAINABILITY, ADAPTABILITY, AND INDIVIDUAL DIFFERENCES

Although the concepts of trainability and adaptability can be measured in terms of observed task or job performance, as discussed previously, a more fundamental question is, What are the underlying characteristics of people—the individual differences—that enable some individuals to train or adapt more quickly or more effectively? Although these are still active areas of research, with much that remains to be discovered, a number of underlying individual differences have been linked to both trainability and adaptability.

First, it has been demonstrated that individuals with higher levels of general cognitive ability (i.e., intelligence) demonstrate greater training performance or trainability. This relationship is also characteristic of adaptability, in that cognitive ability has been linked to greater adaptive performance.

Second, noncognitive characteristics such as personality, motivation, and experience may also play a role in both trainability and adaptability. For example, research suggests that variables such as self-efficacy (belief that one can do the job or tasks at hand), conscientiousness (a sense of responsibility for one's own learning), and motivation to learn may be predictive of trainability and success in training. Similarly, adaptability may be related to personality factors such as achievement motivation (one's desire to overcome obstacles, achieve results, and master tasks), cooperativeness (ability to work effectively with others toward a common purpose), and willingness to learn.

In addition, an individual's capacity to learn and adapt may relate to past experience and prior knowledge. Specifically, past experience and prior knowledge may provide a foundation that allows an individual to draw on past lessons learned in facing new training or adaptability challenges.

An important area for future research is determining the extent to which different types of individual differences predict different types of trainability and adaptive performance. A wealth of research in industrial/organizational psychology has demonstrated that job performance can often be defined in terms of multiple dimensions (e.g., technical versus interpersonal performance). Similarly, specific dimensions of trainability and adaptive performance may be better predicted by individual differences that are more conceptually aligned. For example, in looking at more cognitive training tasks or an element of adaptive performance such as solving problems creatively, cognitive ability may be the most important individual characteristic. In contrast, personality characteristics may play a more prominent role in demonstrating trainability for tasks involving interpersonal skills or for demonstrating interpersonal adaptability.

Another important challenge for trainability and adaptability research is understanding the extent to which trainability and adaptability can be trained. That is, can someone learn how to learn, or train to become more adaptive? For years, educational psychologists have focused on improving strategies for learning and providing individuals with tools for presumably improving trainability. Similarly, organizational practitioners have developed experience-based approaches for training individuals to be more adaptive. This type of adaptability training often involves the use of training tools such as critical incidents, case studies, or simulations. Additional research is needed

to clarify the effectiveness of and expected gains from such training efforts, especially in light of the fact that some determinants of trainability and adaptability, such as cognitive ability, may be stable traits of individuals that are not amenable to substantial change.

SUMMARY

As organizations are faced with an increasing array of environmental demands and aspects of change, the psychological concepts of trainability and adaptability have and will continue to receive attention. Researchers and practitioners have attempted to define, measure, and develop interventions around both trainability and adaptability. These efforts have highlighted ways in which trainability and adaptability can be assessed more directly, in terms of measures of task or job performance. In addition, individual differences have been identified that may be underlying determinants of trainability and adaptability, including abilities, personality characteristics, and motivational components. New areas for research and development include evaluating the extent to which trainability and adaptability can be learned or trained.

—David W. Dorsey

See also Individual Differences; Job Performance Models; Training; Training Evaluation; Training Needs Assessment and Analysis

FURTHER READING

- Colquitt, J. A., LePine, J. A., & Noe, R. A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology, 85*, 678–707.
- Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. E. (2000). Adaptability in the work place: Development of a taxonomy of adaptive performance. *Journal of Applied Psychology, 85*, 612–624.
- Pulakos, E. D., Schmitt, N., Dorsey, D. W., Hedge, J. W., & Borman, W. C. (2002). Predicting adaptive performance: Further tests of a model of adaptability. *Human Performance, 15*(4), 299–323.
- Ree, M. J., Carretta, T. R., & Teachout, M. S. (1995). Role of ability and prior job knowledge in complex training performance. *Journal of Applied Psychology, 80*, 721–730.
- Robertson, I. T., & Downs, S. (1989). Work sample tests of trainability: A meta-analysis. *Journal of Applied Psychology, 74*, 402–410.

TRAINING

Training is the systematic process by which employees learn the knowledge, skills, and/or attitudes (KSAs) necessary to do their jobs. Because training is systematic, it is distinct from other ways in which employees acquire new KSAs, such as through experience or serendipitous learning.

Training is different than employee development. Training addresses KSAs in one's current job, whereas developmental efforts enable employees to target KSAs that may be useful in some future job. This distinction, though, is sometimes fuzzy. A training course on basic supervisory skills may be both a training experience for new supervisors and a developmental experience for entry-level employees seeking promotion.

Training is ubiquitous. Whenever a new employee is hired, that individual is likely to go through some form of orientation, formal training on core job responsibilities, and informal training to learn the ropes from a supervisor or more proficient coworkers. All of these activities are considered training. Several professional organizations, including the American Society for Training and Development (ASTD), publish periodic reports on training-related activities by U.S. employers. According to their reports, the average number of hours of formal learning by employees ranges from 25 to 30 for smaller organizations to 35 to 40 for larger organizations. These organizations typically spend about \$800 to \$1,300 per employee (depending on the size of the organization).

TRAINING ACTIVITIES

Classic models of training development generally include four steps in the training process:

- *Needs assessment.* During this step, the organizational need and support for training is identified and the training content is defined.
- *Training development.* During this step, the training content is determined and decisions are made about the appropriate training method (e.g., how should material be conveyed? How long should the training last?).
- *Training delivery.* During this step, trainees complete the training program. Training may be on-the-job, in a classroom, online, or through workbooks, or offered in some other format.

- *Training evaluation.* During this step, the organization evaluates the effectiveness of the training program during training and/or back on the job.

VALUE OF TRAINING

Recently, several researchers have begun to investigate the impact of various human resource practices, including training, on financial indicators of organizational performance. The financial impact of training was the focus of a recent multiyear study by ASTD of more than 2,500 organizations. Organizational effectiveness was assessed by total shareholder return (TSR)—a composite of change in stock price and dividends issued. Their study offered strong support for the impact of training, reporting the following findings:

- When firms were ranked on training expenditures, firms in the upper half had a TSR 86% higher than firms in the lower half, and 45% higher than the market average.
- When firms were ranked on per-employee expenditures, firms in the upper fourth of the distribution had higher profit margins (by 24%) and higher per-employee income (by 218%) than firms ranked in the lower fourth.

Although more research is necessary to establish causal relationships between organizational performance and investments in training or training quality, research to date demonstrates the value of training to organizations.

TRAINING EFFECTIVENESS

Given preliminary evidence that training works, it is important that training be designed to maximize employee learning of job-related KSAs. Psychological research over the years has resulted in a number of principles related to effective training. These include the following:

- *Ensure trainees are motivated.* Trainees who are motivated to learn become more active learners, actively processing new information to ensure that it is efficiently stored and more easily recalled. Trainees are likely to be motivated when they perceive the training content as relevant to their jobs or career development. The trainer's expertise, charisma, or instructional style can enhance trainee motivation. An uncomfortable setting or poorly designed Web site can undermine trainee motivation.

- *Provide constructive feedback.* The impact of feedback on performance improvement is well documented in many areas of psychology and applies to training contexts, as well. Feedback should be timely and relevant, and it should address both positive and negative aspects of training performance.
- *Provide opportunities to practice.* It is important that trainees have the opportunity to practice new skills in training, before enacting them on the job. Practice works best when the training context resembles the work environment, at either a surface or structural level. Surface-level fidelity occurs when the equipment or work space in training closely resembles that in real life. For example, a successful chain of gas station/convenience stores requires that employees spend a week of training in a completely operational replica of an actual store before starting work. Structural fidelity occurs when the problems, issues, or performance–outcome contingencies in training resemble real life. The navy once conducted aircrew coordination training on a transport ship by having team members sit in folding chairs surrounding a plunger that served as the “ship’s” throttle. Although the surface fidelity of this training was low, the crew practiced responding to simulated emergencies drawn from real-life events.
- *Prepare trainees to transfer.* Transfer of training occurs when trainees apply what they’ve learned successfully to their jobs. Transfer can be enhanced by preparing trainees for posttraining obstacles to transfer. For example, a computer technician may attend training to learn new strategies for diagnosing customers’ computer malfunctions. However, when she returns to her job at a technical support center, a month passes before she receives a call that allows her to use this new strategy, or she begins to use pre-training strategies when her supervisor complains that she is not handling calls as quickly as she had in the past. Trainees can be prepared by telling them what challenges await and providing contingency plans for when obstacles are encountered.

Transfer, and hence, training in general, is more likely to be successful when the training is embedded in a supportive environment. This means that training is perceived as beneficial, sufficient resources are allocated to plan and administer effective training programs, and trainees return to supportive environments that allow them to implement and refine newly acquired skills. Given evidence of the potential impact of training, it makes good sense for organizations to offer strong support for training initiatives.

—Kurt Kraiger

See also Diversity Training; Training Evaluation; Training Methods; Training Needs Assessment and Analysis

FURTHER READING

- Arthur, W., Bennett, W., Jr., Edens, P., & Bell, S. (2003). Effectiveness of training in organizations: A meta-analysis of design and evaluation features. *Journal of Applied Psychology, 88*, 234–245.
- Bassi, M. V., Ludwig, J., McMurrer, D. P., & Van Buren, M. (2004). *Profiting from learning: Do firms’ investments in education and training pay off?* Washington, DC: ASTD.
- Colquitt, J., LePine, J. A., & Noe, R. A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology, 83*, 654–665.
- Kraiger, K. Training in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Comprehensive handbook of psychology: Vol. 12. Industrial and Organizational Psychology* (pp. 171–192). New York: Wiley.

TRAINING EVALUATION

Training evaluation is the process used to determine the effectiveness and/or efficiency of training programs. *Training effectiveness* refers to the extent to which trainees (and their organization) benefit as intended from training. *Training efficiency* refers to the ratio of training-related benefits to training-related costs; thus, efficiency takes into account the resources used to design, develop, and administer the training. Training evaluation may also involve collecting data that do not directly address current levels of effectiveness or efficiency but are used to subsequently improve them.

There is a broad knowledge base relevant to training evaluation. There are relevant academic literatures in educational psychology, educational measurement, human resource development, and the emerging discipline of program evaluation. There is also a substantial trade literature specific to evaluating workplace training. Because evaluation is at its core a research process, industrial/organizational (I/O) psychologists have made their own contributions to this literature.

The evaluation process typically involves the following steps: (a) Determine the *purpose* of the evaluation, (b) decide on relevant *outcomes*, (c) develop

outcome *measures*, (d) choose an evaluation *strategy*, (e) plan and execute the evaluation, and (f) use evaluation data and results as suggested by the purpose of the evaluation. This entry will cover key distinctions in the areas of purpose, outcomes, measures, and strategy.

PURPOSE

There are many reasons to evaluate training, most of which can be classified into three primary categories: (a) to provide feedback to designers, trainers, and trainees; (b) to provide input for decision making about training; and (c) to provide information that can be used to market the training program.

Decisions about outcomes, measures, and strategy should be based on the evaluation purpose. Following from the three purposes, an evaluation model proposed by Kurt Kraiger suggests three primary targets of evaluation: (a) training content and design, which can be assessed to provide feedback to designers and trainers; (b) changes in learners, which can be gauged to provide feedback to learners and to make decisions about training; and (c) organizational payoffs, which can be collected and used for all three purposes. Each evaluation target offers multiple outcomes that can be assessed, and evaluators must decide not only the outcome of interest but also the method by which this outcome will be measured. For example, to provide feedback to training designers that can be used to improve training, an evaluator might question learners and subject matter experts about the on-the-job relevance of training materials. These questions can be asked via survey or interview, or inferred from observation of learners interacting with materials and attempting to apply those materials to their job.

Although most training evaluation occurs after a program is fully designed, evaluating training while it is being designed is often desirable. Such evaluation, called *formative* or *process* evaluation, is useful for providing feedback to designers so they can improve the program as it is being developed. As examples of this type of evaluation, an evaluator could assess whether the intended training objectives are consistent with the organization's business strategy by having managers and customers review the objectives and provide feedback.

OUTCOMES

The most widely cited model of training outcomes was developed by Donald Kirkpatrick, who outlined

four levels at which training can be evaluated. Level 1 evaluation assesses reactions, which ask how well trainees liked training. Level 2 evaluation assesses learning, assessing what knowledge was gained from the training. Level 3 evaluation assesses behavior, determining job-related behavior change that resulted from the training. Level 4 evaluation assesses results, examining tangible results of the training in terms of reduced cost, increased sales, improved quality, and so on.

The Kirkpatrick model provides some useful guidelines for evaluation, but it has been criticized in both the academic and trade literatures. Consequently, at least four major refinements to the model have been offered. The first improvement in the model has been that research has clarified the nature of trainee reactions, expanding on Kirkpatrick's original presentation. Kirkpatrick's earliest work was unclear as to what types of reaction questions should be asked and how they should be used. Applications of the model have varied considerably in the number of dimensions or facets of reactions that have been measured, from as few as 1 (overall satisfaction) to as many as 10 (program objectives and content, program materials, delivery methods and technologies, instructor or facilitator, instructional activities, program time or length, training environment, planned action or transfer expectation, logistics administration, and overall evaluation).

Recent research suggests that most reactions measures are indeed multidimensional. In addition, recent research suggests that a useful way to conceptualize reactions is hierarchically, with a global satisfaction construct underlying reactions to specific aspects of training. Both the facet reactions and the overall satisfaction measure may be useful, albeit for different reasons. Asking trainees about specific elements of the training can be useful for diagnosing problems with specific aspects of the training experience, and examining overall satisfaction may be useful for detecting motivation or attention problems with learners.

The second improvement in the model has been to clarify the multidimensional nature of learning. Kirkpatrick's treatment of learning was essentially unidimensional, proposing the use of knowledge tests to examine knowledge gained. In contrast, research suggests that learning is multidimensional and can be captured in different ways. Kraiger, J. Kevin Ford, and Eduardo Salas, in particular, suggest a tripartite model of learning: cognitive, skill-based, and affective.

Cognitive learning refers to the acquisition of different types of knowledge, including declarative knowledge, structural knowledge, and cognitive strategies. In addition to traditional tests, these outcomes can be measured with techniques such as asking trainees to draw out relationships among key concepts and testing whether trainees' beliefs about relationships are similar to experts' beliefs. *Skill-based learning* includes both compilation, which is the development of procedural knowledge that enables effective performance, and *automaticity*, which is performance without the need for conscious monitoring. Skill-based learning can be assessed with role plays and simulations. *Affective learning* includes changes in attitudes, such as attitudes about learning or the training content, and motivation, such as self-efficacy and goals. This model expands the Kirkpatrick perspective on learning and provides a wide array of options for evaluating learning outcomes based on research in cognitive and educational psychology.

Third, the perspective on organizational results has become more sophisticated since Kirkpatrick's earliest work. As part of an effort to refine the use of results as an outcome, some authors suggest there is a Level 5 evaluation, which calculates the return on investment (ROI) for training expenditures. Return on investment is an efficiency measure, as it incorporates not just the benefits for the organization, the way Level 4 evaluation requires, but also the costs of training. A number of different approaches are now available to calculate results outcomes, including basic benefits analysis, utility analysis, return-on-investment analysis, and net present value. Each technique varies in the degree to which costs are carefully considered and the method by which training benefits and costs are assigned monetary value. The most commonly used method by I/O psychologists is utility analysis. However, calculating net present value is a more sophisticated approach, because it involves appropriate financial discounting of future costs and, if relevant, cost savings. Whichever approach is used, this type of evaluation is resource-intensive, because it requires estimates of the performance difference between trained and untrained groups and of the monetary value of this difference. Consequently, this outcome is measured much less often than others.

Finally, basic assumptions of the Kirkpatrick model have been questioned, particularly the assumptions about a causal chain across levels and about the relative value of evaluations at each level. Kirkpatrick's work has been interpreted to suggest a

causal chain across levels (positive reactions lead to learning, which leads to behavioral change, etc.) and a bias toward higher-level evaluations as providing the most informative data. Current thinking does not support these assumptions. Meta-analyses suggest that correlations among the levels are not as high as would be suggested by the presumed causal model. Moreover, it has been argued that each level provides different information, not necessarily better information. Depending on the purpose of the evaluation effort, different outcomes will be more or less useful.

MEASURES

Once decisions about purpose and outcomes have been made, evaluators must decide how to measure the desired outcomes. This involves deciding where to get the data and how to collect it. Most evaluations consider the target of evaluation to be learners. However, as suggested by the Kraiger model, the possibilities are much broader, including trainees' managers, trainers, experts (subject matter, work group, and instructional), and customers. In particular, when the purpose of the evaluation is to determine organizational payoffs, learners' managers and customers are valuable sources of data. Ultimately, the selection of where to collect the data should be driven by the purpose of the evaluation as well as by practical constraints.

Evaluation data can be collected in many different ways, such as with paper surveys, computer surveys, interviews, observations, or archival records. Each type of data collection method has strengths and weaknesses. For example, computer surveys are convenient to administer but only convenient for respondents who have ready access to computers and are comfortable using them. In addition, if poorly designed, surveys may fail to collect important information from the respondent. Interviews are more time-consuming than surveys to administer and interpret, but they yield richer data and are more likely to capture important information. Evaluators should consider these trade-offs when deciding which measures to adopt; the measures should be reliable and valid indicators of the outcomes being measured.

STRATEGY

Drawing on the seminal work of Thomas Cook and Donald Campbell, many training textbooks describe in detail the research designs that can be used to measure the impact of training on learners. These

include experimental (with randomization of subjects into different training conditions), quasi-experimental (no randomization but some measure of control over competing explanations for training effects), and preexperimental (difficult to interpret because of limited control) designs. The most commonly used designs in organizations are posttest only and pre-post test designs, both of which are preexperimental designs. These designs are generally considered inadequate for controlling common threats to internal validity, including history, selection, and maturation. Nevertheless, these designs may be useful if the evaluator is primarily concerned that trainees reach a certain level of proficiency. For example, if training is intended to ensure that assembly line employees catch all products with a troublesome manufacturing defect, then improvement from pre- to posttest is less critical than having all trainees capable of identifying the defect.

Preexperimental designs may also be useful if the evaluator is familiar with the evaluation setting and critically examines competing explanations for the observed outcomes. An example of this type of critical examination is offered in the internal referencing strategy. This strategy requires testing trainees on concepts that are relevant to the training objectives and materials, and on concepts that are irrelevant. If training causes improvement in trainees' knowledge, then they should demonstrate improved understanding of relevant but not irrelevant concepts. Thus, this strategy rules out some common competing explanations for improvement in training outcomes.

Commonly used quasi-experimental designs include pre-post test designs with a control group, time series, and Solomon four-group design. Such designs require more time and resources than preexperimental designs but provide greater confidence that the obtained results can be interpreted as effects from training. When random assignment is possible, these evaluation strategies become true experimental designs, and they offer even greater confidence in the conclusions that can be drawn.

SUMMARY

When evaluating training, I/O psychologists have to make decisions about why they are evaluating as well as what to measure and how. Deciding the purpose of the evaluation is the essential first step, because it should influence all subsequent decisions.

—Kenneth G. Brown

See also Quasi-experimental Designs; Training; Training Methods; Training Needs Assessment and Analysis; Utility Analysis

FURTHER READING

- Alliger, G. M., Tannenbaum, S. I., Bennett, W., Traver, H., & Shotland, A. (1997). A meta-analysis of the relations among training criteria. *Personnel Psychology, 50*, 341–358.
- Brown, K. G., & Gerhardt, M. W. (2002). Formative evaluation: An integrated practice model and case study. *Personnel Psychology, 55*, 951–983.
- Kirkpatrick, D. L. (1996). Great ideas revisited. *Training and Development, 50*, 54–59.
- Kraiger, K., Ford, J. K., & Salas, E. (1993). Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal of Applied Psychology, 78*, 311–328.
- Noe, R. A. (2005). *Employee training and development* (3rd ed.). Boston: Irwin.
- Sackett, P. R., & Mullen, E. J. (1993). Beyond formal experimental design: Toward an expanded view of the training evaluation process. *Personnel Psychology, 46*, 613–627.

TRAINING METHODS

Training is the systematic process by which employees learn the knowledge, skills, and/or attitudes (KSAs) necessary to do their jobs. All forms of training use one or more methods or processes by which these KSAs are conveyed to employees. In other words, training is effective when trainees learn. *Training methods* are the techniques used to facilitate learning.

It is challenging to provide a rational taxonomy of training methods, because these may be either broad approaches (e.g., classroom training) or specific activities (e.g., providing opportunities for practice). This entry begins with very broad distinctions and moves to more specific activities that enhance learning in training and transfer back to the job.

INFORMAL TRAINING

One important distinction is between formal and informal training methods. Formal training methods are described in more detail in the following paragraphs. Although most of the training research has

focused on formal methods, it is not clear whether most corporate training is this structured. As much as half of actual organizational training may be informal in nature. Employees also learn new skills through trial and error, through developmental experiences and mentoring, and through the most common type of informal training: on-the-job training (OJT). *On-the-job training* simply refers to assigning employees to jobs and encouraging them to learn by observation or direction from supervisors or more experienced incumbents. For example, a new employee is required to wear protective clothing to handle hazardous waste materials. He or she is told to ask a senior employee to demonstrate the proper technique for donning the clothing.

Most of us have gone through OJT at some point in our careers. There was a time near the beginning of the 20th century when nearly all training was on the job (conducted by the foreman). Because of OJT's unstructured nature, it is difficult to estimate how frequently OJT actually occurs in modern organizations. For example, even if an organization knows that 50% of an employee's first week on the job is spent learning on the job, there will probably be numerous undocumented times in the next year that the employee asks a supervisor for advice or observes a more experienced worker performing a task more efficiently.

Tracking OJT is also difficult because learning might not always be taking place during those times designated as OJT. On-the-job training is sometimes referred to as training by "following around old Joe." However, it is not always clear whether old Joe is motivated or prepared to offer sound instruction. Despite the fact that there has been little research done on the frequency or effectiveness of on-the-job training, it is believed that the same principles of training effectiveness that apply to formal job training apply to OJT, as well. These include preparing for instruction by understanding the key steps and preparing equipment, materials, and so forth; explaining the training objectives; demonstrating the task and explaining the key elements of the task; having the trainee perform part or all of the task (depending on complexity); praising successful efforts and correcting unsuccessful ones; and providing opportunities for practice.

FORMAL TRAINING

In contrast to OJT, formal training methods are more structured, in the sense that there may be an a priori

needs assessment, specific instructional objectives, and a formal lesson plan that prescribes learning activities designed to aid in the acquisition of desired KSAs. Formal training methods generally fall into one of three classifications: other-directed, self-directed, and technology-assisted instruction.

Other-Directed Instruction

Other-directed instruction refers to training methods in which one or more trainers assumes responsibility for all instructional processes. Instructor-led training remains the most common instructional method used in industry today. Much of the training content is covered through lectures but may be augmented by discussion and/or question-and-answer periods.

Lectures. Just as most of us have gone through some form of OJT, most of us have sat through lectures, either in corporate training programs or higher education. Accordingly, most of us can appreciate both the primary advantages and disadvantages of this method. Lectures provide one of the best means for communicating a large amount of information in a short amount of time; they are beneficial for knowledge-based outcomes or for explaining complex procedures. On the other hand, learners tend to be very passive during lectures and may not receive sufficient opportunity to practice new skills. Lectures are often supplemented with more active learning methods, such as business case studies, videos, role playing, and simulations. It is interesting to note, however, that although there are many critics of the lecture as an instructional method, there is little empirical evidence that suggests that trainees learn less from this method than from other, more active methods.

Case Studies and Role Plays. There are additional methods of other-directed instruction, including videos or television, business games, case studies, and role plays. Two of the more common methods are case studies and role plays.

Case studies provide detailed background information on an organizational problem. Working individually or collectively, training participants diagnose the problem, offer solutions, and discuss alternatives. Case studies encourage thoughtful diagnosis of realistic problems and the opportunity to think through potential actions.

Role plays constitute a type of living case study. Participants are given background information (usually less detailed than in case studies), as well as a unique role to enact. For example, one participant may play the part of a staff supervisor, and the other the part of a line supervisor, and each is given instructions to persuade the other to change his or her position on the handling of a problem employee. As participants interact, the scenario evolves, and the demands on the participants change. Role plays can be particularly useful for training in interpersonal skills.

Self-Directed Instruction

Self-directed instruction occurs when learners assume primary responsibility for their learning, principally through the use of readings, workbooks, and correspondence courses. Workbooks remain one of the most common forms of training in organizations today. Workbooks typically target specific skills or knowledge relevant to the job. For example, seasonal hires in a department store can be provided workbooks that describe the stock, how to work the cash register, and procedures for handling returns.

A workbook can provide self-assessment tools so that employees can determine their baseline knowledge or skills. Readings, exercises, and discussions in the workbook build on what employees know, allowing them to study at their own pace. Self-pacing is a primary advantage of workbooks, as is the opportunity for employees to do self-assessment (of knowledge and skills) or self-evaluation (of learning progress). Workbooks can also be kept and referenced as job aids. The primary disadvantages of workbooks are lack of support when employees cannot understand workbook material and the lack of accountability for completing the workbooks or learning as much as possible when going through them.

Technology-Assisted Instruction

Various forms of technology-assisted instruction are becoming increasingly popular training methods. Data from the American Society of Training and Development show that the use of technology-assisted instruction has more than doubled between 2000 and 2004 and is expected to continue to increase in coming years.

Technology-assisted instruction includes elements of both other-directed and self-directed instruction.

The defining characteristic of technology-assisted instruction is the use of computer hardware and software to deliver learning. There are a variety of forms of technology-assisted instruction, including computer-based training, electronic support systems, and virtual reality training. This entry focuses on the most flexible method of technology-assisted instruction: computer-based training.

The two most common methods of computer-based instruction are intelligent tutoring and hypermedia systems. Intelligent tutoring follows a cognitive task analysis that breaks down tasks into a sequence of known steps. Using this sequence as an expert model, the software guides the learner toward task mastery. The learner must perform the task as intended by the program but can move forward quickly or drop back for remedial work depending on his or her ability to master the content. Intelligent tutoring systems are more popular in organizations such as the military, in which there is a prescribed or single best method for accomplishing tasks. For example, the air force uses intelligent tutoring systems to train electronics technicians in procedures for isolating, identifying, and repairing dysfunctional circuits. Users are sometimes resistant to these systems, because there are no shortcuts; learners must complete all phases of the training.

In hypermedia systems, trainees assume more control for their learning. They interact with learning systems through hyperlinked portals that allow them to choose the content and instructional methods (e.g., reading text, watching streaming videos, or solving problems). Web-based instruction, an increasingly popular instructional method, is a variant of hypermedia training in which instructional materials do not reside on the workstation but are distributed over the Internet. For example, a fast-food restaurant might develop a hypermedia training system to train its employees in customer service techniques. Once logged in to the system, trainees can choose topics (e.g., greeting customers or handling complaints) and either watch videos or read text on preferred methods for providing quality customer service.

The primary advantage of these systems is the capability of individual learners to tailor the content and delivery to their own needs and preferences. This capability is also the primary disadvantage. More knowledgeable employees may be trusted to make good decisions about what and how to learn; for them, hypermedia systems (particularly Web-based instruction) not only provide immediate access to necessary

information but also grant the opportunity to explore interesting topics in greater detail. However, less knowledgeable or less intelligent workers may make bad decisions about learning content and delivery. In effect, they don't know what they don't know. The cost of developing either form of computer-based training is high, and it would be cost-prohibitive for most organizations to develop both intelligent tutoring and hypermedia training systems. However, it is easy to imagine a context in which one system is more appropriate for some employees in one type of job, and the other system is more appropriate for other employees in other types of jobs.

Other Instructional Methods

There are several other instructional methods that are more difficult to classify. These are discussed in the following paragraphs.

Simulations. Simulations are appropriate for jobs with complex tasks or those that require employees to operate sophisticated or expensive equipment. Learning through simulations may be less costly or less threatening than practicing on the job. Examples of simulation-based training range from navy pilots flying fighter craft, to customer service representatives fielding practice calls using actual databases on the computer. Although the primary advantage of simulations is the opportunity to practice on realistic equipment in a safe environment, research shows that even low-fidelity simulators (e.g., video games) can be useful for teaching job skills. Virtual reality training represents an emerging form of simulation training.

Team Training. Team-based work systems are becoming increasingly popular in modern organizations. To maximize the effectiveness of work teams, organizations should provide team training. Team training consists of two types of content: task-related knowledge and skills (task work) and team-related knowledge and skills (teamwork). Task-work training can be accomplished using the same methods used for training individuals. At issue is whether team members train individually or as a team. In some situations—for example, air traffic control teams—it may be difficult or impractical to train all team members simultaneously. When it is possible to train team members together on a task, the more interdependent

the work, the more necessary it is to train team members together.

Team members should train together when learning teamwork; teamwork skills are those that help team members work together, regardless of the task. These include coordination, shared situational awareness, and performance monitoring and feedback. Teamwork skills can be learned in low-fidelity situations. Some strategies for training teamwork skills include cross-training (training team members on more than one role), prebriefings (instructing team leaders in how to prepare teams for assignments), and posttraining reviews (training teams how to review and self-correct following task performance).

Cross-Cultural Training. Cross-cultural training involves the preparation of expatriates for work in a different culture. Cross-cultural training can include language training, knowledge of local culture and customs, and strategies for adapting and adjusting to expatriate life. An important component of cross-cultural training is providing feedback to trainees about their levels of ethnocentricity with respect to cultural values and mores. With this self-awareness, employees may be more open to different customs and practices in other countries. One common cross-cultural training tool, the cultural assimilator, prepares expatriates through the use of mini case studies—brief scenarios that require trainees to assign attributions for the actions of characters acting in the host culture. By reading whether they were correct or not in their choice of attributions, trainees learn more about the operant values of the host culture.

Characteristics of Effective Training Methods

Regardless of the training method, there are several core principles for designing training to be maximally effective. Although some of these principles are easier to incorporate into some methods than others, training designers should try to build these principles into all forms of training. These principles include the following:

- *Clarify what is to be learned and how this information will be useful to trainees.* This can be accomplished through advanced organizers—outlines, diagrams, or anecdotes that alert trainees to information to be covered in training.

- *Link new training content to preexisting knowledge or job experiences of employees.* Advanced organizers should be personally relevant to trainees. For example, at the beginning of a team training program for military pilots, trainees observed a video of a fatal helicopter crash in which the helicopter pilot and copilot showed poor communication and communication skills.
- *Chunk or organize relevant information.* New knowledge is acquired not only when it is linked to existing knowledge but also when it is presented in a way that facilitates organization in memory by learners. For example, the tones on a musical staff can be presented using the expression “Every Good Boy Does Fine” (EGBDF).
- *Provide trainees with opportunities to practice new skills.* Practice works best if it varies in difficulty and provides different cues for eliciting the desired behavior. For example, a supervisor who is learning participatory goal-setting techniques can practice with two confederates—one easy to work with and one difficult.
- *Provide constructive feedback.* Trainees need to know when they are doing things correctly and should also be told what they are doing wrong and how to do it right.
- *Provide opportunities to observe others performing new skills.* Through open discussions or practicing in public settings, trainees can learn by watching others. Trainers sometimes have the disadvantage of knowing the content too well; another trainee who acquires new knowledge or skills more rapidly can help other trainees bridge the gap between what they know and the training standard.
- *Provide opportunities for trainees to form social networks with other trainees.* Surveys show that, particularly for higher-level positions, one of the top benefits of attending training is the opportunity to form new or stronger working relationships with peers also attending training. These newly formed networks can provide support during transfer of training and offer new developmental opportunities in the future.

—Kurt Kraiger

See also Distance Learning; Diversity Training; Leadership Development; Team Building; Training; Transfer of Training

FURTHER READING

Arthur, W., Bennett, W., Jr., Edens, P., & Bell, S. (2003). Effectiveness of training in organizations: A meta-analysis of design and evaluation features. *Journal of Applied Psychology, 88*, 234–245.

- Cannon-Bowers, J. A., Tannenbaum, S. I., Salas, E., & Volpe, C. E. (1995). Defining competencies and establishing team training requirements. In R. A. Guzzo & E. Salas (Eds.), *Team effectiveness and decision making in organizations*. San Francisco: Jossey-Bass.
- Noe, R. A. (1999). *Employee training and development* (3rd ed.). New York: McGraw-Hill/Irwin.
- Noe, R. A., & Colquitt, J. A. (2002). Planning for training impact: Principles of training effectiveness. In K. Kraiger (Ed.), *Creating, implementing, and managing effective training and development: State-of-the-art lessons for practice* (pp. 53–79). San Francisco: Jossey-Bass.
- Rothwell, W. J., & Kazanas, H. (1994). *Improving on-the-job training*. San Francisco: Jossey-Bass.

TRAINING NEEDS ASSESSMENT AND ANALYSIS

Training needs assessment is a process used to determine how an organization should allocate resources toward training and related human performance improvement interventions. Compared with other related areas of study in industrial/organizational (I/O) psychology, most notably training design and training evaluation, this process has received considerably less research attention. Nevertheless, needs assessment is vitally important to ensure training effectiveness and efficiency. Organizations that do not conduct needs assessments are more likely to do too little or too much training, or to develop training programs that do not benefit employees and the organization as a whole.

Full-scale needs assessments require collecting data on organization, task, and person characteristics (described in more detail below). This broad array of data is necessary for determining what training is needed by which employees so the organization can effectively pursue its strategic goals. In an ideal world, organizations conduct needs assessments routinely and begin with an organization analysis. Then, task and person analyses are conducted, often simultaneously because they require similar types of data from the same sources (potential trainees and their managers).

ORGANIZATION ANALYSIS

Organization analysis involves determining the appropriateness of training given the organization’s strategic goals, environment, resources, and characteristics. The organization’s strategy is relevant to decisions

about training because different strategies demand different amounts and types of training. Organizations that seek to differentiate themselves from their competitors with excellent service, for example, would likely benefit from service-related training courses. The same training courses might be less beneficial to an organization seeking a competitive advantage by minimizing costs. Organizations may also differ in the extent to which they invest in employees via training; some organizations pursue a human resources strategy of hiring the best possible employees. These organizations expend considerable resources on recruiting and selecting and may spend fewer resources on training. Assessors must understand the competitive pressures facing the organization and its strategic goals to recommend training that helps the organization effectively pursue those goals.

Organization analysis also requires an understanding of the environment within which the organization functions. Many facets of the environment, including the technical and legal, influence the type of training that an organization should offer. The technical environment includes the current and forthcoming technologies that employees will use to perform their work. For example, if an organization is planning to upgrade its computer systems, it will need to plan for training to assist in the transition and alter its existing courses to be consistent with the new systems. The legal environment includes both legislation and regulatory mandates. Although some industries and organizations are more affected by regulations than others (e.g., utilities more than services), all organizations should be aware of how training assists in compliance and reduces litigation risk. As one example, U.S. courts have determined that the degree of an organization's liability for discrimination depends on whether managers were trained in nondiscriminatory hiring practices. Consequently, managerial training covering laws related to discrimination are useful for organizations covered by employment laws such as the Civil Rights Act and the Americans With Disabilities Act. Organization analysis should determine which laws are applicable and require training for compliance.

Organization analysis also measures work environment characteristics, such as the degree to which the organization generally supports transfer of training. Such organizations are considered to have a positive transfer-of-training climate and to have employees who are more likely to use learned skills back on the job. If trainees will be returning to a work environment that is not supportive of new skills, they should

be prepared in training with strategies that help them overcome barriers to transfer. Thus, data collected during the organization analysis helps to determine both what training programs are appropriate and, to some degree, how that training should be designed.

TASK ANALYSIS

Task analysis involves identifying the tasks performed by trainees and the knowledge and skill necessary to perform them effectively. Task analysis is a form of job analysis and involves different methods depending on the task being analyzed. The most common process for obtaining task analysis data involves (a) panels of job incumbents developing lists of the tasks performed; (b) assessors grouping tasks into clusters based on similarity; (c) panels of managers generating knowledge, skill, and ability (KSA) statements for each task cluster; and (d) surveys validating the task, task cluster, and KSA lists. To avoid bias in the data collection, it is generally suggested that multiple panels and multiple assessors be involved. Research supports the concern over bias with regard to surveys. For example, when it comes to accurately rating the frequency with which particular tasks are performed, research suggests that incumbents who have not performed the task for long are more accurate at recalling frequency than observers and performers who have performed the task for longer periods of time. As a result, a good source for frequency and related task information can be found in recent hires who have performed the tasks but have not attained expert status.

Two increasingly important task analysis techniques are cognitive task analysis and team task analysis. Cognitive task analysis is an examination of the goals, decisions, and judgments that employees make on the job. Whereas traditional task analysis focuses on observable tasks and behaviors, cognitive task analysis delves into the thought processes that underlie effective performance. To assess thought processes, verbal protocol analysis, card sorts, or other elicitation techniques are typically used. For example, to determine how computer technicians troubleshoot computers, expert technicians could be asked to think out loud while they solve different computer problems. Team task analysis, on the other hand, is a simultaneous examination of the task and coordination requirements of a group of individuals working together toward a common goal. Research on nuclear power plant operations, as one example, indicates that operating teams must exchange information and hand off key

tasks to one another to perform effectively. Isolating the knowledge and skills that underlie these exchanges ensures that training will focus on that knowledge and those skills as well as the required technical skills.

Whatever the nature of the task analysis, its primary output is a list of objectives for the training program(s). Effective objectives specify what the trainee should be able to do at the conclusion of training, including a criterion for how well the trainee will perform and a description of conditions under which this performance will occur. An example of an effective objective for an assertiveness training program would be, "Trainee will, with 100% accuracy and no help from reference material, list the steps of the assertive communication process."

PERSON ANALYSIS

Person analysis involves determining (a) whether training or other solutions are necessary to ensure that employees can perform tasks effectively; (b) if training is needed, who needs training; and (c) whether trainees are ready for training.

First, person analysis should determine whether training is appropriate by determining the underlying causes of employees' current performance levels. If employees lack the knowledge and skill, required for performance, then training is an appropriate intervention. There are, however, many other reasons why employees may not perform effectively, including a lack of feedback about performance or lack of necessary equipment. With such causes for poor performance, training would be wasted. Consequently, an effective person analysis identifies nontraining needs as well as training needs and can be used to determine if some performance intervention other than training is appropriate. For example, person analysis might determine that, to increase their work output, office workers need faster computers rather than software training.

Second, to determine who needs training, a number of different methods can be employed. Two of the most common, examining existing employee records and soliciting self-assessed needs, suffer from potential bias. Employee records may not be sufficiently detailed or may gloss over skill deficiencies because of legal concerns over keeping records of poor performance. Self-assessed needs are influenced by person characteristics that may or may not be related to actual knowledge and skill needs. In particular, employees who have performed the relevant tasks for longer

periods of time may be unable to articulate what type of training would help novices attain their level of expertise. Because of the limitations of each method, multiple methods should be used if possible.

Third, assessors must determine if trainees are ready for training. To do this, assessors should conduct an audit of the basic skills, abilities, and motivations of potential trainees. Research strongly suggests that individuals with the prerequisite basic skills, higher levels of cognitive ability, and higher levels of motivation are more likely to benefit from training. This does not mean that training should be offered only to those who fit this profile. Training would, however, be more successful if an audit were used to identify who requires remedial basic skills training, as well as to design training to appropriately match the cognitive ability and motivation of trainees. As one example, an outsourced call center (i.e., employees in another country fielding calls from the United States) might develop two different training programs for employees with different levels of English language skills. Employees with lower English language skills may require a course that covers basic terminology and English phone etiquette before being trained on the company-specific phone protocol. Assessing the basic language skills of employees would be necessary to ascertain whether these language skill differences exist and to help assign employees to the proper training.

CONNECTION BETWEEN EVALUATION AND NEEDS ASSESSMENT

Evaluation and needs assessment are closely connected. Needs assessments establish the objectives of training, which should be used to evaluate whether training is or is not effective. For example, if one training objective is for new sales trainees to list benefits of the company's key products, then evaluation of the program should include a recall test. End-of-training evaluations also can be used to collect information relevant to selecting and designing future training programs. At the conclusion of a training program, for example, participants can be asked to rate the usefulness of various topics. Future training programs can shift their emphasis toward topics that employees believe most useful.

REACTIVE NEEDS ASSESSMENT

When applied thoroughly, the analyses discussed in the preceding sections are useful for proactively

determining how an organization should allocate training resources. The organization–task–person model is less useful when it comes to reacting to a specific human performance problem, such as high turnover or poor sales. A thorough needs assessment relevant to this problem may prove inefficient; moreover, it would assume that some form of training is required to solve the problem. An alternative model has been offered to deal with these situations. It is a problem-solving process that begins with problem definition and then moves to root-cause identification and intervention design. This model is known as the human performance intervention (HPI) process or human performance technology (HPT). Although relatively neglected in I/O psychology research, this approach resonates with the consulting approach increasingly used by professionals in the human resource management and organizational development fields.

—Kenneth G. Brown

See also Job Analysis; Job Analysis Methods; Training; Trainability and Adaptability; Training Evaluation

FURTHER READING

- DuBois, D. A., Levi, K. R., Shalin, V. L., & Borman, W. C. (1998). A cognitively oriented approach to task analysis. *Training Research Journal*, 3, 103–141.
- Ford, J. K., & Wroten, S. P. (1984). Introducing new methods for conducting training evaluation and for linking training evaluation to program redesign. *Personnel Psychology*, 37, 651–665.
- Noe, R. A. (2005). *Employee training and development* (3rd ed.). Boston: Irwin.
- Ree, M. J., Carretta, T. R., & Teachout, M. S. (1995). Role of ability and prior knowledge in complex training performance. *Journal of Applied Psychology*, 80, 721–730.
- Richman, W. L., & Quiñones, M. A. (1996). Task frequency rating accuracy: The effects of task engagement and experience. *Journal of Applied Psychology*, 81, 512–524.

TRAIT APPROACH TO LEADERSHIP

The trait approach to leadership was one of the earliest theories of leadership. Although it is not a fully articulated theory with well-developed hypotheses, the trait approach formed the basis of most early

leadership research. This approach focuses on the personal attributes (or traits) of leaders, such as physical and personality characteristics, competencies, and values. It views leadership solely from the perspective of the individual leader. Implicit in this approach is the assumption that traits produce patterns of behavior that are consistent across situations. That is, leadership traits are considered to be enduring characteristics that people are born with and that remain relatively stable over time.

EARLY RESEARCH ON THE TRAIT APPROACH

Early trait researchers studied the personality attributes that they believed were related to leadership effectiveness, rather than researching exceptional historical figures (i.e., the *great man* approach to leadership). Many early researchers viewed leadership as a unidimensional personality trait that could be reliably measured and was distributed normally throughout the population (i.e., an individual difference variable).

Most of the early empirical work on the trait approach focused on the systematic investigation of the differences between leaders and followers. It was reasonable to assume that individuals in higher-level positions would possess more leadership traits than those in lower-level positions. Concurrently, a large number of studies were conducted in an attempt to develop reliable and valid measures of leadership traits.

Researchers discovered, however, that only a few traits appeared to distinguish between leaders and followers. Leaders tended to be slightly higher on traits such as height, intelligence, extraversion, adjustment, dominance, and self-confidence as compared with nonleaders. The small differences between leaders and nonleaders were attributed to errors in leader selection, errors in measuring leadership traits, or the failure to measure critical attributes.

Many early trait researchers had assumed that, no matter what the situation, there was a set of characteristics that made a leader successful. These researchers believed that the same leadership traits would be effective, for example, in both the boardroom and on the battlefield. However, the differences between leaders and followers were found to vary widely across different situations—researchers had underestimated the impact of situational variables on leadership effectiveness.

LEADERSHIP TRAITS

Trait researchers often developed lists of characteristics that they believed were related to successful leadership. In creating such lists, some researchers mixed together very different attributes. For example, lists included some leadership traits that were aspects of behaviors and skills, in addition to other traits that were related to temperament and intellectual ability. These lists of traits typically included characteristics such as self-confidence, intelligence, ambition, perseverance, assertiveness, emotional stability, creativity, and motivation. The lists, however, were not exhaustive and typically omitted some important leadership attributes.

Today, many popular books on leadership continue the tradition of providing lists of traits that are thought to be central to effective leadership. The basic idea remains that if an individual possesses such traits, she or he will be a successful leader in any situation. In 1989, John W. Gardner published a study of a large number of leaders and concluded that there are some attributes that appear to make a leader successful in any situation. These traits included the following:

- Physical vitality and stamina
- Intelligence and action-oriented judgment
- Eagerness to accept responsibility
- Task competence
- Understanding of followers and their needs
- Skill in dealing with people
- Need for achievement
- Capacity to motivate people
- Courage and resolution
- Trustworthiness
- Decisiveness
- Self-confidence
- Assertiveness
- Adaptability/flexibility

One of the concerns about such lists is that the attributes typically associated with successful leaders are often perceived as “male” traits. Reportedly, when men and women are asked about the other gender’s characteristics and leadership qualities, significant patterns emerge, with both men and women tending to see successful leaders as male.

PROBLEMS AND LIMITATIONS OF THE TRAIT APPROACH

As discussed previously, many early researchers found no differences between leaders and followers

with respect to their leadership characteristics—some even found that individuals who possessed these traits were less likely to become leaders. Researchers also found very small relationships between these traits and leadership effectiveness. Because so few of the traits clearly differentiated between effective and ineffective leaders, their efficacy in selecting individuals for leadership positions was severely limited. There were too many leadership variables with low reliabilities, and no rationale for selecting specific variables to include in a study. This approach has been called “dustbowl empiricism” at its worst.

Additionally, there has been little systematic research on the processes by which individuals acquire the capacity for leadership. If leadership is indeed an individual difference variable, then very little is known about the origin of these differences.

RECENT RESEARCH ON THE TRAIT APPROACH

As the trait approach fell out of favor in industrial/organizational psychology, researchers began to develop new situational approaches to leadership. They also began to focus their attention on leader behaviors, which led to the emergence of behavioral theories of leadership. Many modern researchers adopted a contingency approach to leadership, which posits that leaders who possess certain traits will be more effective in some situations than in others.

Recently, however, there has been somewhat of a resurgence in research on the trait approach to leadership, especially with the emergence of the five-factor model of personality. Recent research has attempted to correct some of the methodological shortcomings of the earlier research on leadership traits. For example, researchers have developed conceptual models linking leadership attributes to organizational performance. Additionally, they have begun to highlight consistent patterns of relationships between traits and performance measures. Rather than simply studying what combinations of traits would be successful in a particular situation, researchers are now linking clusters of personality traits to success in different situations.

SUMMARY

In general, the trait and situational approaches have resulted in only limited advances in the understanding of leadership. Although early studies highlighted the

importance of situational considerations in leadership, there still is no situational theory of leadership. Most leadership researchers, therefore, have abandoned the pure situationist approach.

Researchers have concluded that successful leadership is the result of the interaction between the traits of the leader and the situation itself (i.e., the contingency approach to leadership). They have realized that the interaction between the leader and the situation is key to understanding leadership, along with the specification of important trait and situational variables.

—John W. Fleenor

See also Behavioral Approach to Leadership; Leadership and Supervision; Situational Approach to Leadership

FURTHER READING

- Gardner, J. W. (1989). *On leadership*. New York: Free Press.
- Muchinsky, P. M. (1983). *Psychology applied to work: An introduction to industrial and organizational psychology*. Homewood, IL: Dorsey Press.
- Porter, L. W., Lawler, E. E., & Hackman, J. R. (1975). *Behavior in organizations*. New York: McGraw-Hill.
- Vroom, V. H. (1976). Leadership. In M. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1527–1551). New York: Wiley.
- Zaccaro, S. J., & Klimoski, R. J. (Eds.). (2001). *The nature of organizational leadership*. San Francisco: Jossey-Bass.

TRANSFER OF TRAINING

Businesses are spending an increasing amount of money on training and developing their workforce to increase competitiveness and to improve services. For example, the military trains new recruits for a career specialty. A manufacturing company trains an experienced worker on a new technology being introduced on the shop floor. A service organization trains a team of employees on problem-solving strategies to address customer needs. A state agency trains its leaders on how to develop and implement a strategic plan. In all these cases, the trainees are placed into a learning context such as a formal training program with the ultimate goal being that the training affects organizational efficiency and effectiveness. For example, it is hoped that a safety training program for machinists leads to greater enactment of safe behaviors

on the job (e.g., not picking up a hot object, lifting with one's legs, not one's back), resulting in fewer accidents on the job. The examination of what happens on the job after training is called the *transfer of training*.

DEFINING TRAINING TRANSFER

The commonsense notion of training transfer is that we want trainees to apply the knowledge and skills gained through a formal training program to improve individual, team, and organizational effectiveness. At the individual trainee level, *transfer* has typically been defined as the extent to which the knowledge and skill acquired in a training setting are maintained, generalized, and adapted in the job setting by the trainee. First, *maintenance* issues focus on the changes that occur in the form or level of knowledge, skills, or behaviors exhibited in the transfer setting, as a function of time elapsed from the completion of the training program.

Second, trainees must not only acquire but maintain and even enhance the level of knowledge or skills obtained through training. *Generalization* involves more than mere mimicking of responses to events that occurred in training. It requires trainees to exhibit new behaviors on the job in response to settings, people, and situations that differ from those presented in training. For example, a salesperson might be trained on how to be assertive but not aggressive in conducting a sales meeting with a client. The situations or issues that arise, as well as the types of clients that can be demonstrated and practiced in the training program, cannot match the range of situations or the diversity in clients one would actually face on the job. Instead, the training can provide demonstration and practice on key principles and skills over a few situations and types of clients, and these must then be applied by the trainee in the appropriate way on the job with a diverse set of settings and people.

Third, for many jobs today, trained individuals must not only deal with routine situations and issues but must also adapt to novel or nonroutine situational demands. With *adaptability*, trainees are able to adjust or build upon knowledge and skills to generate new approaches and strategies to meet the demands of the novel situation. For example, a highly adaptable individual might see that the steps to being assertive are not working for certain types of individuals and switch to a slower and more nuanced approach to sales for these individuals.

Organizations' concerns about investing in training often revolve around training transfer issues and the benefits or return the organization can expect to obtain for its investment in training activities. This concern over the so-called transfer problem has led researchers and practitioners to study the factors that can affect training transfer and, based on this understanding, to develop strategies that enhance the likelihood of acquired knowledge and skills being used on the job.

FACTORS AFFECTING THE TRANSFER OF TRAINING

Promoting transfer is a complex process requiring attention to a variety of factors such as trainee characteristics, training design and delivery, and the workplace environment. Identifying, measuring, and understanding the factors that encourage or discourage transfer of training are an important part of any major training implementation. A necessary condition for transfer is that the trainees must first learn the material that is trained. Therefore, much research has focused on learning principles, instructional events, and training delivery mechanisms that can be incorporated into the plan of instruction and guide training design to positively affect trainee learning. For example, traditional learning approaches explicitly instruct trainees on the complete task to be learned in terms of concepts, rules, and task strategies. In this case, the delivery or the quality of instruction can play a large role in how well the trainees acquire the necessary knowledge and skills. A more inductive approach to learning occurs through guided discovery, in which the learners explore and experiment with the training tasks to infer and learn the rules, principles, and strategies for effective performance. Guidance can come in the form of providing the learner with leading questions or in providing prompts without giving solutions. Guided discovery may lead to higher levels of knowledge and skill acquisition through increased trainee motivation to learn, because trainees are actively engaged in the learning process. From this perspective, learning (knowledge and skill acquisition) is a necessary but not sufficient condition for transfer to occur.

Researchers and practitioners have also recognized that learners differ in their motivation to learn and their capability to succeed in particular types of learning programs. Research has focused on personality characteristics, self-efficacy, and ability for their impact on

knowledge and skill acquisition as well as the link to training transfer. For example, researchers have examined the issue of trainee readiness—that is, whether individuals have the aptitude, background experiences, and motivation necessary to be successful in the training program. The findings from studies support the notion that personality traits such as the level of conscientiousness of the trainee can affect skill and knowledge acquisition and transfer of training through their effect on the individual's motivation to learn. Other research has focused on tailoring a set of instructional goals, methods, and material to fit an individual's learning style. For example, high-ability individuals tend to learn well in low-structure environments (e.g., guided discovery), whereas lower-ability individuals tend to learn better in high-structure environments.

Regardless of how well designed the program or how ready the trainees are to learn, many programs fail because of organizational barriers to training transfer. Training research has noted the importance of the immediate job context that surrounds the employees as they return to the job from training as a critical factor for transfer. Work environment factors such as supervisory support, transfer climate, and the adequacy of existing tools, equipment, and supplies have been identified as affecting the extent to which the acquired knowledge and skills are applied on the job. For example, research has shown that employees in a climate favorable to the skills being trained (e.g., managers being supportive of safe work behaviors as safety training is being offered) are more likely to apply new knowledge and skills to the work setting. In addition, the extent to which skills are transferred is affected by how much opportunity trainees are given to actively obtain work experiences relevant to the tasks for which they were trained soon after completing the training course.

STRATEGIES FOR ENHANCING TRAINING TRANSFER

Training effectiveness evaluates whether or not the training achieved its intended outcomes. From an organizational perspective, training is worthless if it does not result in the intended changes in behavior and performance on the job. Strategies for enhancing training transfer have been developed for before, during, and after training.

Pretraining interventions for enhancing transfer include providing proper orientation for supervisors

so they can support the training once it is begun. Other strategies involve providing time and resources for trainees to complete pretraining preparatory assignments, providing a realistic preview of training for the trainees, and highlighting the expected benefits of the training for the individual and the organization.

Strategies for enhancing transfer while the training is ongoing include providing realistic work-related case studies and practice activities. In addition, trainers can answer the “what’s in it for me” question that trainees have about the expected value of the training, as well as create varied opportunities for active practice and give appropriate feedback. Trainers can also provide trainees with job performance aids and help the learner plan for addressing any barriers to transferring knowledge and skills to the job.

Following training, supervisors can help the trainees develop an implementation plan for applying the knowledge and skills gained in training to the job and provide the opportunities for trainees to immediately engage in tasks that require the new knowledge and skills to be used. In addition, coaches can be assigned to help the trainee find or create opportunities to use the new knowledge and skills on the job. Regular refresher courses can also be offered to allow the trainee to maintain and even enhance the knowledge and skills that were originally trained.

—J. Kevin Ford

See also Trainability and Adaptability; Training; Training Evaluation; Training Methods; Training Needs Assessment and Analysis

FURTHER READING

- Baldwin, T. P., & Ford, J. K. (1988). Transfer of training: A review and directions for future research. *Personnel Psychology, 41*, 63–103.
- Barnett, S. M., & Ceci, S. J. (2002). When and where do we apply what we learn? A taxonomy for far transfer. *Psychological Bulletin, 128*, 612–637.
- Ford, J. K., & Kraiger, K. (1995). The application of cognitive constructs to the instructional systems model of training: Implications for needs assessment, design, and transfer. *International Review of Industrial and Organizational Psychology, 10*, 1–48.
- Ford, J. K., & Weissbein, D. (1997). Transfer of training: An updated review and analysis. *Performance Improvement Quarterly, 10*, 22–41.
- Horton, E., & Baldwin, T. P. (2003). *Improving learning transfer in organizations*. San Francisco: Jossey-Bass.

- Yelon, S., & Ford, J. K. (1999). Pursuing a multidimensional model of training transfer. *Performance Improvement Quarterly, 12*, 58–78.

TRANSFORMATIONAL AND TRANSACTIONAL LEADERSHIP

Transformational leadership is a form of influence based on a developmental relationship that elevates others to higher levels of moral and professional development, promotes adaptability and change, and results in performance beyond expectations. Transactional leadership is a form of influence based on an exchange relationship in which the leader provides direction and rewards in exchange for a follower’s delivery of agreed-upon performance. Together, these leadership styles can foster adaptability and responsiveness to changes in markets, broaden collective skill sets for generating more creative solutions to problems, and challenge and develop people more fully. Such processes are necessary for productivity and profitability in organizations.

Research on transformational-transactional leadership was originated by James MacGregor Burns as a way to differentiate outstanding leaders who change people, groups, organizations, and nations (transformational leaders) from mundane leaders who simply maintain efficient operations in social, organizational, and political systems (transactional leaders). Bernard Bass and Bruce Avolio and their colleagues have expanded on Burns’s seminal work by studying transformational-transactional leadership theory with leaders from military, industry, and nonprofit sectors from all continents except Antarctica. This stream of research has contributed much to what we know about leadership styles within transformational-transactional leadership theory; characteristics of individuals who display these styles; effects of these styles on individuals, groups, and organizations; and the conditions that are most favorable for these styles.

FORMS OF LEADERSHIP WITHIN TRANSFORMATIONAL-TRANSACTIONAL LEADERSHIP THEORY

According to Bass and Avolio, leaders have a repertoire of leadership behaviors that they can display in various frequencies depending on their mental model

of leadership. There are five leadership behaviors, ranging from the more passive and ineffective avoidant or corrective styles to the active and effective constructive and transformational styles:

- *Laissez faire (LF)*. This is a nontransactional form of “leadership” that involves highly passive and ineffective behavior, such that the leader avoids leadership and abdicates responsibility for tasks. The leader takes a lazy approach toward responsibilities and often is absent when needed.
- *Passive management-by-exception (MBE-P)*. This is a somewhat more effective corrective transactional leadership behavior in which the leader focuses on mistakes only after they have occurred and patches problems. The leader waits for things to go wrong before taking action.
- *Active management-by-exception (MBE-A)*. This is a more active and effective corrective transactional leadership behavior in which the leader searches for what is done wrong, not what is done right. The leader closely monitors work performance for errors to solve problems before they occur, as in “micromanagement.”
- *Contingent reward (CR)*. This is a constructive and generally more active and effective transactional leadership behavior in which the leader develops well-defined roles and expectations to achieve desired performance levels. The leader uses goals and “carrots and sticks” (i.e., rewards and punishments) to shape the behavior of followers.
- *Four I's of transformational leadership*. The most effective leaders add the following behaviors to transactional CR leadership to get their followers to perform beyond expectations. *Inspirational motivation (IM)* involves articulating a future desired state (i.e., vision) and a plan to achieve it. *Idealized influence (II)* involves gaining trust, respect, and confidence from followers and setting and role modeling high standards of conduct for self and others. *Intellectual stimulation (IS)* seeks to question the status quo and promote continuous innovation and process improvement, even at the peak of success. *Individualized consideration (IC)* energizes followers to develop and achieve their full potential through mentoring and appreciation of diversity.

Research indicates that leaders who spend more time displaying the more active transformational and transactional CR behaviors and less time displaying the more passive or corrective leadership behaviors are associated with the highest levels of individual, group, and organizational performance.

CHARACTERISTICS OF TRANSFORMATIONAL LEADERS

Research on traits of transformational leaders indicates that they have positive attitudes. They are intelligent and energetic, open to learning and change, and feel that they are in control of events. They adapt well to new situations and search for opportunities for development. They possess people-oriented traits such as extraversion, nurturance, and humor. They are emotionally and socially intelligent individuals who, through their understanding of their feelings and effects on others, are able to build developmental relationships with followers.

Research on life biographies of transformational leaders depicts them as more satisfied with life, as better performers in high school and college, as recognized for their achievements, and as positive about their prior work experiences. Their parents showed interest in their development, displayed high moral standards of behavior, and provided strong, supportive homes. They were popular and active in high school and liked teachers who were hard graders. They also were bothered by people's lack of initiative, were active in clubs and communities, attained high goals in their work, and engaged in religious activity a few hours a week.

On average, women are perceived as displaying more transformational and transactional CR behaviors, and less MBE-A, MBE-P, and LF behavior, than men. It appears that women have the ability to perform very well as transformational leaders in organizations because success often depends on teaming, professional and strategic networking, and providing excellent products and services. Teaming is an outcome of IM, networking is an outcome of both IM and IC, and advocating quality is an outcome of IS.

MOTIVATIONAL EFFECTS OF LEADERSHIP STYLES ON FOLLOWERS

When a leader displays LF behavior by avoiding his or her leadership responsibilities, followers typically become demotivated and dissatisfied and perform poorly. Followers generally exert work effort in a manner that is consistent with what they see demonstrated by their leader. When a leader role models laziness, followers typically follow suit. Although such equitable disengagement on the part of followers is common, it is also possible for highly motivated

professional followers to pick up the slack of the laissez faire leader by substituting for the leadership not provided by the LF leader.

When a leader displays MBE-P or MBE-A behavior by focusing on correcting mistakes, followers typically are motivated through intimidated compliance that can stifle creativity and innovation. Such leadership instills fear in followers, who are treated like children who cannot be trusted and must be monitored to conform to standards. As a result, followers pay careful attention to maintaining the status quo in the fear of reprimands from the leader.

More positive motivational effects are achieved when a leader displays CR behavior. The goals set through CR behavior establish an expectation of the receipt of a reward by followers for meeting a specified performance target. Followers see that their compliance with the leader is instrumental to their attaining valued rewards. Such extrinsic motivation can be particularly effective in sales organizations. However, some followers may feel manipulated by leaders who use only carrots and sticks as a means of motivation.

Even more positive motivational effects on followers can be achieved by leaders who display transformational leadership. When a leader displays IM, an increased sense of optimism and intrinsic motivation (i.e., action aroused by innate enjoyable or meaningful aspects of tasks/visions) is stirred in followers. Through appropriate role modeling (II), a leader can arouse followers to identify with the leader or the vision and to internalize the leader's values and beliefs. When a leader displays IS and IC, followers become motivated because they are encouraged to be creative and use their unique knowledge, skills, and abilities.

OUTCOMES OF TRANSFORMATIONAL/ TRANSACTIONAL LEADERSHIP

Transformational and transactional CR leadership can have a variety of positive outcomes. Such leadership makes followers feel satisfied with their leader, empowered, and self-motivated, and leads them to do more than what is included in their job descriptions. As a result, followers often report earning promotions. Such leadership motivates followers to exert extra effort and be more creative and effective in their jobs. It also helps to reduce followers' stress and burnout.

For groups, transformational leadership produces enhanced collective confidence, morale, and cohesion.

It results in enhanced group productivity, effectiveness, and creativity, and satisfaction with the leader and task. It can also build *shared leadership*, defined as "leadership by the team," in which leadership functions are distributed among members.

Organizational outcomes that result from transformational leadership include innovation, retention, organizational commitment, business unit goal attainment, unit financial performance, market share and customer satisfaction, and occupational safety.

CONDITIONS THAT FOSTER TRANSFORMATIONAL LEADERSHIP EFFECTIVENESS

Certain environmental conditions promote the effectiveness of transformational leadership. Organizations with strategic plans that encourage adaptation and boundary spanning support transformational leadership's focus on promoting change and making connections with customers and suppliers. Flat organizations that possess a simple rather than a complex structure, unstructured tasks, or a clan or collectivistic culture and mode of organizational governance support transformational leadership's emphasis on collaboration and interdependence. Environmental turbulence and crises, in which followers look to a leader to make sense of the situation and articulate a vision of a brighter future, also promote transformational leadership effectiveness.

DEVELOPING TRANSFORMATIONAL LEADERSHIP

The transformational leadership literature offers a plethora of suggestions for improving organizational effectiveness. The following are several empirically validated recommendations:

- Use a combination of transformational *and* transactional CR leadership to satisfy both the higher-order (e.g., recognition, personal growth) and lower-order (e.g., safety, security) needs of followers and promote organizational effectiveness.
- Allow time for followers to accept messages of change and identify with the vision of the transformational leader to produce organizational effects.
- Implement research-based training to develop transformational and transactional leadership. Training programs should collect leadership ratings from the

leader, superior, subordinate, and peer levels, and provide development plans, feedback, and follow-up coaching.

- Select candidates for training who are emotionally and socially intelligent, ethical, effective as communicators, and willing to change their behavior.
- Build transformational and transactional cultures through organizational development so that leadership can be shared through collaboration and shared values.

—John J. Sosik

See also Charismatic Leadership Theory; Leadership Development; Life-Cycle Model of Leadership; Team Building

FURTHER READING

- Avolio, B. J. (1999). *Full leadership development: Building the vital forces in organizations*. Thousand Oaks, CA: Sage.
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
- Burns, J. M. (1978). *Leadership*. New York: Harper & Row.
- Sosik, J. J., Avolio, B. J., & Kahai, S. S. (1997). Effects of leadership style and anonymity on group potency and effectiveness in a group decision support system environment. *Journal of Applied Psychology*, 82, 89–103.

TRUST

Trust is commonly described as a leap of faith one takes in the face of incomplete information. More specifically, trust is a psychological state involving positive expectations about another's actions despite vulnerability to the other's actions. Studies have supported theoretical assertions that trust is not related to gullibility, but rather to the ability to take appropriate risks. Thus, trust within organizations is associated with a number of favorable organizational outcomes and is considered a desirable state.

TYPES OF TRUST

There are five primary levels of trust within organizations, which vary according to the party being trusted (i.e., the *referent*):

- *Organizational trust*. Trust placed in the system that the organization represents

- *Trust in management* (also *trust in leadership or superiors*). Trust placed in the collective people that are near the top of the hierarchy within an organization
- *Trust in supervisor* (also *trust in leader*). Trust that focuses on a one-to-one interaction between an employee and his or her direct supervisor
- *Coworker trust* (also *trust in peers or teammates*). Trust placed in an employee's same-level peers, typically ones with whom she or he interacts regularly
- *Trust in subordinates*. Trust placed in people the employee directly manages

Global factors are expected to influence trust in higher-level referents, whereas more specific factors are expected to influence trust in lower-level referents. For example, organizational-level constructs, such as perceptions of organizational justice, are more likely to be associated with trust in organizations, whereas more specific constructs, such as perceptions of supervisor integrity, are more likely to be associated with trust in supervisor.

Another broad categorization of types of trust is *rational* or *relational* trust. Overall, rational trust (also *cognitive-based* or *conditional* trust) is based on expectancy theory, which suggests that individuals weigh risks and outcomes to determine the appropriate level of trust. In contrast, relational trust (also *affective-based* or *unconditional* trust) is based more on social identity theory, which emphasizes the interpersonal component of trust: being in a trusting relationship is a pleasant affirmation of shared values.

OUTCOMES OF TRUST

Trust is expected to reduce the costs associated with transactions between the person doing the trusting and the party being trusted. Recent studies have demonstrated that trust within organizations is directly related to a number of outcomes, such as increased satisfaction, increased commitment, decreased intentions to quit, and improved performance. In keeping with the notion that trust is associated with appropriate risk-taking behavior, trust within organizations has been shown to be predictive of extra-role behaviors related to change, citizenship, and innovation. Finally, trust has been shown to facilitate certain relationships. For example, only when there is high trust in teammates does individual motivation lead to group performance. In low-trust situations, individual motivation is directed toward individual goals instead.

FORMATION AND EVOLUTION OF TRUST

A handful of models exist describing the initial formation of trust, often with an aim of explaining employees' tendencies toward high initial trust. What these models have in common is that trust arises based on a variety of individual, interpersonal, and situational factors. In general, proximal factors based on experience with the party being trusted are weighted more strongly in the formation of trust, but in the absence of these experiences, more distal factors, such as word-of-mouth accounts of trustworthiness, are more likely to be influential.

At the individual level, personality has been shown to influence individuals' level of trust within organizations and presumably operates independent of referent. Studies suggest that individuals' predisposition to trust others serves as a source of trust within organizations. Individuals also draw on their previous interpersonal experiences to determine their level of trust. Past experiences with organizational change (e.g., restructuring, downsizing) may erode trust, whereas experiences with transformational leaders may build trust. In addition, trust may be determined in part by what others' experiences have been, whether those experiences have been witnessed or just recounted.

At the situational level, another source of trust is the affiliation of the party being trusted. For example, just knowing the referent is a member of a particular trustworthy group provides some source of trust in that individual member of the group. Also at the system level is the expectation an individual has of the role of the party being trusted. For example, one could expect that a supervisor would help one maximize performance output, increasing trust that the supervisor would not deliberately sabotage performance efforts. Finally, organizational rules and policies also serve as a system-level source of trust. Some argue that rules and policies remove the vulnerability required for true trust to exist, but others maintain that individuals may choose to obey or break those rules. Assuming a certain level of individual freedom, organizational rules and policies against a certain harmful behavior would lead an employee to trust that parties within the organization would not engage in those types of behaviors.

Some theorists have advanced theories of the evolution of trust over time. In general, these models propose that trust is episodically reevaluated based on experienced outcomes of trusting behavior. Thus,

favorable interaction with the party being trusted serves to deepen trust.

DISTRUST AND THE DISSOLUTION OF TRUST

There remains some debate regarding the relationship of distrust (or mistrust) and trust. Some assert these constructs are at opposite ends of the same continuum, implying that one cannot simultaneously trust and mistrust a referent. However, a theory advanced by Roy Lewicki, Daniel McAllister, and Robert Bies suggests that trust and distrust are separate dimensions. In their classification, trust is characterized by hope, whereas distrust is characterized by fear. Thus, an individual could be hopeful about the outcome (high trust) but also fearful (high distrust), in which case the individual would engage in protective behaviors such as verification. This classification reflects the separation of the definition of trust into its two major components: positive expectations (trust) and feelings about vulnerability (distrust).

The dissolution of trust has been described from different theoretical perspectives, including symbolic interactionism, psychological contract theory, and stress/coping theory. Trust dissolution theories focus either on the robustness of the trust itself or on the betrayal of the party that was trusted. When trust itself is robust, dissolution of trust is more difficult. In fact, one of the positive outcomes of trust is that those who are trusting tend to give the party being trusted the benefit of the doubt when expectations are not met. However, that leniency is also dependent on the importance of the expectations, as well as the intent behind the betrayal.

—Lisa M. Kath

See also Organizational Cynicism; Organizational Justice; Psychological Contract

FURTHER READING

- Kramer, R. M. (1999). Trust and distrust in organizations: Emerging perspectives, enduring questions. *Annual Review of Psychology*, 569–598.
- Kramer, R. M., & Tyler, T. R. (1996). *Trust in organizations: Frontiers of theory and research*. Thousand Oaks, CA: Sage.
- Lewicki, R. J., McAllister, D. J., & Bies, R. J. (1998). Trust and distrust: New relationships and realities. *Academy of Management Review*, 23(3), 438–458.

- Mollering, G., Bachmann, R., & Lee, S. H. (2004). Understanding organizational trust—Foundations, constellations, and issues of operationalisation. *Journal of Managerial Psychology*, *19*(6), 556–570.
- Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, *23*(3), 393–404.

TURNOVER

See WITHDRAWAL BEHAVIORS, TURNOVER

TWO-FACTOR THEORY

Before the mid- to late 1950s, it always made sense to most people who thought about it that the opposite of employee job satisfaction was job dissatisfaction and that the opposite of job dissatisfaction was job satisfaction. The more a person had one of these on the job, the less he or she had of the other—they were opposite concepts, experiences at two extremes of a common continuum.

Then, in 1957, Frederick Herzberg, a psychiatrist from Pittsburgh, and his colleagues did a thorough review of the literature of job attitudes and came forth with a new hypothesis that they tested later in an empirical study of 200 engineers and accountants, asking them to recall events that made them especially happy or unhappy about their jobs. Herzberg, Bernard Mausner, and Barbara Bloch Snyderman published a book, based on those findings, that revolutionized thinking about employee attitudes and, subsequently, considerable management policy and practice. Herzberg and his colleagues proposed that job satisfaction and job dissatisfaction were *not* the opposite ends of a single continuum; rather, they claimed that they are orthogonal constructs, each caused by different antecedent conditions and resulting in different consequences. Job content factors, the *motivators* (so called because the results indicated that people performed better after events involving these factors), were necessary to make people happy at their jobs, but not sufficient. On the other hand, the *hygienes*—which were elements of the job context, such as employer policies, work relationships, and working

conditions—had to be in place to prevent job dissatisfaction but, by themselves, could not create job satisfaction, and, consequently, work motivation.

Tremendous controversy ensued among academics during the 1960s and early 1970s, mostly because of the empirical methods employed. It was alleged that the results of the research, and therefore the major tenets of the theory, were artifacts of the critical incident technique employed in the research. Tests of the theory, using other research methods, frequently failed to support the two-factor, orthogonal conclusion of the new model. The basic thrust of these criticisms, predicated on attribution theory, was that, naturally, people would attribute “felt-good” experiences to events during which *they* had a role, whereas events that had caused dissatisfaction had to have been caused by external factors.

In addition, there had been considerable overlap between the hygienes and the motivators in felt-good and felt-bad stories. In fairness, these overlaps were noted in the 1959 book in which Herzberg and colleagues reported their findings. For example, failure to receive recognition for good work (recognition being categorized as a motivator) was the principal cause of 18% of the felt-bad episodes. There was similar (although not as strong) association reported between instances of job dissatisfaction and two other motivators—work itself and advancement. Therefore, the empirical distinctions between the two categories of work factors and instances of job satisfaction/dissatisfaction were neither total nor definitive.

Just the same, both scientific and popular interpretations of the theory tended to overlook the overlaps and the acknowledgment by Herzberg and his colleagues of the existence of the overlaps. As is so often the case in the histories of theories of work motivation, caveats, exceptions, boundary conditions, and exceptions to the rule are overlooked as science carries on and practical applications are produced and sold to consumers, as noted by C. C. Pinder both in 1988 and in a forthcoming publication. Pinder wrote in 1977 that the commercial desire for a new, innovative model propelled the two-factor theory into classrooms and boardrooms for many years, caveats notwithstanding. It is one of the most known and recognized theories of management today, as noted by G. P. Latham and Pinder in 2005 and by J. B. Miner in 2003.

The theory has proven invaluable in the evolution of thought on work motivation theory, despite the controversies. Subsequent models of job design and

redesign (e.g., by J. R. Hackman and G. R. Oldham in 1980) featured many of the major parameters of Herzberg's motivators in how to make jobs satisfying and, indeed, motivating. Designing jobs that provide the possibility of achievement gratifications is known to be wise. Providing recognition for work well done is an age-old bromide that still pays dividends for both the achiever and those who care to watch or supervise. Providing responsibility is the essence of *empowerment*, a concept that was named years after Herzberg's work but that is in vogue today. Self-determination theory, as noted by Marilyne Gagne and Edward Deci in 2005, owes some of its origins to the early work.

So much for the things that motivate people. What about the two-factor theory's hygiene factors? Intelligent management these days knows that it must provide company policies to meet people's fundamental needs, else they lose good people. Indeed, failure to provide certain contextual factors in the workplace is a mistake; they may not motivate people, but they can build commitment and staying power. The list of company-sponsored provisions (such as day care for employees' children, gyms, time-sharing arrangements, flextime, profit sharing, sabbaticals, and employee assistance packages) affirm the wisdom of the Herzberg model, at least in part. Whether these provisions attract, retain, and motivate employees is more important than the nuances of the scientific battles that occurred during the years following the release of the Herzberg model. For all its scientific shortcomings, the two-factor theory provided the edge of a wedge to new thinking and practice in Western management.

—Craig C. Pinder

See also Job Satisfaction; Job Satisfaction Measurement

FURTHER READING

- Gagne, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior, 26*, 331–362.
- Hackman, J. R., & Oldham, G. R. (1980). *Work design*. Reading, MA: Addison-Wesley.
- Herzberg, F., Mausner, B., Peterson, R. O., & Capwell, D. F. (1957). *Job attitudes: Review of research and opinion*. Pittsburgh, PA: Psychological Service of Pittsburgh.
- Herzberg, F., Mausner, B., & Snyderman, B. B. (1959). *The motivation to work*. New York: Wiley.
- Latham, G. P., & Pinder, C. C. (2005). Work motivation theory and research at the dawn of the 21st century. *Annual Review of Psychology, 56*, 485–516.
- Miner, J. B. (2003). The rated importance, scientific validity, and practical usefulness of organizational behavior theories: A quantitative review. *Academy of Management Learning and Education, 2*, 250–268.
- Pinder, C. C. (1977). Concerning the application of human motivation theories in organizational settings. *Academy of Management Review, 2*, 384–397.
- Pinder, C. C. (1998). *Work motivation in organizational behavior*. Upper Saddle River, NJ: Prentice Hall.
- Pinder, C. C. (in press). *Work motivation in organizational behavior* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum.

TYPE A AND TYPE B PERSONALITIES

Type A and type B personality is one of the most researched personality constructs in relation to health and work behavior. In contrast to its type B counterpart, the type A personality is characterized by specific behavioral dispositions, such as aggressiveness, competitiveness, lack of patience, and excessive striving for achievement. Type A individuals tend to try to accomplish as much as possible in little time, set high expectations for themselves, and are very self-critical.

Although the type A individual is often negatively portrayed (e.g., as easily angered, hostile, and impatient), the personality construct is actually dichotomous, comprising both desirable and undesirable components. The first component, *achievement striving*, refers to positive characteristics such as being hardworking and active and taking work seriously. The second component, *impatience-irritability*, consists of more negative characteristics, including impatience, irritability, hostility, and an obsession with time. Some research has found these two components to be unrelated to each other. Other research has shown a low but positive correlation, suggesting that the components are related but not identical. The differential relationships of each of the two components to other variables do suggest that they are distinct.

TYPE A PERSONALITY AND HEALTH

Type A individuals are more vulnerable than type B individuals to poor health. Type A individuals are more likely to experience, for instance, depression, increased frequency of nightmares, respiratory infections, and migraine headaches. One major health issue for which type A personality has been most implicated is coronary heart disease (CHD). In the Western

Collaborative Group Study, which was the first study to examine the relationship between type A personality and CHD, researchers found that, among nearly 3,200 men without CHD symptoms at the beginning of the study, those categorized as type A were twice as likely as those categorized as type B to develop symptoms within 8.5 years. Data from autopsies of participants who died during the course of the study showed that type A personality was positively related to CHD.

Although these early studies suggested a relationship between CHD and type A personality, many other studies have yielded nonsignificant findings. Given such inconclusive findings, some researchers have proposed that the relationship between type A personality and CHD is weaker than suggested by the early findings. More recent research has shown, however, that the reason for any nonsignificant findings may be that type A personality has often been assessed as an overall construct. Studies that have examined the construct as the two separate components of achievement striving and impatience–irritability have found stronger and more consistent relationships between the latter component and CHD.

Two explanations, both of which are related to suppressed immunity, may account for the relationship between type A personality and ill health. First, type A individuals are more likely than type B individuals to perceive and experience stress. To the extent that psychological stress reduces immune competence, the immune systems of type A individuals may be suppressed enough to increase their vulnerability to illness. The second explanation is the fact that chronic hyperactivity may compromise the immune system. As type A individuals are chronically hyperactive in their impatience and attempt to accomplish many things in less time, their immune systems may be compromised, thereby possibly facilitating various illnesses.

TYPE A PERSONALITY AND WORK-RELATED VARIABLES

Next to health-related consequences, type A personality has been most frequently examined in regard to its relationship to work-related variables. Individuals categorized as type A tend to exhibit higher performance and productivity than their type B counterparts. Specifically, type A employees work longer and more overtime hours. In the academic arena, a difference in performance is also seen between type A versus type

B students, in that the former tend to earn higher grades. Faculty members who are categorized as type A individuals are more productive researchers than type B individuals.

However, because the type A personality comprises both a positive and negative component (i.e., achievement striving and impatience–irritability, respectively), there exists a double-edged sword in regard to the personality's implications for work-related consequences. Specifically speaking, although type A individuals exhibit higher performance because of their excessive need to strive for achievement, their tendency to be hostile and impatient may also mean they lack effective interpersonal relationships because they are more likely to be poor listeners and abrasive. Furthermore, type A individuals also experience more somatic complaints and greater perceived stress. Therefore, hiring employees on the basis of positive type A behaviors and traits may also mean inadvertently employing individuals who harbor the less desirable characteristics.

In addition to performance, type A personality has also been found to be related to other work-related variables. Specifically, research has suggested that type A individuals are more satisfied with their jobs than their type B counterparts; however, such a positive relationship is dependent on whether the employee perceives a sense of control. For those who do not feel control over their work, type A employees are likely to feel more dissatisfied. For type A employees who perceive high control, however, their satisfaction with their jobs is greater than that experienced by type B employees. Research has also suggested that type A employees respond more negatively to jobs that are high in complexity. Over time, type A employees who have highly complex jobs are more likely than type B employees to develop symptoms of cardiovascular illness.

SUMMARY

Type A personality is a multidimensional construct, with both health- and work-related consequences. Further understanding of this construct will benefit both the individual and the organization. For the individual, knowledge of where one stands on this personality construct may help provide guidance in career-making decisions. Type A individuals may, for instance, want to avoid jobs high in complexity and in which they have little control, as such jobs have been found to be related to dissatisfaction and cardiovascular

illness. Organizations should also take heed of where employees stand in terms of type A personality, as this may help provide guidance in selecting employees and designing jobs that would most enhance employee–job fit.

—Alexandra Luong

See also Person–Job Fit; Personality; Stress, Consequences; Stress, Coping and Management; Time Management

FURTHER READING

- Adler, N. (1994). Health psychology: Why do some people get sick and some stay well? *Annual Review of Psychology*, *45*, 229–259.
- Day, A. L., & Jreige, S. (2002). Examining type A behavior pattern to explain the relationship between job stressors and psychosocial outcomes. *Journal of Occupational Health Psychology*, *7*, 109–120.
- Ganster, D. C., Schaubroeck, J., Sime, W. E., & Mayes, B. T. (1991). The nomological validity of the type A personality among employed adults. *Journal of Applied Psychology*, *76*, 143–168.
- Kircaldy, B. D., Shephard, R. J., & Furnham, A. F. (2002). The influence of type A behavior and locus of control upon job satisfaction and occupational health. *Personality and Individual Differences*, *33*, 1361–1371.
- Lee, C., Ashford, S. J., & Bobko, P. (1990). Interactive effects of “Type A” behavior and perceived control on worker performance, job satisfaction, and somatic complaints. *Academy of Management Journal*, *33*, 870–881.
- Schaubroeck, J., Ganster, D. C., & Kemmerer, B. E. (1994). Job complexity, “Type A” behavior, and cardiovascular disorder: A prospective study. *Academy of Management Journal*, *37*, 426–439.

U

UNDEREMPLOYMENT

Underemployment refers to employment that is inadequate, inferior, or low quality, relative to some standard. All researchers agree that there is a small handful of distinct types of underemployment, but there is less agreement on exactly what counts as underemployment and how many types there are. Nevertheless, the following experiences are regularly classified as underemployment:

- *Overqualification:* These workers possess surplus formal education; work experience; or knowledge, skills, and abilities (KSAs) relative to the job demands or requirements.
- *Involuntary educational mismatch:* Workers who are employed in a field outside their area of education because they cannot find employment that better matches their education. This is a distinct category from overqualification in that these employees are *differently qualified*, rather than overqualified.
- *Involuntary part-time or temporary employment:* Workers who are employed in part-time or temporary jobs because they cannot find full-time or permanent positions.
- *Underpayment:* The workers' wages are significantly less than a certain standard. Standards include workers' wages from previous jobs, typical wages for workers' educational backgrounds, and a livable wage.

Other types of work experiences occasionally identified as underemployment include unemployment, intermittent (un)employment (workers who either have experienced recent periods of both employment

and unemployment or work on jobs that are seasonal or otherwise sporadic), subemployment (workers who are not currently employed and have ceased the job search process because they do not believe that jobs are available), and status underemployment (workers who receive less occupational prestige from their jobs than expected based on their background).

UNDEREMPLOYMENT AS INVOLUNTARY MISMATCH

In general, a key prerequisite for defining a work situation as underemployment is that it be involuntary. For example, an individual who moves from full-time work to part-time work as part of a transition to retirement is not underemployed, whereas someone who would prefer a full-time job but can only find a part-time job is underemployed. This is an important distinction, because researchers have begun to show that employees who voluntarily choose a given work situation such as part-time work experience more positive job attitudes than employees who find themselves in the same work situation despite preferring something more, for example, full-time work.

Each type of underemployment, by definition, represents a discrepancy between the actual work situation and an alternative situation that is preferred by the employee. Recognizing this, researchers are beginning to use person–job fit and related models to frame underemployment research and generate hypotheses. In essence, each type of underemployment can be viewed as an instance of poor person–job fit. For example, overqualification reflects poor fit between worker abilities and job demands, whereas

underpayment reflects poor fit between worker needs and job supplies.

MEASUREMENT

Researchers may measure underemployment by using either personnel data or self-report measures. For example, overqualification may be assessed by comparing someone's level of education and experience (as stated on a résumé or job application) to a job description. Alternatively, the employee could be asked to complete a questionnaire with items designed to tap perceptions of overqualification. In addition to these strategies, some researchers measure underemployment by culling data from databases containing labor statistics, such as the National Longitudinal Survey of Youth (NLSY). Importantly, self-report measures have the advantage of accounting for whether one's current work situation is voluntary or involuntary. Unfortunately, well-established, valid self-report measures of the various types of underemployment do not yet exist.

PREVALENCE AND DEMOGRAPHIC CORRELATES

Estimates vary, but it appears that roughly one in five U.S. workers currently experience underemployment in one form or another. Note that this rate is significantly higher than the typical unemployment rate. Not surprisingly, the proportion of individuals who may be classified as underemployed fluctuates along with the status of the economy, with the experience being more common in times of economic recession. This also means that rates of unemployment and rates of underemployment tend to display similar trends over a given period of time.

Several groups of workers are particularly likely to experience underemployment. In the United States, researchers consistently find that women and ethnic minorities (particularly African Americans and Latin Americans) are underemployed at higher rates than males and Caucasians. Because cultural norms place the primary responsibility for child care and eldercare on women, women often must choose jobs that are flexible over those that may best use their education or offer the greatest career opportunities. Discrimination, language and cultural barriers, and lower educational attainment may each contribute to underemployment among ethnic minorities. There is no consistent finding in terms of age, but recent college graduates (who are highly educated but often have little work

experience) and older white-collar workers (who are among the most common victims of downsizing) commonly experience underemployment.

CONSEQUENCES

Researchers have consistently hypothesized a variety of negative consequences associated with underemployment, from dissatisfaction with one's job, to higher rates of absenteeism and turnover, to poor physical and psychological health. Managers tend to avoid hiring applicants who appear overqualified because of similar predictions. Unfortunately, as compared with the large literature on the effects of unemployment, there is little existing research on underemployment and its outcomes.

JOB ATTITUDES

Underemployed individuals generally report lower levels of job satisfaction than individuals who are not underemployed, particularly for facets of satisfaction that are relevant to the type of underemployment. For example, overqualified workers seem most unhappy with the work itself but are not necessarily dissatisfied with their coworkers or supervisor. There is also some evidence that underemployment may also be associated with a relatively weak emotional attachment to the organization (affective commitment). No consistent relationship has been found between underemployment and other types of commitment, such as commitment based on the costs of leaving the organization (continuance commitment), or a sense of obligation to the organization (normative commitment).

JOB PERFORMANCE

Researchers have posited that, because of a lack of motivation or commitment, underemployed workers may perform their tasks at a lower level and engage less in organizational citizenship behaviors (such as working late to help a coworker finish a project). In some cases, however, the reverse could be true. For example, temporary workers who would prefer to have a permanent work arrangement with the organization may be highly motivated to perform at a higher level or engage in citizenship behaviors, to maximize the chances that they will be offered a permanent position. Unfortunately, there are practically no data on the relation between underemployment and either type of job performance.

EMPLOYEE WITHDRAWAL

There is some early evidence to suggest that underemployment is associated with higher rates of absenteeism, intentions to quit one's job, and job search behavior. However, at this time, we have no data to test the proposition that underemployment will predict actual turnover behavior. This is surprising, because researchers and managers commonly predict that the underemployed (particularly overqualified workers) are particularly likely to search for more adequate employment and leave their present jobs.

PSYCHOLOGICAL AND PHYSICAL WELL-BEING

It is well-established that being out of work has negative psychological and behavioral effects, such as low self-esteem, stress, substance abuse, health problems, and depression. In what is probably the most extensive research program on underemployment, David Dooley and Joann Prause (2004) demonstrated that underemployment (which they call inadequate employment) has similar deleterious effects on the worker's psychological and physical well-being. In other words, being underemployed may be as traumatic and damaging as being unemployed. They also presented evidence that, in some cases, the relationship between underemployment and mental health may be bidirectional, with factors such as low self-esteem placing the individual at greater risk for underemployment, which then may produce further negative psychological effects. It is important to note that Dooley and Prause did not investigate the effects of all types of underemployment but instead focused on involuntary part-time employment, underpayment, and intermittent unemployment.

CONCLUSION

Underemployment, or employment that is insufficient relative to a standard, takes several forms, including overqualification, involuntary educational mismatch, involuntary part-time or temporary employment, and underpayment. The most consistent findings are that underemployment is associated with job dissatisfaction, low affective commitment, and poor psychological health, but the causal mechanisms involved in these relationships are still not well understood.

In general, given how common underemployment is, there is a surprising lack of research on this experience, its antecedents, and its consequences.

Empirical work is particularly scant with regard to overqualification and involuntary educational mismatch and on the effects of underemployment on employee performance and withdrawal behaviors. Finally, what we know about underemployment is limited to workers in the United States, because there is little published research on underemployment from other countries or cultures.

—Douglas C. Maynard

See also Job Satisfaction; Organizational Commitment; Person–Job Fit; Quality of Work Life; Withdrawal Behaviors, Turnover

FURTHER READING

- Burris, B. H. (1983). *No room at the top: Underemployment and alienation in the corporation*. New York: Praeger.
- Dooley, D. (Ed.). (2003). Underemployment and its social costs [Special issue]. *American Journal of Community Psychology*, 32(1–2).
- Dooley, D., & Prause, J. (2004). *The social costs of underemployment: Inadequate employment as disguised unemployment*. Cambridge, UK: Cambridge University Press.
- Ellingson, J. E., Gruys, M. L., & Sackett, P. R. (1998). Factors related to the satisfaction and performance of temporary employees. *Journal of Applied Psychology*, 83, 913–921.
- Feldman, D. C., Leana, C. R., & Bolino, M. C. (2002). Underemployment and relative deprivation among re-employed executives. *Journal of Occupational and Organizational Psychology*, 75, 453–471.
- Maynard, D. C. (1998). *Underemployment in the selection process: Managerial perceptions and policies*. Unpublished doctoral dissertation, Bowling Green State University, Bowling Green, Ohio.
- Thorsteinson, T. J. (2003). Job attitudes of full- and part-time employees: A meta-analytic review. *Journal of Occupational and Organizational Psychology*, 76, 151–177.

UNIFORM GUIDELINES ON EMPLOYEE SELECTION PROCEDURES

The Uniform Guidelines on Employee Selection Procedures (Guidelines) were published in August 1978 as the result of a joint effort involving the governmental organizations responsible for enforcing equal employment opportunity laws: the Equal

Employment Opportunity Commission (EEOC), Department of Labor (including the Office of Federal Contract Compliance Programs [OFCCP]), Civil Service Commission, and Department of Justice. The Guidelines define discrimination in the context of employment selection procedures, which include tests, interviews, simulations, minimum requirements, or other tools used to make employment decisions. The Guidelines outline the validity and adverse impact evidence that the enforcement agencies would consider when evaluating a discrimination claim under Title VII of the Civil Rights Act of 1964, and Executive Order 11246. The Guidelines apply to all public and private employers covered by these two laws.

This review provides an overview of the Guidelines, including their purpose, major topics covered and not covered, and conclusions and implications. This review should not be construed as legal advice or a recommended interpretation of the Guidelines. Although this review takes into account some of the developments occurring since the original 1978 publication date, a comprehensive summary of such developments is not possible. In addition, certain topics that are no longer relevant or that the Guidelines address only tangentially have been excluded from this review. A Further Reading section is provided listing sources for more detail about topics within the Guidelines and for information about relevant events occurring since the Guidelines' publication.

PURPOSE

The stated purpose of the Guidelines is to codify a single set of standards to aid organizations in complying with federal laws prohibiting employment discrimination based on race, sex, or ethnicity. They are designed to provide a framework for determining the proper use of employment selection procedures. The Guidelines are not designed to apply to other forms of discrimination (e.g., age-based, disability-based).

TOPICS COVERED BY THE GUIDELINES

Definition and Documentation of Adverse Impact

The Guidelines define discrimination as an employer's use of a selection procedure that has an adverse impact on members of any race, sex, or ethnic

group. Discrimination in this form would require an employer to produce appropriate validation evidence. That is, validation evidence, although valuable for other purposes, is not required by the Guidelines if adverse impact does not exist. The Guidelines also advocate reasonable efforts to consider adverse impact while comparing alternative selection procedures that are of approximately equal validity.

The Guidelines recommend that employers collect and retain documentation regarding selection procedures' impact on different race, sex, and ethnicity groups. Federal enforcement organizations (e.g., EEOC, OFCCP) provide current guidance about specific methods for gathering this information. The Guidelines also introduce the *four-fifths* rule of thumb regarding adverse impact. Under this rule, adverse impact exists if the selection rate for a particular race, sex, or ethnic group is less than 80% that of the group with the highest selection rate.

General Standards for Validity Studies

The Guidelines espouse a three-component model of validity: criterion-related, content, and construct. More recent documents such as the 2003 Principles for the Validation and Use of Personnel Selection Procedures (Principles) and the 1999 Standards for Educational and Psychological Testing (Standards) instead view validity as a unitary concept incorporating numerous sources of evidence to justify interpretation of a selection procedure's results. Despite this discrepancy, most of the Guidelines' standards for validity studies retain relevance and are reviewed in the following text.

The Guidelines define suitable criterion-related validity evidence as data demonstrating that a selection procedure has a statistical relationship with job performance. Content validity evidence should demonstrate overlap between the content of the procedure and the content of the job. The Guidelines define construct validity as evidence that a selection procedure measures characteristics that have in turn been linked to successful job performance. However, because the Principles and Standards no longer recognize construct validity as a distinct form of evidence, it is excluded from the remainder of this review.

Key design features of acceptable validity studies under the Guidelines include adequate documentation of validity, accuracy and standardization, and

correspondence between methods used during the validity research and those used operationally. The Guidelines also promote the concepts of setting cutoff scores based on acceptable proficiency, avoiding selection procedures that focus on characteristics learned during a brief orientation program, and avoiding in most circumstances the use of selection procedures to evaluate an applicant's suitability for a higher-level job. The Guidelines also outline the conditions necessary to use a selection procedure in an interim manner pending validation data collection and the importance of periodically reviewing validation studies for currency.

Alternative Validation Strategies

The Guidelines outline several circumstances in which alternative validation strategies are possible, and the standards that these strategies must nonetheless meet. The Guidelines suggest that formalizing and quantifying a selection procedure can allow a user to conduct appropriate validity research. They also advocate elimination of adverse impact as a primary objective, even if a formal validity study is not technically feasible.

The Guidelines state that validity studies conducted by other users or test publishers may provide acceptable validity evidence, but the ultimate responsibility for adhering to the Guidelines resides with the end user. They also outline conditions (i.e., validity evidence, job similarity, and fairness evidence) necessary to transport this external validity evidence to a new setting. A recurring theme is the careful consideration of variables that may substantially affect validity when relying on other studies. Examples include differences in work behaviors, criterion measures, and experience levels.

The Guidelines propose multiorganization studies as an approach to meet validation standards that an individual organization could not otherwise fulfill. They describe unacceptable forms of validity evidence such as nonempirical information obtained from an external test provider. The Guidelines also convey a stance regarding professional supervision of validation activities: Such supervision is encouraged, but it does not alleviate the need for documented validity evidence. They also clarify that employment agencies retain responsibility for following the Guidelines as a developer and a user of selection procedures.

Technical Standards for Validation Studies

Given the level of detail within the Guidelines for this topic, a thorough review is not possible. Rather, key concepts for each subtopic are briefly described. This topic comprises four subtopics, one for each of the Guidelines' three forms of validity: criterion-related, content, and construct, as well as a preceding section emphasizing the importance of a job analysis regardless of the specific validation approach chosen. As noted earlier, construct validity is no longer considered a distinct validation approach and is omitted from this review.

For criterion-related validity studies, the Guidelines outline several design considerations: technical feasibility (e.g., sample size), job analysis-based and uncontaminated criterion measures, sample representativeness, and the general (albeit not exclusive) suitability of a .05 significance level for evaluating selection procedure–performance relationships. However, the Guidelines eschew stating a minimum acceptable magnitude for these relationships, and recommend also considering adverse impact in the final choice of a selection procedure. The Guidelines define *fairness* as a selection tool's ability to predict job performance equally well regardless of race, sex, or ethnic group; several considerations for conducting fairness studies are also summarized.

The Guidelines emphasize that a content validation approach should be limited to selection procedures that provide a representative sample of the job's content. A core feature of the Guidelines' standards on this topic is use of job analysis to delineate core knowledges, skills, and abilities (KSAs), and compilation of evidence linking both the selection procedure and job content to these KSAs. Additional content validity considerations include reliability of the selection procedure, justification of prior training or experience requirements, and evidence that higher selection procedure scores are linked to higher performance prior to use of a rank-order method for comparing applicants.

Documentation of Impact and Validity Evidence

The Guidelines provide a detailed description of documentation requirements, adverse impact of selection procedures in most cases, and criterion-related or

content validity evidence if adverse impact is detected. The Guidelines also propose documentation requirements for the alternative validation strategies noted earlier. Because a comprehensive summary of documentation requirements is not possible in this review, referral directly to the Guidelines on these issues is recommended.

TOPICS NOT COVERED BY THE GUIDELINES

It is important to recognize that the Guidelines do not address several important topics that were either nonexistent or insufficiently advanced when the guidelines were published; each of these topics is reviewed within both the Principles and the Standards. One set of such topics comprises alternative validation approaches: validity generalization, synthetic or job component validity, and meta-analysis. Other absent topics deal with sources of validity evidence: internal structure, response process, consequences of testing, and convergent or discriminant validity. The Guidelines' definition of fairness is also limited to prediction bias and does not include other forms of bias, such as differential item functioning between groups. Finally, the Guidelines do not cover utility analysis as a broader approach for evaluating the potential usefulness of a particular selection procedure.

CONCLUSIONS AND IMPLICATIONS

Along with the Principles and Standards, the Guidelines represent one of three primary documents with direct implications for employment practice and litigation related to selection procedures. However, as the earliest of these documents, the Guidelines omit certain developments in employment selection as noted previously; they have also been subject to more than 25 years of interpretation within the courts. Recent reviews also suggest that direct references to the Guidelines within recent civil rights cases have been rare, and their influence on litigation may more commonly be indirect by means of interim court decisions. Therefore a degree of caution is recommended to avoid overreliance on the Guidelines without consideration of intervening case law or the more recent developments incorporated by the Principles and Standards. Despite these cautions, the Guidelines nonetheless represent the current official standpoint of the agencies charged with enforcing Federal employment laws regarding adverse impact, validity, and other issues

relating to employment selection. As such, the Guidelines retain prominence as an important reference document in the area of employee selection.

—Evan F. Sinar

See also Adverse Impact/Disparate Treatment/Discrimination at Work; Civil Rights Act of 1964; Civil Rights Act of 1991

FURTHER READING

- American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (1999). *Standards for educational and psychological testing*. Washington, DC: American Psychological Association.
- Equal Employment Opportunity Commission, Civil Service Commission, Department of Labor, & Department of Justice. (1978). Uniform guidelines on employee selection procedures. *Federal Register*, 43(166), 38295–38309.
- Gatewood, R. D., & Field, H. S. (1994). *Human resource selection* (3rd ed.). Toronto, Canada: Harcourt Brace.
- Guion, R. M. (1998). *Assessment, measurement, and prediction for personnel decisions*. Mahwah, NJ: Lawrence Erlbaum.
- Jeanneret, R. (2005). Professional and technical authorities and guidelines. In F. J. Landy (Ed.), *Employment discrimination litigation: Behavioral, quantitative, and legal perspectives* (pp. 47–100). San Francisco: Jossey-Bass.
- Society for Industrial and Organizational Psychology. (2003). *Principles for the validation and use of personnel selection procedures* (4th ed.). College Park, MD: Author.

UNION COMMITMENT

Like many constructs in this field, union commitment was introduced with a measure of the construct. As a corollary of organizational commitment, Michael E. Gordon and colleagues (1980) defined union commitment as a member's identification with and involvement in a particular union, and operationalized the definition in terms of three related components:

1. A strong desire to remain a member of the union
2. A willingness to exert high levels of effort on behalf of the union
3. A definite belief in and acceptance of the values and goals of the union

Confirmed with factor analysis, a four-factor union commitment scale was developed with the intent of identifying predictors and outcomes of commitment. Research studies using variants of the union commitment scale have continued to the present. Union commitment research is viewed as broadening the interest of unionists in psychological aspects of union life and sparking a new generation of studies by organizational psychologists, drawing on earlier work by Ross Stagner, Hjalmar Rosen, Arthur Kornhauser, Theodore V. Purcell, and other industrial psychologists.

The factors of the union commitment scale were defined and labeled as *union loyalty*, a member's pride in being associated with the union and in the union's ability to satisfy the needs of its members; *responsibility to the union*, a member's willingness to fulfill the basic duties of membership to protect the interests of the union; *willingness to work for the union*, a member's willingness to expend extra energy in the service of the union above and beyond the call of duty; and *belief in unionism*, a member's general belief in the concept of unionism.

FACTOR CONTROVERSY

Factor solutions based on confirmatory analyses have produced a lack of consensus about the underlying dimensionality of the union commitment construct. All the following potentially conflicting interpretations of the nature and structure of the construct have been suggested: The factors are orthogonal (independent) and replicable across samples of nonprofessional and professional workers. The factors are parsimoniously defined by two oblique (nonindependent) factors, one that describes union attitudes and opinions (union loyalty and belief in unionism) and one that depicts pro-union behavioral intentions (i.e., responsibility to the union and willingness to work for the union). The factors are identifiable in an oblique four-factor solution and show stability over time.

Indexes for closeness of fit between a hypothesized factor model and an observed model (i.e., fit indexes) have produced some clarity about the dimensionality of the construct. All the following potentially revealing, albeit disparate, results have been reported: Fit indexes for an oblique four-factor solution are significantly better than one-factor, two-factor, or higher-order factor solutions. Belief in unionism is a methodological (artifactual) factor caused by negatively worded items. Belief in unionism is related to

work commitment rather than to union commitment. Belief in unionism is the most stable of the commitment factors and influences union loyalty and responsibility to the union. Fit indexes for an oblique three-factor solution are improved with deletion of belief in unionism items. An oblique three-factor solution based on union loyalty, responsibility to the union, and willingness to work for the union shows that stability of items across factors (measurement invariance) can be assumed between men and women members, and to some extent between longtime and new members, but cannot be assumed between rank-and-file members and stewards. Fit indexes for an oblique three-factor solution are improved with controls for similarity of scores within local unions (with controls for nonindependent observations), highlighting the need to adjust individual-level results by unit-level (contextual) variation.

PREDICTOR-OUTCOME MODELS

Models of union commitment have indicated multiple predictors and outcomes of commitment. A sustaining idea is that union commitment is part of a socialization process that begins with union perceptions and ends with union participation. Research studies focusing on socializing influences have identified links from pre-union and early union experiences to general union attitudes and specific union beliefs, from union attitudes and beliefs to union commitment factors, and from commitment factors to union participation. Notable pre-union experiences linked to union attitudes and beliefs among high school and undergraduate students include perceptions of parent's union attitudes and perceptions of parent's union participation. Notable early experiences linked to union attitudes and beliefs among new members include perceptions of informational orientation programs and perceptions of stewards' individual consideration and charismatic leadership.

The results of meta-analyses on models of predictors and outcomes of union commitment are inconclusive. In particular, models based on meta-analytically derived data show fit indexes below acceptable standards. Identification of a best-fitting model based on nested comparison tests (tests that examine whether models are subsets of one another) shows that the relationship between job satisfaction and union commitment is partially mediated by organizational commitment. *Union instrumentality* (a member's

perception of the impact of the union on wages, benefits, and work conditions that define the employment relationship) as a predictor of union commitment is partially mediated by union attitudes. Moreover, results show that union attitudes are the strongest predictor of union commitment, but the relationship is moderated by type of commitment measure (whether a measure represents one of four commitment factors or overall commitment). Union commitment is a predictor of union participation, but the relationship is also moderated by type of commitment measure.

The results of longitudinal studies with measures of union commitment and union participation at both time 1 and time 2 show that later participation is predicted by early commitment. With an 8-month time lag, union commitment predicts formal union participation (participation in scheduled or structured activities that benefit the union, akin to contracted or in-role behaviors). With a 10-year time lag, union commitment predicts informal union participation (participation in unscheduled or unstructured activities, akin to citizenship or extra-role behaviors). These results do not show reverse and reciprocal relationships (that later commitment is predicted by early participation).

EXCHANGE THEORY

How economic and social aspects of exchange theory relate to union commitment, and subsequently to union participation, has prompted both debate and data. Because members pay unions in the form of union dues to benefit themselves economically, union instrumentality should reflect economic aspects of an exchange relationship (in exchange for services rendered, a member feels committed and engages in in-role behaviors like paying union dues). In contrast, *perceived union support* (a member's belief that the union values the contribution of and considers the needs and well-being of its members) should reflect social and emotional aspects of an exchange relationship (in exchange for socioemotional support, members feel committed and engage in extra-role behaviors like helping others to file grievances). With union participation as the predictive outcome of union commitment, a *union participation model* (a service model) suggests that union instrumentality mediates the relationship between perceived union support and union commitment. An *organizational support model* (an organizing model) suggests that perceived union support mediates the relationship between union

instrumentality and union commitment. An *alternative third model* suggests that union instrumentality and perceived union support are nonindependent predictors of union commitment. To date, with union loyalty and overall union participation (participation not differentiated for in-role and extra-role behaviors) representing commitment and participation in the models, fit indexes based on nonnested comparisons favor a union participation model and suggest an intervention direction for union loyalty aimed at union instrumentality.

—Steven Mellor

See also Attitudes and Beliefs; Industrial Relations; Organizational Commitment; Organizational Socialization; Unions

FURTHER READING

- Barling, J., Fullagar, C., & Kelloway, E. K. (1992). *The union and its members: A psychological approach*. New York: Oxford University Press.
- Bayazit, M., Hammer, T. H., & Wazeter, D. L. (2004). Methodological challenges in union commitment studies. *Journal of Applied Psychology, 89*, 738–747.
- Fullagar, C. J., Gallagher, D. G., Clark, P. F., & Carroll, A. E. (2004). Union commitment and participation: A 10-year longitudinal study. *Journal of Applied Psychology, 89*, 730–737.
- Gordon, M. E., Philpot, J. W., Burt, R. E., Thompson, C. A., & Spiller, W. E. (1980). Commitment to the union: Development of a measure and an examination of its correlates. *Journal of Applied Psychology, 65*, 479–499.
- Purcell, T. V. (1960). *Blue collar man: Patterns of dual allegiance*. Cambridge, MA: Harvard University Press.
- Stagner, R., & Rosen, H. (1965). *Psychology of union-management relations*. Monterey, CA: Brooks/Cole.

UNION LAW

See LABOR LAW

UNIONS

Unions—or more specifically, labor or trade unions—are found throughout the world and can be broadly defined as associations of workers, the purpose of

which is to represent the working interests of their members with respect to wages, hours, grievance procedures, and working conditions, through collective bargaining with the employer. Collective bargaining is a process of negotiation between union and management representatives about the terms and conditions of employment, and the rights and responsibilities of the union. There are two main types of union: craft unions and industrial unions. Craft unions are historically the oldest form of union and consist of workers who possess a particular skill. Today, most craft unions represent members from a variety of occupations and skills, often unrelated to the original founding craft. Craft unions derive their power by controlling the supply of skilled labor. Industrial unions are composed of all workers in a given industry or group of industries, regardless of skill, craft, or occupation. The power of industrial unions lies in the size of their memberships, and their focus is on building unity and solidarity among workers.

In most countries unions have a legal status that entitles them to collectively negotiate with employers over wages, working conditions, and other terms of employment. Often when negotiations fail or these rights are curtailed, unions will engage in collective activities, such as strikes and boycotts, aimed at pressuring employers to engage in some form of negotiation. In addition to strike actions, unions can use their membership numbers to lobby for legislation that protects the rights of workers and restricts the power of management.

THE HISTORY OF UNIONS

Consistently across the world, labor unions have had to struggle to establish themselves and their legal rights. In most countries, the formation of unions has been illegal at some point in their history, with workers penalized for attempting to organize or joining unions. Despite this persecution, unions have survived and developed sufficient political and economic power to enable labor legislation that legalizes the organization of unions, protects the rights of their members, and formalizes the relationship between employers and employees. Many of the rights have generalized to both union and non-union workers.

The earliest forms of labor organizations can be found in the guilds of Western Europe that began to be formed in the Middle Ages (around the 11th century). These guilds were associations of craft workers that

established working standards and wages, protected the craft or profession from competition and skill dilution, and established the social status of their members. Union growth was accelerated by the Industrial Revolution in the 19th century. During this time industry shifted from centering on cottage crafts to concentrating on machines. Poor working conditions, rising production expectations, low wages, and increased work hours forced workers to form worker associations that represented the interests of workers in different trades and industries. These associations eventually became labor unions. Because of fear of worker uprisings after the French Revolution, unions were banned by law in both France and Great Britain. It was only in the 1860s, with the vigorous organization of the textile and mine workers, that the Trade Union Act of 1871 was passed in Great Britain. This was the first of several legislative acts that provided unions with legal status and recognition.

In most European countries labor organizations are affiliated to, or synonymous with, political parties. In the Third World, labor organizations also play an active political role and have been instrumental in overthrowing colonial regimes and establishing political independence. Unions in many Asian, African, and Latin American countries continue to provide workers with an influential political voice.

THE HISTORY OF UNIONS IN AMERICA

In the United States, the first *trade societies* or unions were formed by craftspeople (such as shoemakers, printers, and cabinetmakers) soon after the American Revolution in the late 18th century. As the American economy expanded, these craft unions of like-skilled laborers gave way to the growth of national unions. In 1866 the National Labor Union was formed and organized both skilled and unskilled workers. It was the National Labor Union that first realized the political potential of unions and supported the creation of local unions of workers. It advocated an eight-hour workday, abolishing convict labor, restricting immigration, and organizing African Americans. However, as the National Labor Union's political activity grew, its effectiveness as a national union diminished and it collapsed in 1872.

In 1886 several established craft unions joined together to form the American Federation of Labor (AFL) under the leadership of Samuel Gompers. Representing solely the interests of skilled labor, the

AFL fought for standard hours and wages, fair working conditions, collective bargaining rights, and the collection of union strike funds. It was the AFL that initiated a business union approach to the management of unions (bread-and-butter unionism) where the primary purpose of unions was to represent the economic, rather than the political, interests of their memberships. The AFL fought for labor's participation in decision-making processes through collective bargaining.

The depression of the 1930s encouraged the growth of industrial unions in America. Disenchanted with the craft-based unionization of the AFL, industrial workers led by John L. Lewis formed the Congress of Industrial Organizations (CIO). The CIO encouraged and organized industrial unions as well as promoting the unionization of women, immigrant, and African American workers. With strong labor support, Franklin D. Roosevelt was elected as president in November 1932. The Roosevelt administration facilitated the growth of unions and protected the rights of unions by the passage of labor legislation such as the National Labor Relations (Wagner) Act of 1935 and the Fair Labor Standards Act in 1938. Union membership expanded from 3 million workers in 1935 to 15 million in 1947.

THE DECLINE OF LABOR UNIONS

The number of workers who are members of unions varies considerably both within and across countries. In Western Europe and Northern America, union density is higher in the public sector than in the private sector. Since the 1980s the percentage of workers who belong to a union has declined throughout the world with a few exceptions: Denmark, Norway, Turkey, South Africa, and Chile. Perhaps nowhere has this decline been steeper than in the United States. In 1960 approximately 33% of the nonagricultural labor force belonged to a union. By 2003 this proportion had dropped to less than 13%.

This global decline in unionization is corroborated by other statistics. During this time period there was a severe drop in strike activity, increases in the number of successful decertification elections and collective bargaining outcomes antithetical to workers' interests, and reductions in the perceived legitimacy of organized labor in the political and public domains. There are many explanations for the decline of unions:

- Cyclical economic forces, such as unemployment and inflation levels that affect the bargaining power of unions
- Structural changes, such as the shift away from union-dense manufacturing industries to union-sparse service and knowledge industries
- Global economic restructuring that brought about greater international competition and eroded the power of trade unions
- Rapid growth in sectors of the labor force that were underrepresented in unions and less favorable to unionization (e.g., women and white-collar workers)
- Diminished resources and declining efforts of unions to expand union membership and recruit new workers
- Increased employer resistance to unions and corporate political lobbying efforts to pass legislation that weakens unions
- The promotion of international trade legislation that weakened the rights of workers to organize by establishing agreements with countries that did not enforce basic labor rights
- The replacement of blue-collar work with automation, technology, and outsourcing
- A decline in pro-union attitudes among workers, and cultural and attitudinal changes that were antithetical to organized labor
- Organizational activity and redesign that substituted for union activities

Although private sector unions have suffered the most drastic decreases in membership and density levels, public sector unions have grown in numbers and maintained their membership levels. The growth of public sector unions can be attributed to two trends. First, changes in legislation gave government and federal employees the right to join unions and to negotiate nonwage and fringe benefit issues. Second, changes in the economic environment led to the expansion of the public sector and the growth of government and a climate more favorable to union organizing efforts.

WHAT DO UNIONS DO?

Although union density levels vary considerably between industries, the private and public sectors, and countries across the world, millions of workers still belong to labor unions; and they still constitute an important part of industrial life. Unions have a substantial impact on the working lives of both unionized and nonunionized workers. Unions have played a

crucial role in establishing the workplace laws and regulations that constitute labor and industrial relations policies throughout the world. A substantial body of research indicates that the protections and benefits that all workers enjoy can be attributed in large part to unions. Unions reduce wage inequality, set pay standards, and establish fringe and health benefits that are enjoyed by unionized and non-unionized workers alike.

Apart from negotiating better wages and benefits for their members, unions engage in collective bargaining to ensure that workers are treated fairly and equitably. In unionized workplaces there is usually an agreed-on grievance procedure for resolving workplace conflicts and violations of worker rights. Unions also give workers a voice in workplace decisions that affect their lives. The collective bargaining process allows unions to negotiate a contract with their employer that enables workers to participate in shaping workplace policies.

INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY AND UNIONS

Unions continue to play an important role in industry and have a substantial impact on organizational functioning. Yet industrial/organizational (I/O) psychology has largely chosen to ignore unions, both in terms of its research focus and its exclusion of union-related topics in popular textbooks. There are two main reasons for this neglect, as noted by Julian Barling, Clive Fullagar, and E. Kevin Kelloway (1992). First, many I/O concepts (e.g., job analysis, performance appraisal, and union avoidance) are antithetical to the interests of organized labor, and I/O psychology has, from its inception, been affiliated with management. Second, unions have never had the financial resources to sponsor psychological research on union issues that are beneficial to organized labor or to employ I/O psychologists. However, the little psychological research that has been done on unions has investigated why workers join unions, their commitment to the union, and their participation in union activities.

WHY DO WORKERS JOIN AND GET INVOLVED WITH UNIONS?

One of the main trigger mechanisms that causes workers to join unions is dissatisfaction with their jobs. Specifically, workers who are dissatisfied with their

pay and working conditions are more likely to join a union. Although dissatisfaction with the extrinsic characteristics of the job have been found to be the most important predictor of unionization, dissatisfaction with intrinsic factors, such as the amount of job control and trust of management, have been found to be important correlates of unionization in professional samples.

Just being dissatisfied with a job is an insufficient reason to join a union. Workers also have to believe that the union will be instrumental in redressing these dissatisfactions. Union instrumentality beliefs, then, mediate the relationship between job dissatisfaction and voting for or joining a union. Not only are specific beliefs about the effectiveness of a person's own union important predictors of unionization; so, too, are attitudes about unions in general. Research would suggest that workers join unions for both instrumental and ideological reasons. Furthermore union instrumentality beliefs and general union attitudes are also important predictors of why workers leave and decertify unions.

Another thread in the research on unions is the question of how workers become committed to unions. Commitment is a construct that has occupied a central role in the literature on attachment to labor unions. Union commitment has consistently been found to consist of three components:

1. Loyalty to the union, which denotes a pride in the union, an affective identification with the union, and a desire to remain a member of the union
2. A sense of responsibility to the union to engage in the day-to-day duties of a member
3. A willingness to work for the union and engage in extra-role activities beyond those normally required for membership

Socialization practices seem to be important determinants of union commitment. Personal interaction with established members of the union is the primary means whereby new members internalize the norms of the union and develop commitment. Attitudinal variables that are associated with union commitment include intrinsic and extrinsic job dissatisfaction, beliefs about union instrumentality, and positive attitudes toward unions in general. Some structural characteristics have also been identified as having an important effect on union commitment. Specifically, the size of the union, the span of control of its officers,

the extent of decentralization of collective bargaining, overall accessibility to union activities by the rank and file, and the voluntary nature of the labor union have all been found to be associated with attachment to unions.

One of the reasons that union commitment has become a focus of research attention is that it is predictive of participation in several union activities, including propensity to strike, activism within the union, support for political action, endorsement of political candidates, and turnover within unions. Union participation can be categorized into participation in formal and informal activities. Formal participation refers to involvement in such activities as voting in elections, meeting attendance, familiarity with the collective agreement, grievance filing, and serving as an officer or on a union committee. In other words formal participation is engaging in behaviors that are necessary for the union to operate effectively and democratically. Informal participation refers to engagement in such organizational citizenship behaviors as helping other members learn about the union, talking up the union, reading the union's publications, and helping another member file a grievance. These behaviors reflect support for the union but are unnecessary for its survival. Participation in union activities is believed to have several beneficial consequences such as preventing union oligarchies, unifying the membership, and generally facilitating the representative purpose of labor organizations. There is also some research evidence to suggest that participating in union activities, especially strikes, is extremely stressful.

One issue that has been of continuing concern to researchers is whether workers can be loyal to both the union and the employing organization. The results of this research have been equivocal, with some studies indicating a positive correlation between union and company loyalty, others finding no relationship, and still others suggesting a negative association between the two constructs. One important moderator of this relationship is the nature of the industrial relationship climate. When union-management relations are favorable and cooperative, company and union commitment are positively related. When union-management relations are strained and hostile, negative correlations occur. The type of union also seems to play a role. In more aggressive unions, whose membership consists of more alienated and disenfranchised workers, there is a greater tendency toward unilateral allegiance to the union. By contrast, in protective unions, whose memberships consists of more empowered

workers who form unions to protect their jobs, there is more likelihood of dual allegiance.

SUMMARY

Labor unions have played an important worldwide role in industrial relations for more than 200 years. Today, millions of workers are members of unions. These unions have a significant effect on the working lives of their members, affecting their wages, job security, working conditions, productivity and performance, turnover, absenteeism, job satisfaction, work stress, and perceptions of social justice. Consequently, any scientific field that has as its aim the study of people in the workplace must acknowledge the influence that unions have on organizational behavior. Knowledge of organizational behavior and unions can be enhanced by an understanding of the impact that each has on the other.

—Clive Fullagar

See also Union Commitment

FURTHER READING

- Barling, J., Fullagar, C., & Kelloway, E. K. (1992). *The union and its members: A psychological approach*. New York: Oxford University Press.
- Freeman, R. B., & Medoff, J. L. (1985). *What do unions do?* New York: Basic Books.
- Shostack, A. B. (1991). *Robust unionism: Innovation in the labor movement*. Ithaca, NY: ILR Press.

UTILITY ANALYSIS

Utility analysis is a tool for decision making. It is the determination of institutional gain or loss (outcomes) anticipated from various courses of action, after taking into account both costs and benefits. For example, in the context of human resource management, the decision might be which type of training to offer or which selection procedure to implement. When faced with a choice among alternative options, management should choose the option that maximizes the expected utility for the organization across all possible outcomes.

We consider alternative methods for assessing the utility of employee selection as well as employee

training. In the context of selection, the utility of a selection instrument or battery of instruments is the degree to which its use improves the quality of the individuals selected beyond what would have occurred had that instrument or battery of instruments not been used. Quality, in turn, may be defined in terms of the proportion of individuals in the selected group who are considered successful, the average standard score on some job performance criterion for the selected group, or the dollar payoff to the organization resulting from the use of a particular selection procedure.

The first definition of quality is used in the Taylor-Russell model of utility, originally developed in 1939. The second definition of quality is used in the Naylor-Shine model of utility, originally developed in 1965. The third definition of quality is used in the Brogden-Cronbach-Gleser model of utility, developed in the 1950s and 1960s. The next section considers each of these utility models, along with its assumptions and data requirements, in greater detail.

TAYLOR-RUSSELL MODEL

If we define utility in terms of the percentage of selected applicants who are successful (known as the success ratio), H. C. Taylor and J. T. Russell showed that it depends on consideration of more than just a validity coefficient. In the Taylor-Russell model, the overall utility of a selection device is a function of three parameters: the validity coefficient (the correlation between a predictor of job performance and a criterion measure of job performance), the selection ratio (the proportion of applicants selected), and the base rate (the proportion of applicants who would be successful without the selection procedure). This model convincingly demonstrates that even selection procedures with relatively low validities can increase substantially the percentage successful among those selected when the selection ratio is low.

Whenever there is a limit on the number of applicants that may be accepted, the selection ratio (SR) is a major concern. As the SR approaches 1.0 (all applicants must be selected), it becomes high or unfavorable from the organization's perspective. Conversely, as the SR approaches zero, it becomes low or favorable; the organization can afford to be selective. As noted earlier, if the SR is low and if an organization needs to choose only the cream of the crop, even predictors with very low validities can be useful.

Conversely, given high selection ratios, a predictor must possess very high validity to increase the percentage successful among those selected.

It might appear, therefore, that given a particular validity, organizations should strive always to decrease the SR (become more selective). Unfortunately, the optimal strategy is not this simple, because lowering the SR forces recruiters to expand the recruiting and selection effort. Thus, to select 10 new hires, an SR of 0.5 means that 20 must be recruited. However, if the SR decreases to 0.1, 100 must be recruited. In practice, this strategy may be costly to implement.

Utility, according to Taylor and Russell, is also affected by the base rate (the proportion of applicants who would be successful without the selection measure). To be of any use in selection, the measure must demonstrate incremental validity by improving on the base rate. That is, the selection measure must result in more correct decisions than could be made without using it. As Taylor and Russell demonstrated, selection measures are most useful when the base rate is about 0.50.

Taylor and Russell (1939) published a series of tables illustrating the interaction of the validity coefficient, the selection ratio, and the base rate on the success ratio. The success ratio, then, serves as an operational measure of the value or utility of a selection device, when used in conjunction with methods presently used to select applicants.

Note that the validity coefficient referred to by Taylor and Russell is based on present employees who have already been screened using methods other than the new selection procedure. The selection ratio is applied to this population. It is assumed that the new procedure will simply be added to a group of selection procedures used previously, and it is the incremental gain in validity from the use of the new procedure that is most relevant.

The Taylor-Russell approach also makes three other assumptions. First, it assumes fixed-treatment selection; that is, individuals are chosen for one specified treatment or course of action that cannot be modified. Second, the Taylor-Russell model does not take into account the percentage of rejected individuals who would have been successful if hired (erroneous rejections). Finally, the model classifies accepted individuals into successful and unsuccessful groups. All individuals within a group are regarded as making equal contributions.

Under these circumstances the SR tells us that more people are successful, but not *how much more* successful. When it is reasonable to assume that the use of higher predictor scores will lead to higher levels of average job performance by those selected, the Taylor-Russell tables will underestimate the actual gain to be expected.

NAYLOR-SHINE MODEL

The Naylor-Shine index of utility is defined in terms of the increase in average criterion score to be expected from the use of a selection measure with a given validity and selection ratio. In contrast to the Taylor-Russell utility model, however, the Naylor-Shine approach assumes a linear relationship between validity and utility. That is, given any arbitrarily defined cutoff on a selection measure, the higher the validity, the greater the increase in the average criterion score for the selected group over that observed for the total group. This model assesses the gain in validity from the use of the new selection procedure *over and above* that which is presently available using current information. The basic equation underlying the Naylor-Shine model is

$$\bar{Z}_{yi} = r_{xy} \frac{\lambda_i}{\phi_i}, \tag{1}$$

where
 \bar{Z}_{yi} = mean criterion score (in standard-score units) of all cases above the predictor cutoff,
 r_{xy} = validity coefficient,
 λ_i = ordinate of the normal distribution at the predictor cutoff, Z_{xi} (expressed in standard-score units), and
 ϕ_i = selection ratio.

Equation 1 applies whether r_{xy} is a zero-order correlation coefficient or a multiple regression coefficient.

Using Equation 1 as a basic building block, J. C. Naylor and L. C. Shine present a series of tables that specify, for each selection ratio, the standard (predictor) score corresponding to that selection ratio, the ordinate of the normal curve at that point, and the quotient λ_i/ϕ_i . The tables can be used to answer three important human resource questions:

1. Given a specified selection ratio, what will be the average performance level of those selected?
2. Given a desired selection ratio, what will \bar{Z}_{yi} be?
3. Given a desired improvement in the average criterion score of those selected, what selection ratio and

predictor cutoff value (in standard-score units) should be used?

Note that “average criterion performance” is expressed in terms of standard (*z*) scores. Standard scores are more difficult to interpret than are outcomes more closely related to the specific nature of a business, such as dollar volume of sales, units produced or sold, or costs reduced. The Brogden-Cronbach-Gleser model addresses those issues specifically.

BROGDEN-CRONBACH-GLESER MODEL

If we assume that *n* workers are hired during a given year and that the average job tenure of those workers is *t* years, the dollar increase in productivity can be determined from Equation 2. Admittedly, this is a *cookbook recipe*, but the formula was derived more than 50 years ago and is well established in applied psychology:

$$\Delta U = (N)(T)(SD_y)(r_{xy})(\bar{Z}_x) - (N)(C_y), \tag{2}$$

where
 ΔU = increase in productivity in dollars,
 N = number of persons hired,
 T = average job tenure in years of those hired,
 r_{xy} = the validity coefficient representing the correlation between the predictor and job performance in the applicant population,
 SD_y = the standard deviation of job performance in dollars (roughly 40%–60% of annual wage, depending on the complexity of the job in question), and
 \bar{Z}_x = the average predictor score of those selected in the applicant population, expressed in terms of standard scores.

When Equation 2 was used to estimate the dollar gains in productivity associated with use of the Programmer Aptitude Test (PAT) to select computer programmers for federal government jobs, given that an average of 618 programmers per year are selected, each with an average job tenure of 9.69 years, the pay-off per selectee was \$64,725 over his or her tenure on the job. This represents a per-year productivity gain of \$6,679 for each new programmer. Clearly, the dollar gains in increased productivity associated with the use of valid selection procedures (the estimated true validity of the PAT is .76) are not trivial, even after correcting them to account for corporate taxes and

variable costs, and discounting future cash flows to express their present value.

With respect to the variability of job performance in dollars (SD_y in Equation 2), a number of alternative procedures have been proposed for estimating it. A review of 34 studies that included more than 100 estimates of SD_y concluded that differences among alternative methods for estimating it are often less than 50%, and may be less than \$5,000 in many cases.

All utility analyses are plagued by uncertainty and risk. By taking uncertainty into account through break-even analysis (described in the following text), anyone of the SD_y estimation methods may be (and often is) acceptable because none yields a result so discrepant as to change the decision in question.

BREAK-EVEN ANALYSIS

Break-even analysis is an additional tool that can aid in the assessment of the relative usefulness of competing selection systems. Instead of estimating the *level* of expected utility, suppose decision makers focus instead on the *break-even value* that is critical to making the decision? In other words, what is the smallest value of any given parameter that will generate a positive utility (payoff) of the new selection technique over random selection?

For example, the minimum value of SD_y that will justify the use of a selection procedure with a given validity may be computed by setting $\Delta U = \$0.00$. That value of SD_y guarantees that the costs of the new selection procedure will be matched by equivalent benefits—no more, no less. Thus the term *break-even analysis*.

Break-even analysis seems to provide two important advantages:

1. It allows practicing managers to appreciate how little variability in job performance is necessary before valid selection procedures begin to pay positive dividends.
2. Even if decision makers cannot agree on an exact point estimate of SD_y , they can probably agree that it is higher than the break-even value.

THE UTILITY OF TRAINING AND DEVELOPMENT ACTIVITIES

In the Brogden-Cronbach-Gleser model, the only difference between the basic equation for calculating

selection utility (Equation 2) and that for calculating utility from training and development programs (or any other type of organizational intervention) is that the term d_t is substituted for the product $r_{xy} \times \bar{Z}_x$ (i.e., the validity coefficient times the average standard score on the predictor achieved by selectees). The resulting utility formula is therefore

$$\Delta U = (N)(T)(d_t)(SD_y) - C,$$

where

ΔU = gain to the firm in dollars resulting from the program,

N = number of employees trained,

T = expected duration of benefits in the trained group,

d_t = true difference in job performance between the trained and untrained groups in standard deviation units,

SD_y = standard deviation of dollar-valued job performance among untrained employees, and

C = total cost of training N employees.

The parameter d_t is the *effect size*. Like a correlation coefficient, it describes the degree of departure from the null hypothesis. In the case of training and development programs, the null hypothesis is that training had no effect—that is, after training, the job performance of the trained group is no different from that of the untrained group.

How is d computed? It is simply the difference between the mean job performance of the trained and untrained groups in standard (Z)-score units. Thus

$$d = \bar{X}_t - \bar{X}_u / SD_y,$$

where

d = effect size,

\bar{X}_t = average job performance score of the trained group,

\bar{X}_u = average job performance score of the untrained group, and

SD_y = standard deviation of the job performance scores of the total group, trained and untrained.

To enhance managerial acceptance of utility estimates, one approach that has proven successful is to present the utility model to senior managers, acknowledging that it incorporates fallible but reasonable estimates, *before* the actual application and consideration of the model in a decision-making context.

—Wayne F. Cascio

FURTHER READING

- Boudreau, J. W. (1991). Utility analysis for decisions in human resource management. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 2, pp. 621–745). Palo Alto, CA: Consulting Psychologists Press.
- Boudreau, J. W., & Ramstad, P. M. (2003). Strategic I/O psychology and the role of utility analysis models. In W. Borman, D. Ilgen, & R. Klimoski (Eds.), *Handbook of psychology* (Vol. 12, pp. 193–221). New York: Wiley.
- Brogden, H. E. (1949). When testing pays off. *Personnel Psychology*, 2, 171–185.
- Cascio, W. F. (2000). *Costing human resources: The financial impact of behavior in organizations* (4th ed.). Cincinnati, OH: Southwestern.
- Cascio, W. F., & Ramos, R. A. (1986). Development and application of a new method for assessing job performance in behavioral/economic terms. *Journal of Applied Psychology*, 71, 20–28.
- Cronbach, L. J., & Gleser, G. C. (1965). *Psychological tests and personnel decisions* (2nd ed.). Urbana: University of Illinois Press.
- Naylor, J. C., & Shine, L. C. (1965). A table for determining the increase in mean criterion score obtained by using a selection device. *Journal of Industrial Psychology*, 3, 33–42.
- Raju, N. S., Burke, M. J., & Normand, J. (1990). A new approach for utility analysis. *Journal of Applied Psychology*, 73, 3–12.
- Taylor, H. C., & Russell, J. T. (1939). The relationship of validity coefficients to the practical effectiveness of tests in selection. *Journal of Applied Psychology*, 23, 565–578.

V

VALIDATION STRATEGIES

In the broadest sense, validation refers to the process of establishing the truth, accuracy, or soundness of some judgment, decision, or interpretation. In industrial and organizational psychology, validation generally focuses on the quality of interpretations drawn from psychological tests and other assessment procedures that are used as the basis for decisions about people's work lives. Before discussing validation specifically, it is necessary to clarify some concepts that are integral to the process of decision making based on psychological testing.

DEFINING THE FOCUS OF VALIDATION

It is important to realize that validity is not a characteristic of a test or assessment procedure but of the inferences and decisions made from test or assessment information. Validation is the process of generating and accumulating evidence to support the soundness of the inferences made in a specific situation. Logically, therefore, to examine the concept of validation, it is important to specify (a) the types of inferences involved in applied assessment situations and (b) the nature of evidence that can be used to support such inferences. Different validation strategies reflect different ways to gather and examine the evidence supporting these important inferences.

Applied psychological assessment involves a series of professional activities. A general characterization of these activities includes the following steps: (a) analysis of a work setting to determine (b) the important task and organizational behaviors (and subsequent

outcomes) composing a performance domain, which then guide (c) the selection or development of certain assessment procedures (predictors), which make possible (d) predictions about the likelihood that assessees will exhibit important behaviors, and then subsequently (e) measuring individual work behavior using some operational criterion measure. This process implies a conceptual framework, which is presented in Figure 1.

This framework comprises the following inferences:

Inference 1. The analysis of the work setting yields an accurate description of performance.

Inference 2. The construct domains tapped by the predictor overlap with the performance domains.

Inference 3. The predictors are adequate samples of relevant psychological construct domains.

Inference 4. Predictor scores relate to operational criterion measurements.

Inference 5. The operational criterion measures adequately sample from the performance domains.

Inference 6. The predictors relate to the performance domains.

The analysis of a work setting generates a conception of *desired performance*, or a performance domain. Performance domains are clusters of work activities and outcomes that are especially valued by an organization. Selection decisions based on psychological assessment represent attempts to identify regularities in work behavior—but only those behaviors that are identified by the organization as relevant for goal attainment. Personnel selection, then, is the

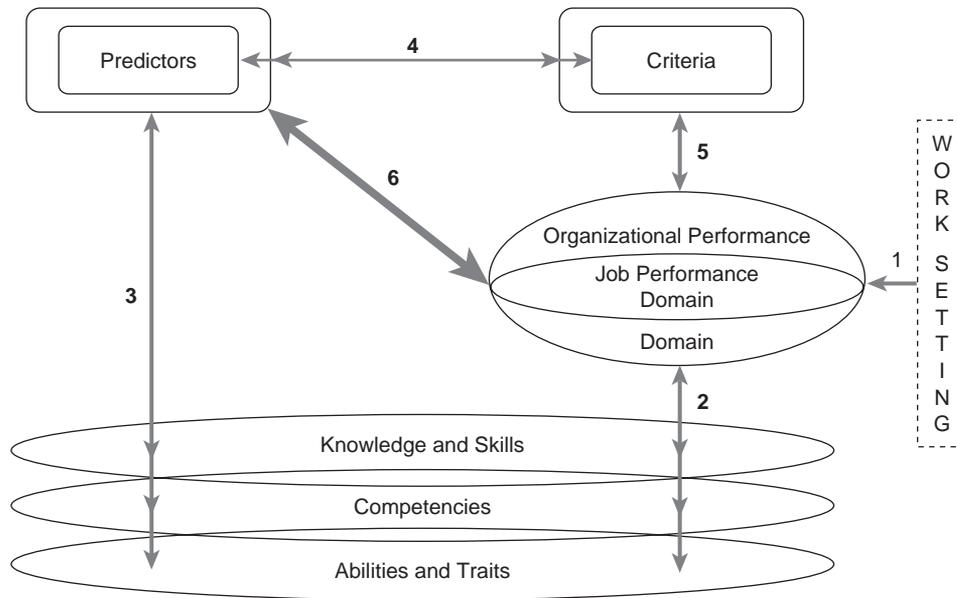


Figure 1 A Conceptual Framework Detailing the Inferences Involved in Validation

SOURCE: Adapted from Binning and Barrett (1989).

process of identifying and mapping predictor samples of behavior to effectively overlap with performance domains. Validity can be described as the extent to which the predictor sample meaningfully overlaps with the performance domain.

Validation is the process of generating evidence that the inferences drawn from assessment information are accurate. Inference 6 is the keystone inference in applied decision making because it represents whether a specific assessment process yields information that makes possible the prediction of important organizational outcomes. Inference 6 cannot be tested directly because it links predictor measurements with performance domains that are *hypothetical* domains of idealized work behavior. However, Inference 6 is tied in closed logical loops to other inferences in the framework, and therefore these other inferences play a role in validation. If certain inferences (which will be discussed in the next section) can be substantiated with sufficient evidence, then Inference 6, by implication, is substantiated. To put it another way, validation is the process of generating evidence to support Inference 6, and this involves supporting the other inferences in the framework.

Of course, many specific forms of Inference 6 may occur in a given decision situation, and the evidence

needed to validate each may differ. For example, the Minnesota Multiphasic Personality Inventory (MMPI) could be administered to police candidates to predict who is more likely to possess antisocial tendencies on the job. This form of Inference 6 would require different validity evidence than if the MMPI were used to predict who is likely to experience debilitating anxiety on the job. Regardless of the specific nature of the decisions being made, there are three general approaches to generating validity evidence, and within each approach, there are specific strategies for generating and interpreting this evidence.

THREE GENERAL APPROACHES TO VALIDATION

There are three broad categories of validity evidence, often labeled *criterion-related*, *construct-based*, and *content-based* strategies. This trilogy of validity terms was first articulated in the *Technical Recommendations for Psychological Tests and Diagnostic Techniques*, published by the American Psychological Association, American Educational Research Association, and National Council of Measurement Used in Education in 1954. This trilogy can be usefully viewed as three broad strategies for generating validity evidence.

Criterion-Related Validation Strategies

One general approach to justifying Inference 6 would be to generate direct empirical evidence that predictor scores relate to *accurate* measurements of job performance. Inference 4 represents this linkage, which historically has been of special pragmatic concern to selection psychologists because of the allure of quantitative indexes of test–performance relationships. Any given decision situation might employ multiple predictors and multiple criterion measures, so numerous relationships can be specified.

The most common form of criterion-related validity evidence is correlational. This type of evidence is generated by statistically correlating predictor scores with criterion scores. The size and direction of predictor–criterion correlation coefficients are statistical indexes of the relationship between the predictor and the criterion. However, this correlation supports Inference 6 only if the criterion measure adequately taps the relevant performance domain. To have complete confidence in the validity of Inference 6, both Inferences 4 and 5 must be justified. An examination of Figure 1 shows that validating Inferences 4 and 5, by implication, validates Inference 6 because they complete a closed logical loop.

Criterion-related validity evidence is generally correlational because selection decisions are generally based on individual differences that are not amenable to experimental manipulation. This evidence is generally collected from current employees through a *concurrent* validation study or from job applicants through a *predictive* validation study, and many specific methodological variations exist for collecting the predictor and criterion data. Other strategies for generating empirical data relevant to Inferences 4 and 5 include experimental and quasi-experimental research. For example, identifying specific groups of applicants who are expected to differ on some predictive characteristic, then determining whether meaningful criterion differences exist, is an alternative to classic correlational research. Some predictive characteristics can be manipulated in field or laboratory experiments, and this research can also provide criterion-related validity evidence.

Construct-Based Validation Strategies

What selection psychologists have traditionally implied by the label *construct validity* is tied to Inferences 2 and 3. It can be assumed that if

Inferences 2 and 3 can be supported by sound evidence, then one can confidently believe Inference 6 to be true—again, because they form a closed logical loop. If it can be shown that a test measures a specific psychological construct (Inference 3) that has been determined to be critical for job performance (Inference 2), then inferences about job performance from test scores (Inference 6) are logically justified. Of course, in any given decision situation, multiple psychological constructs may be thought to underlie performance (variations of Inference 2) and subsequently may be assessed (variations of Inference 3), and each of these requires validity evidence.

How does a selection psychologist support Inferences 2 and 3? Evidence supporting Inference 3 primarily takes the form of empirically demonstrated relationships and judgments that are both convergent and discriminant in nature. *Convergent evidence* exists, for example, when (a) predictor scores relate to scores on other tests of the same construct, (b) predictor scores from people who are known to differ on the focal construct also differ in other predictable ways, or (c) predictor scores relate to scores on tests of other constructs that are theoretically expected to be related. *Discriminant evidence* exists when predictor scores do not relate to scores on tests of theoretically independent constructs. The process of developing and researching measures of psychological constructs, then refining them to ensure that they are measuring the constructs we think they are measuring, is a scientific process that is central to the development of psychological theories of individual differences.

Because it links two hypothetical behavioral domains, Inference 2 cannot be examined empirically, at least not in the form of actual behavioral measurements. Rather, informed judgments about performance domains and psychological construct domains are required. Inference 2 must be justified theoretically and logically on the basis of accumulated scientific knowledge of relationships between performance domains and psychological construct domains. A common basis for linking these two is systematic job analysis or competency modeling, which produces job specifications in the form of knowledge, skill, ability, and other constructs required for job performance.

Inference 2 involves the translation of work behavior into psychological construct terms. This is often done in a relatively unstructured way, relying heavily on the work analyst's qualitative judgments about performance domain–psychological construct relations.

However, some job analysis and competency modeling methods explicitly structure the specification of behaviors in the performance domain and the overlap with psychological construct domains. Regardless of how Inference 2 is substantiated, the extent to which this process is viewed as professionally and scientifically credible, and whether it accompanies sound evidence for Inference 3, the validity of Inference 6 is enhanced.

Content-Based Validation Strategies

A third general approach to justifying Inference 6 involves demonstrating that the predictor samples behavior that is isomorphic with the behaviors composing the performance domain. This line of reasoning is particularly defensible when one realizes that predictor tests are always samples of behavior from which we infer something about behavior on a job. The behaviors sampled may be dissimilar (e.g., scores from the Rorschach inkblot test) or similar (e.g., scores from a work sample simulation test) to the work behaviors being predicted. If an applicant performs behaviors as part of the assessment phase that closely resemble behaviors in the performance domain, then logically Inference 6 is better justified. This line of reasoning underlies the type of evidence that is traditionally labeled *content validity*. Specific procedures for analyzing the degree of isomorphism between predictors and criteria have been proposed, but the same basic logic underlies each.

Content-related evidence of validity involves justifying Inference 6 by examining the manner in which the predictor directly samples the performance domain. Here, the predictor is examined as a sample from the performance domain rather than a sample from an underlying psychological construct domain. As in statistical sampling theory, if a predictor sample is constructed in congruence with certain principles (e.g., ensuring representativeness as well as relevance of the sample), one can assume that scores from that sample will accurately estimate the universe from which the sample is drawn. Therefore, when a selection psychologist can rationally defend the strategy for sampling the performance domain used in a given testing situation, content validity evidence supports the inference that scores from the test are valid for predicting future performance (i.e., Inference 6).

The logical assumption of content-based validation is that if a job applicant performs desired behaviors at

the assessment phase, he or she can perform those behaviors on the job. Of course, many predictive difficulties arise when one considers the complexity of human motivation in this context. Evidence that someone *can* perform behaviors in one situation does not necessarily indicate that he or she *will* perform them in a particular work situation. These complexities notwithstanding, judgments and data that are relevant to whether a predictor domain directly maps onto the performance domain are the core of content-based validation strategies.

Many specific methodologies exist to guide judgments about behavioral domain overlap. Some of these methods involve having subject matter experts systematically examine performance domains and individually rate the extent to which each predictor element is relevant to the performance domain. Such structured and quantitative content-based methods can yield credible evidence about whether a predictor is likely to predict performance.

VALIDATION STRATEGIES AS PREDICTOR-DEVELOPMENT PROCESSES

Thus far, the concepts of construct-based, content-based, and criterion-related evidence have been discussed as general strategies that can be used to justify decision validity. However, the implications of differences among the three can be traced back in the decision-making process. By doing so, their differences can be more clearly appreciated.

Selection decision making involves two fundamental phases: (a) constructing the predictor as a sample of some behavioral domain and (b) using this behavioral information to make predictions about future job behavior. This latter data combination phase is the immediate precursor to employment decisions and therefore has received considerable legal and professional scrutiny. Yet the data-collection phase, which involves specifying the behavioral database, has equally important implications for validity.

To briefly review Figure 1, the development of any personnel-selection system begins with the delineation of the relevant performance domain. From this delineation of desirable job behaviors and outcomes, selection psychologists determine which construct domains should be sampled by the predictors. There are three routes from the performance domain to predictor development: The construct-based approach involves identifying psychological construct domains

that overlap significantly with the performance domain (Inference 2) and then developing predictors that adequately sample these construct domains (Inference 3). The content-based approach involves developing predictors that directly sample the performance domain. The criterion-related approach involves developing some operational measure of behaviors in the performance domain (Inference 5) and then identifying or developing predictors that will relate empirically with the operational criterion measure (Inference 4). Of course, all of these depend on the accuracy with which the performance domain has been delineated (Inference 1).

There is a fundamental difference between the criterion-related approach and the other two approaches. A criterion measure is merely an operational sample of the performance domain. Predictor-criterion relationships must result from either the operation of psychological constructs or the sampling of behaviors that are especially similar to those in the performance domain. From this perspective, the construct-based and content-based approaches represent the two fundamental predictor sampling strategies. *Construct-based* implies that predictor sampling is guided by evoking a psychological construct domain. *Content-based* implies that predictor sampling is guided by evoking a performance domain. To the extent that the two domains are derived differently and relations between the two are not well understood, construct- and content-based approaches can lead to substantive differences in predictor development and decision validity. In contrast to the construct- and content-based approaches, the criterion-related approach is best characterized as a general research strategy for empirically assessing the quality of the two fundamental predictor sampling strategies. Judgments of validity are tantamount to judgments about the adequacy of behavior sampling (construct- and content-based) or direct empirical indexes of such adequacy (criterion-related).

VALIDATING EMPLOYMENT DECISIONS

Recall that validation is the process of generating and accumulating evidence to support the soundness of the inferences made in a specific situation. Three general approaches to compiling evidence have been discussed, as well as their relative strengths and weaknesses. The convenience of discussing these strategies separately should not cloud a very important point: *Validity is a unitary concept*. Specific decisions or

uses of psychological test information are either valid or not, and there are different forms of evidence relevant to the determination of validity.

The validity of a decision can be reasonably compared to the guilt or innocence of a defendant in a court case. When a trial begins, we generally do not know whether the defendant is guilty or innocent. The trial unfolds as a forum for presenting evidence collected during an investigation. Some evidence is direct and very compelling, whereas other evidence is circumstantial and open to skepticism. Some attorneys are better able to communicate the evidence, and juries are more or less able to grasp the complexities of the evidence. Validation parallels this characterization. We seldom know whether a selection decision (derived from a specific assessment process) is valid at the time it is made. However, we can anticipate needing to justify the decision process, so we *investigate* the situation and gather evidence of various forms, direct and circumstantial, to support a claim of validity. Ultimately, our validation efforts are reviewed by people who judge their credibility and deem the process to be sufficiently valid or not.

CONCLUSION

Validation, as a systematic process of generating and examining evidence, is the essence of scientific research and theoretical development, and its goal is to more fully understand and explain human functioning in work settings. There is no inherent superiority of one type of validity evidence over other lines of evidence. From this perspective, all validity evidence may be relevant to determining decision quality. Competently conducted validation efforts are ones that comprehensively generate credible information about all of the inferential linkages that compose the current framework and focus appropriate attention on predictor content, psychological constructs, and empirically demonstrated relationships.

—John F. Binning

See also Construct; Criterion Theory; Validity

FURTHER READING

Binning, J. F., & Barrett, G. V. (1989). Validity of personnel decisions: A conceptual analysis of the inferential and evidential bases. *Journal of Applied Psychology, 74*, 478–494.

- Cronbach, L. J. (1988). *Five perspectives on validity argument*. In H. Wainer & H. Braun (Eds.), *Test validity* (pp. 34–35). Hillsdale, NJ: Lawrence Erlbaum.
- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, *52*, 281–302.
- Equal Employment Opportunity Commission. (1978). Uniform guidelines on employee selection procedures. *Federal Register*, *43*(166), 38295–38309.
- Guion, R. M. (1998). *Assessment, measurement, and prediction for personnel decisions*. Mahwah, NJ: Lawrence Erlbaum.
- Hoffman, C. C., Holden, L. M., & Gale, K. (2000). So many jobs, so little “N”: Applying expanded validation models to support generalization of cognitive test validity. *Personnel Psychology*, *53*, 955–992.
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, *28*, 563–575.
- Lubinski, D. (2000). Scientific and social significance of assessing individual differences: Sinking shafts at a few critical points. *Annual Review of Psychology*, *51*, 405–444.
- Messick, S. (1981). Constructs and their vicissitudes in educational and psychological measurement. *American Psychologist*, *89*, 575–588.
- Messick, S. (1995). Validity of psychological assessment: Validation of inferences from persons’ responses and performances as scientific inquiry into score meaning. *American Psychologist*, *50*, 741–749.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Sussmann, M., & Robertson, D. U. (1986). The validity of validity: An analysis of validation study designs. *Journal of Applied Psychology*, *71*, 461–468.

VALIDITY

Validity refers to the correctness of the inferences that one makes based on the results of some kind of measurement. That is, when we measure something, we need to ask whether the measurements we have taken accurately and completely reflect what we intended to measure. For example, inferences about individual differences in people’s height based on the observed scores generated from the use of a (normal) tape measure or ruler are highly valid. When used appropriately, the application of the tape measure will generate observed measurements (e.g., inches, millimeters, feet) that correspond closely to actual differences in height.

COMMON MISCONCEPTIONS

It is common to hear people refer to the “validity of the test,” which might give the impression that validity is a property of the measurement device. However, this is incorrect. Validity is not a property of any assessment device; rather, it is a property of the inferences that you—the test user—make. For example, consider once again the tape measure. We might be tempted to say that “the tape measure has validity.” However, if we made inferences about differences in intelligence based on that same set of measurements rather than differences in height, those inferences would likely be highly incorrect. Nothing has changed about the tape measure or the set of measurements generated from its application. What has changed is the inference about what is being measured.

Although this might seem an absurd example (presumably no one would use a tape measure to measure intelligence), it demonstrates that validity is not a property of the measurement instrument but of the inference being made. The phrase “the test has validity,” though technically inappropriate, is often used because there is a general assumption about which inferences are (and are not) to be made from the use of a well-known measurement device. For example, testing experts may say, “The Wonderlic has good validity.” On the surface, this may seem profoundly inaccurate; however, it should be understood that this statement actually means (or at least, should mean), “Inferences regarding individual differences in general mental ability, and inferences regarding the probability of future outcomes such as job performance, are generally appropriate by relying on observed scores generated from the appropriate use of the Wonderlic.” That we sometimes use shorthand to abbreviate such a long statement should not be taken to imply that validity is a property of the test. Rather, it should be interpreted as suggesting there is reliable and verifiable evidence to support the intended set of inferences from the use of a given measurement device.

The second common misconception is that there are different types of validity. Instead, validity is best thought of as a unitary concept addressing how completely and accurately a measure measures what it is intended to measure. However, no single method or strategy can provide all the evidence needed to make accurate or confident inferences. Thus, multiple strategies exist for generating such evidence; often, these strategies—or more aptly, the evidence generated

from these strategies—are referred to as *types of validity*. This is an unfortunate choice of words because it often leads to the misconception that validity is many different things and that some types of validity are more or less useful than other types. Validity is a single, unitary idea: It concerns the degree to which the differences we observe in measurements can be used to make accurate and confident inferences about some unobservable phenomenon.

TYPICAL APPROACHES TO GENERATING VALIDITY EVIDENCE

Industrial and organizational (I/O) psychologists are often concerned with whether a given measurement device can be confidently relied on for making accurate decisions about hiring and promotion. To do this, I/O psychologists attempt to correlate a measure of some job-required knowledge, skill, or ability (identified from a job analysis) with a measure of some identified job demand or criterion. However, this process requires many different inferences to be made, which, in turn, requires substantial evidence to support them. For example, it is necessary to ensure that the predictor and criterion measures accurately and completely reflect the job requirements and job demands they are intended to reflect. It is also necessary to gain evidence to show that the two measures are systematically related and that the relation is not the result of some extraneous factor that was unintentionally assessed. To gain the evidence needed to support such a large set of inferences, I/O psychologists typically use three general approaches: (a) content validity, (b) criterion-related validity, and (c) construct validity.

Content Validity Inferences

The term *content validity* typically refers to inferences regarding the degree to which the content on a measurement device adequately represents the universe of possible content denoting the targeted construct or performance domain. There are a variety of methods or strategies that are useful for generating evidence to support content validity inferences; however, to establish the relevance of any evidence, it is first necessary to clearly define the performance domain or construct of interest and to identify the specific objectives for the assessment tool's use (i.e., develop test specifications). These two activities

circumscribe the universe of relevant content and constrain the set of inferences that one hopes to support.

Criterion-Related Validity Inferences

Criterion-related validity refers to the degree to which the observed scores can be used to make useful inferences (i.e., accurate predictions) about future behavior or outcomes. Typically, evidence for criterion-related validity comes from correlations between the predictor measure and the criterion measures. Of course, to support useful inferences of criterion-related validity, one must first identify theoretically meaningful criterion constructs (i.e., what types of future behaviors or outcomes should be associated with or influenced by the construct denoted by the predictor measure), as well as ensure that there are measures of criterion constructs for which there is strong content validity evidence.

Construct Validity Inferences

The attempt to establish evidence for construct validity inferences is tantamount to theory testing. Construct validity encompasses a wide set of inferences regarding the nature of the psychological construct and its place in a larger nexus of constructs. In a sense, all validity inferences are part of construct validity. For example, strong support for content validity inferences can be used to support claims concerning the construct that is being measured by the assessment device. Criterion-related validity evidence is useful, too; a content-valid measure of a given construct should be related to (content-valid measures of) other constructs nearby in the nomological network and should not be related to (content-valid measures of) constructs that are far removed from the nomological network. Often, this type of evidence is referred to as *convergent* and *discriminant validity*, respectively. It is in this sense that construct validity is similar to theory testing. The definition of the construct and its relation to other constructs is in fact a mini-theory that produces specific hypotheses regarding the results of the measurement process. If most or all of those hypotheses are supported, we can be confident in the assessment device's utility for generating observed scores, which, in turn, can be used to make a limited set of accurate inferences.

—Charlie L. Reeve

See also Construct; Criterion Theory; Incremental Validity; Multitrait–Multimethod Matrix; Nomological Networks; Validation Strategies

FURTHER READING

- Binning, J. F., & Barrett, G. V. (1989). Validity of personnel decisions: A conceptual analysis of the inferential and evidential bases. *Journal of Applied Psychology, 74*, 478–494.
- Crocker, L., & Algina, J. (1986). *Introduction to classical and modern test theory*. New York: Holt, Rinehart & Winston.
- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*, 281–302.
- Kane, M. T. (1992). An argument-based approach to validity. *Psychological Bulletin, 112*, 527–535.

VERBAL PROTOCOL ANALYSIS

Verbal protocol analysis (VPA) is a qualitative, process-tracing technique whereby participants think aloud while engaging in a task, arriving at a decision, or making a judgment. Verbal protocols are typically content coded or examined in terms of the cognitive processes used. Although the use of VPA is quite rare in industrial and organizational (I/O) psychology, some have argued that its absence is a detriment to our science. This is especially apparent because its use has substantially increased the understanding of interesting phenomena in a number of other fields, such as cognitive science, education, and human factors psychology.

CONDUCTING VERBAL PROTOCOL ANALYSIS

Like any data-collection or -analysis technique, there is no best way to conduct VPA; however, the following general principles likely apply to most uses.

- *Collect concurrent data.* Research strongly suggests that data collected in real time are superior to those collected after the fact; therefore, whenever possible, have participants vocalize their thoughts as they engage in the task.
- *Record the data.* Early forms of VPA relied on the experimenter's notes because recording equipment was not readily available. However, the ubiquity of analog and digital recording equipment makes recording protocols simple and cost-efficient.
- *Transcribe the data.* Although qualitative data are never easy to manage, computer programs are available to provide assistance, but only when data are fully transcribed.
- *Plan your work.* Have an idea of what you are looking for before you immerse yourself in the data. As with any research technique, this means drawing from relevant theory, making specific predictions about what you expect to find, and specifying defensible ways to determine whether your predictions were met.

USES IN THE ORGANIZATIONAL SCIENCES

Although VPA is certainly considered an unorthodox research method among most organizational scientists, it is not completely unheard of. A handful of studies have used VPA in an organizational context, and in most cases, it has helped to answer questions that are firmly rooted in traditional organizational science domains but require information that traditional methods simply cannot provide.

A good example is the use of VPA to investigate the processes that individuals use when deciding whether to apply for a given job. The researcher could use more traditional techniques, such as self-report, by asking participants what information they *think* they typically pay attention to while reading job ads, or a type of policy-capturing methodology to elicit similar information. However, VPA is likely a better choice because it allows the researcher to directly assess the real-time reports of participants' strategies, a benefit that few methodologies offer. Other examples of the use of VPA in the organizational sciences include examining the thought processes that job seekers use to evaluate potential employers' reputations and assessing the construct validity of the organizational culture profile through VPA alone, which brings up an interesting point regarding the potential use of VPA as a psychometric aid.

USES IN THE ORGANIZATIONAL SCIENCES

Traditional psychometric assessment devices are necessary for the further development of quality measurement systems, but they may not be entirely sufficient. This is especially true when assumptions are made regarding the cognitive processes that individuals use when responding to a given instrument. The importance of this sentiment—often referred to as *cognitive process validity*—was recently recognized

by the Society of Industrial and Organizational Psychology, which argued that such assumptions should be empirically tested before instruments are used in applied contexts. Verbal protocol analysis provides one possible means of doing this.

Traditional psychometric tools provide little information as to *why* specific items are behaving poorly. Thus, psychometricians are often left with a difficult choice: (a) blindly rewrite the items in question, retest the entire scale, and rerun the analyses; or (b) throw out the problematic items. Not surprisingly, many psychometricians often choose the second option. However, a small amount of verbal protocol data gathered from participants while they are completing an instrument may allow researchers to pinpoint the precise cause of the unexpected item performance. For example, VPA may indicate that some of the items are confusing, some terms are unknown to the target sample, some questions lack important situational context, or the scale is too long and participants become bored and careless toward the end. These are all insights that are typically not available with traditional psychometric assessment tools—but, of course, there are some caveats.

CAUTIONS AND LIMITATIONS

The primary critiques of VPA can be boiled down to two arguments: (a) Verbalizations show only a moderate relationship to actual behavior, and (b) verbalizing one's thoughts fundamentally alters the cognitive processes that are typically used while engaging in a task. These claims are certainly not without merit; a number of studies show at least partial support for them. However, counteranalyses also show that these limitations are not attributable to VPA as a data-collection tool per se; rather, they may be the result of sloppy data-collection procedures. That is, the use of VPA does not guarantee good or bad data; instead, the quality of the data is determined mainly by the quality of the procedures used to gather them. If caution, common sense, and rigorous data-collection methods are used, there is no specific reason why quality verbal protocol data cannot be used to examine a host of interesting phenomena.

Although VPA certainly has the potential to be a useful tool in the organizational sciences, it is by no means a silver bullet. Like any form of data, it is most effective when it is used in conjunction with data from a variety of sources. Researchers who are interested in

using VPA should be forewarned that the resulting data are not necessarily easy to manage. Not only is it almost always necessary to transcribe the data before engaging in qualitative analyses; it is also often necessary to enter quantitatively coded data into a traditional statistics package such as SAS or SPSS so that basic analyses can be conducted. Finally, data collection tends to be quite slow because the data are generally collected one person at a time; therefore, it often takes days or even weeks to get a sample size as large as those that can be easily obtained by most quantitative techniques in one session.

SUMMARY

Verbal protocol analysis is an underused but potentially valuable qualitative data-collection tool whereby participants think aloud while engaging in a task or behavior. It has been shown to provide unique and valuable insight into the cognitive processes that individuals used in a variety of settings. Though it is certainly not without its critics, this technique has stood up to the majority of critiques, and it is now considered a relatively orthodox tool in a variety of fields. Though it will certainly never replace any traditional organizational research tool, it does have the potential to bolster claims about the cognitive processes that individuals use while engaging in relevant behaviors. Similarly, it may also be a useful psychometric assessment tool; however, further research is required in this area before any firm conclusions can be reached about its actual incremental value over and above traditional techniques.

—Rustin D. Meyer

See also Content Coding; Qualitative Research Approach

FURTHER READING

- Barber, A. E., & Roehling, M. V. (1993). Job postings and the decision to interview: A verbal protocol analysis. *Journal of Applied Psychology, 78*, 845–856.
- Ericsson, K. A., & Simon, H. A. (1993). *Protocol analysis: Verbal reports as data* (2nd ed.). Cambridge, MA: MIT Press.
- Green, A. (1995). Verbal protocol analysis. *The Psychologist, 8*, 126–129.
- Messick, S. (1995). Validity of psychological assessment: Validation of inferences from persons' responses and performances as scientific inquiry into score meaning. *American Psychologist, 50*, 741–749.

Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, 84, 231–259.

VIOLENCE AT WORK

Every year, approximately 600 individuals in the United States are murdered at work, and 1.7 million individuals are the victims of nonfatal violence. Members of the public commit the vast majority of workplace homicides and assaults. Workplace violence perpetrated by the public can be categorized into two main types based on the perpetrator's relationship to the victim. In Type I violence, the assailant does not have a legitimate relationship with the victim and enters the work environment to commit a criminal act (e.g., robbery). Employees working in the retail, security, transportation, and service industries are at high risk for this type of violence because they have frequent contact with the public, handle cash, work alone or in small numbers, work late at night, and guard valuables (e.g., jewelry).

Type II violence is enacted within the context of a legitimate work relationship. The perpetrator of Type II violence commits an act of violence while he or she is being served by the victim (e.g., a patient assaults a nurse). Industries reporting high rates of Type II violence include social services, health care, and education. Providing service, care, advice, or education can put employees at increased risk for Type II violence, especially if clients, inmates, or patients are experiencing frustration or stress. Other potentially risky job-related tasks include interacting with unstable, volatile, or cognitively impaired populations. Having the authority to deny the public a service or request may also place employees at increased risk for Type II violence.

PREVENTING TYPE I VIOLENCE

Strategies aimed at preventing Type I violence focus on increasing the risks, reducing the rewards, and increasing the effort associated with robbery. A criminal is unlikely to rob a particular target if engaging in the act offers few rewards, requires significant effort, and has a high risk of getting caught. Three principles underlie most robbery-reduction strategies: increasing visibility, reducing rewards, and hardening targets.

Increasing visibility deters would-be robbers by increasing their perception of risk. The presence of surveillance cameras, one method of increasing visibility, has successfully decreased incidents of violence in the transportation industry. For example, in both Perth (Australia) and Toronto (Canada), surveillance cameras in taxicabs have significantly reduced the number of assaults against drivers. Besides using surveillance cameras, at-risk industries (e.g., retail) can increase visibility by keeping windows clear of signs (e.g., advertisements), allowing passersby to see inside. Good internal and external lighting may also increase visibility.

Reward-reduction strategies may make committing a robbery less appealing. Because money is the most frequent motive for robberies, at-risk industries could establish cash-handling practices, such as keeping minimal amounts of cash in registers. Obviously, organizations must post signs informing the public of their cash-handling practices in order for them to be effective at deterring crime. The transportation industry could reduce the risk of robbery by requiring passengers to pay their fares with credit cards or vouchers.

Target-hardening strategies make committing a robbery more difficult. They may also reduce the likelihood that employees will be injured during the commission of a robbery. For example, research suggests that protective screens reduce the number of assaults experienced by taxi drivers. Bullet-resistant barriers also reduce the risk for robbery in retail establishments. Making it difficult for would-be robbers to flee the scene of the crime by using speed bumps in parking lots, for example, may also deter robbery. Revolving doors at store exits may also influence would-be robbers' choice of target.

Although no research has been conducted on the efficacy of employee training on workplace violence, training employees in high-risk industries to anticipate and respond to robberies may decrease the possibility that they will be injured during a robbery. Because there is evidence that employees who cooperate with robbers are less likely to be injured than employees who resist, employee training should stress cooperation with robbers. Employees should also be taught not to make any sudden moves during a robbery and to inform perpetrators of what they are doing at all times. If there are silent alarms at their place of employment, workers should be told to activate them only when it is safe to do so. Taxi drivers should be

made aware that they may be able to avoid random attacks by keeping their car doors locked when the car is idle.

PREVENTING TYPE II VIOLENCE

There are three main approaches to preventing or dealing with Type II violence: environmental, organizational and administrative, and behavioral and interpersonal. Environmental strategies focus on physical risk factors related to building layout or design. Organizational and administrative approaches involve developing policies and practices that specifically address workplace violence. Behavioral and interpersonal approaches involve training employees to anticipate and respond to workplace violence.

Some of the environmental strategies for reducing the risk of Type II violence are identical to those for reducing the risk of Type I violence. For example, surveillance cameras can be used in organizations such as hospitals, schools, and social service establishments. Other environmental strategies include installing metal detectors at front entrances, as well as surrounding reception areas with bullet-resistant glass. Card-controlled entrances and security checks for identification could also be used to limit public access to restricted areas. Waiting areas should be designed with safety in mind: They should be sparsely accessorized to limit the number of makeshift weapons that can be used against employees. Furniture should be lightweight and have few sharp edges. When employees must meet one-on-one with members of the public (e.g., in a patient care setting), meeting rooms should be equipped with phones, panic buttons, and two exits.

At-risk industries should have policies and practices in place to prevent aggression. A written policy should outline what constitutes unacceptable behavior in the workplace, and employees and the public (e.g., clients) should be informed of the policy. Organizations should also have detailed plans for dealing with violent attacks if and when they occur. Organizations should develop procedures to ensure that information about aggressive individuals (e.g., patients, inmates) is shared among employees so that they can take the necessary precautions to avoid being victimized. Employees should be prohibited from working alone, especially during late-night and early-morning shifts, when there are fewer potential witnesses who could assist during a violent situation.

Training specific to workplace violence can provide employees with the necessary knowledge, skills, and confidence to deal with potentially dangerous situations. Employee training targets the client population served, and employees are taught how to resolve conflicts, recognize escalating anger, and manage and respond to aggressive behavior. Follow-up training is also necessary if employees are to maintain their skills and confidence.

Members of the public perpetrate the majority of workplace homicides and assaults. Risk factors for violence differ among industries and workplaces, making no single prevention strategy appropriate for all organizations. Prevention strategies must be tailored to individual workplaces, and they should be regularly evaluated to determine whether they remain appropriate and effective.

—Manon Mireille LeBlanc

See also Abusive Supervision; Counterproductive Work Behaviors; Workplace Safety

FURTHER READING

- Casteel, C., & Peek-Asa, C. (2000). Effectiveness of crime prevention through environmental design (CPTED) in reducing robberies. *American Journal of Preventive Medicine, 18*, 99–115.
- Castillo, D. N., & Jenkins, E. L. (1994). Industries and occupations at high risk for work-related homicide. *Journal of Occupational Medicine, 36*, 125–132.
- LeBlanc, M. M., Dupré, K. E., & Barling, J. (2006). Public-initiated aggression. In E. K. Kelloway, J. Barling, & J. J. Hurrell (Eds.), *Handbook of workplace violence*. Thousand Oaks, CA: Sage.
- LeBlanc, M. M., & Kelloway, E. K. (2002). Predictors and outcomes of workplace violence and aggression. *Journal of Applied Psychology, 87*, 444–453.
- Runyan, C. W., Zakocs, R. C., & Zwerling, C. (2000). Administrative and behavioral interventions for workplace violence prevention. *American Journal of Preventive Medicine, 18*, 116–127.

VIRTUAL ORGANIZATIONS

Virtual organizations are composed of employees spread across different locations who perform different jobs and may also have different cultural identities. These dispersed and diverse employees are joined

together by communication technologies such as the telephone, fax, e-mail, Internet, and instant messaging. Some employees of virtual organizations may work alone, functioning essentially as telecommuters. Others, however, may work clustered together in traditional offices. In either case, the virtual organization is spread out over multiple geographic locations.

There are two important characteristics of virtual organizations: (a) They depend on teams, and (b) they have a very fluid structure. Virtual organizations use teams to conduct most of their work. This means that employees must depend on each other to complete their work. Additionally, teams form and disperse frequently and easily. Thus, the organizational structure changes often as teams reorganize to meet the organization's needs.

Although the concept of a virtual organization in which employees never interact face-to-face is intriguing, such purely virtual organizations are very rare. Instead, many organizations have *degrees* of virtuality, that is, some aspects of the organization are traditional but others are considered virtual. Virtuality can vary along four dimensions:

1. Space: The physical location of the employees—are they colocated or dispersed in different places?
2. Time: The time zone in which the employees work—are they working the same business hours or are they dispersed across time zones?
3. Culture: The employees' culture—are employees from the same culture or country or from different ones?
4. Boundary: The organizational dispersion of work—do the organizational processes stay with the organization or are they outsourced?

Organizations vary in their virtuality. At one end of the continuum are organizations such as Amazon.com: Although Amazon.com is a very successful retail organization, there are no Amazon.com stores in which customers can buy books. Instead, customers buy books, music, and many other items through the Internet. Amazon.com's employees rarely interact with the customers. They do, however, interact with each other face-to-face and through technology at several offices around the United States and the world.

At the other end of the continuum are traditional organizations with a worldwide presence. For example, IBM has offices across the world. It also has a significant number of telecommuters and employees

located in customers' offices. Employees work together as teams, which may interact completely face-to-face, completely through technology, or through some combination of the two. The teams may be located in the same time zone or spread around the world. Thus, IBM and other large multinational organizations may have components that are very much like traditional organizations and other components that are very much like virtual organizations.

ELECTRONIC COMMUNICATION

One of the most important features of all virtual organizations is that they depend on communication through technology. Although research on virtual organizations is in the developmental stage, we do have a great deal of knowledge about communication through technology and its effects on organizations and their employees.

An Efficient but Cold Medium

Technological communication, particularly electronic communication such as e-mail, differs significantly from face-to-face communication. First, it is considered a colder medium that filters out nonverbal cues such as facial expressions, tone of voice, and physical movements such as nodding one's head in agreement. As a result, electronic communications can be misinterpreted, and a message sent through electronic communication may be perceived as less friendly than the same message delivered in face-to-face communication.

However, electronic communication can also reduce communication bias and improve understanding in certain instances. For example, saved e-mail messages contain an exact history of the communication. Research and experience also suggest that electronic communication can be very efficient and precise with factual information. Additionally, once communication partners have established a relationship and a history of communication, it can also be used for more complicated and social communication with less fear of misinterpretation.

One issue, though, is that it takes longer for communication partners to establish a relationship with each other through electronic communication than through face-to-face communication. Because fewer communication cues travel in the electronic messages, communication partners must exchange more messages over a longer period of time to gather enough

information about each other to establish a reliable impression.

Problems With Working Virtually

Some tasks are more easily performed face-to-face than through electronic communication. For example, decision making that requires consensus building is much more efficiently accomplished through face-to-face communication. Electronic communication, on the other hand, is very good for dispersing information and can take the place of some information-sharing meetings.

Traditional organizations have the ability to decide whether they can conduct a task face-to-face or through technology, whereas virtual organizations may have no choice but to rely on communication through technology. This can make the timely and successful completion of these tasks more challenging.

Flatter Structure With More Communication Partners

Communication through technology tends to flatten organizational structure, making it more horizontal than vertical. One reason is that it is so easy for people at all levels of the organization to communicate with each other. Although this is often considered good for power distribution in the organization, it can drastically increase the number of pieces of communication to which employees have to respond. For example, when everyone can e-mail everyone else, the volume of e-mail may become overwhelming.

Norms of Technology Use

To be effective, groups must develop norms for using electronic communication. Sometimes, these norms are as basic as simple “netiquette,” which includes such rules as not typing in all capitals (to avoid the appearance of shouting) and refraining from “flaming” (using e-mail to send inappropriately severe and harsh comments that would not be shared face-to-face). The norms may also include more organizationally specific norms, such as whether and when to include one’s manager in the correspondence, how to effectively use the subject line to identify the topic of the communication, whether to acknowledge receipt of a job request through e-mail, and how formal grammar should be (e.g., using salutations and closings) in communications. As these norms develop

within specific groups and organizations, they form a communication culture in which communication becomes quicker and deviations from the norms take on meanings of their own.

CHALLENGES TO VIRTUAL ORGANIZATION

As organizations develop their virtuality, managers and researchers are identifying important challenges to their effectiveness and success.

Building Trust

One of the most important concerns in virtual organizations is the development and maintenance of trust between employees. Trust is an essential ingredient for teams to be effective. Team members must trust each other to perform work that is completed on time and of high quality. The same issue applies to managers of virtual employees. Trust is most effectively developed when employees have a history of working with each other, work that traditionally has taken place face-to-face. However, virtual organizations tend to form and disperse teams frequently, and team members may not have worked with each other before.

Therefore, virtual organizations may rely on *swift trust*. Swift trust is the willingness to suspend doubt about whether the “strangers” on the team can be counted on to do the job and to believe that the end result will benefit everyone. Swift trust develops and is maintained by high responsiveness and activity, often through electronic communication. Examples include returning voice mail and e-mail messages, performing tasks on time, and responding to the content and tone of communications.

Additionally, virtual organizations can increase trust by establishing positive and strong norms of communication through technology, strong business ethics, and a culture of trustworthiness.

Maintaining Cohesion, Identity, and Commitment to the Virtual Organization

Another critical concern for virtual organizations is ensuring that virtual employees develop attachment and commitment to the organization. Employees in virtual organizations may feel more isolated and decrease their social relationships with their coworkers, managers, and team members. These isolated employees may lose their cohesion, identity, attachment with, and commitment to

the virtual organization. This is a concern for organizations because a great deal of research shows the importance of employees' organizational commitment and organizational identification to the effectiveness of the organization. Early research indicates that having at least some regular face-to-face interaction between employees is important and helps employees feel that their coworkers and managers support them and their work.

Managing Human Resources

Finally, virtual organizations present a particular set of challenges for human resources. Some employees may not be suited to virtual employment and thus have poor person-virtual organization fit. One current model proposes that in order to be successful, virtual employees must highly value autonomy, flexibility, and diversity. They must be trustworthy and willing to trust others. Additionally, they must be able to govern themselves in both time management and the ability to work on their own.

Productivity may vary among virtual employees. Some research suggests that virtual employees' evaluations of their own self-efficacy are very important to their ability to work well. These evaluations are particularly important in regard to their previous virtual work experience and training, the best practices they have seen modeled by their managers, and their own technology fears and capabilities.

Purely virtual organizations are quite rare. Nonetheless, as communication technologies develop, more organizations will increase their virtuality. Benefits and challenges will continue to evolve as organizations take advantage of the capabilities of their technological communication.

—Anita Blanchard

See also Organizational Commitment; Organizational Communication, Informal; Telecommuting; Virtual Teams

FURTHER READING

- DeSanctis, G., & Monge, P. (1999). Introduction to the special issue: Communication processes for virtual organizations. *Organization Science*, 10(6), 693–703.
- Jarvenpaa, S. L., & Leidner, D. E. (1999). Communication and trust in global virtual teams. *Organization Science*, 10(6), 791–815.
- Kasper-Fuehrer, E. K., & Ashkanasy, N. M. (2001). Communicating trustworthiness and building trust in interorganizational virtual organizations. *Journal of Management*, 27, 235–254.

- Shin, Y. (2004). A person-environment fit model for virtual organizations. *Journal of Management*, 30(5), 725–743.
- Wiesenfeld, B. M., Raghuram, S., & Garud, R. (2001). Organizational identification among virtual workers: The role of need for affiliation and perceived work-based social support. *Journal of Management*, 27, 213–229.

VIRTUAL TEAMS

A virtual team is a group of individuals who work interdependently, are located at a distance from each other, and conduct most of their collaboration through communications technology (rather than face-to-face). A “pure” virtual team is one in which each member is geographically distant from each other member, but more often, at least some of the members are likely to be colocated.

As organizations become more global and outsource more of their work, and as trends such as hot desking and telecommuting become popular in some professions, more and more business is being conducted across geographic distance. In many organizations today, it is not possible to locate everyone at the same site. This fact, in combination with the recent proliferation and improvement of communications technology, means that the use of virtual teams is likely to become more common.

Despite the dispersion of team members in virtual teams, organizations want to benefit from bringing together employees with diverse expertise without spending too much on travel. Although some travel is still likely to be necessary, the aim is to allow these geographically dispersed individuals to work together while they are apart. This work typically takes place through communications technologies such as e-mail, the telephone (including audioconferences), voice mail, instant messaging, video conferencing, shared desktops, intranet sites, and other interactive computer-based tools. Although traditional colocated teams may make use of some of these technologies, virtual teams rely on them more heavily because they cannot easily arrange face-to-face contact.

LITERATURE ON VIRTUAL TEAMS

Empirical research on virtual teams is in its infancy, but more information is emerging all the time. Until recently, much of the literature was either theoretical and speculative or based on experimental findings

with ad hoc or student project teams rather than teams within organizations. Nevertheless, the literature reveals a range of interesting issues.

Technology Mediation

One area of interest is the use and impact of communications technologies. The level of use of different types of technology depends on the resources available, the type of task, the level of interdependence required for the task, and the collaborators' preferences. The literature suggests that more complex tasks requiring a high level of interdependence, tasks in which misunderstandings are possible, and tasks in which emotions are involved benefit most from communications media that allow the transmission of more communication and social cues (i.e., rich media). The richest media enable the transmission of visual and verbal cues that aid understanding (e.g., nods, verbalizations such as "uh-huh") and provide immediate feedback (i.e., the nod occurs immediately after the communicator's comment, indicating the point has been understood). The richest media, therefore, are face-to-face communications; video conferencing offers a possible alternative, although problems with sound and visual synchronization can make this technology less rich.

Text-based media such as e-mail are generally considered among the least rich technologies because many social and communication cues are missing and feedback (in the form of a reply) is typically delayed. These less rich media are more suitable when tasks are routine and less interdependent and when there is less danger of emotions or misunderstandings escalating. Research also suggests, however, that when such communications technologies are used for a longer period of time, people are able to transmit more complex information through them. For example, the rocket engine design team that Anne Majchrzak and colleagues (2000) studied was able to adapt to less rich media and use them for some complex and ambiguous tasks (such as generating and critiquing new ideas, learning about unfamiliar concepts, and understanding the design concerns of other team members) because there was a high level of shared understanding among team members that had been developed through previous face-to-face meetings.

Shared Understanding and Knowledge Exchange

Another key area of concern in the literature is the concept of *shared understanding*, which appears to be

central to the success of virtual teams. The team needs to have a shared view of its task, goals, roles (i.e., who should be doing what), and processes. This is crucial in virtual teams because the coordination of work is more difficult when members rarely meet. However, the dispersion of team members means that it is more difficult to establish shared understanding in virtual teams because of poor communication, little exchange of social cues, and lack of direct contact or experience of each others' contexts. Furthermore, dispersed members are likely to be more diverse: They may live and work in separate contexts, where different local constraints, goals, and expectations influence their behavior and understanding. They may also face national, professional, or functional language barriers. Therefore, it is important that members be aware of each other's different backgrounds and perspectives to avoid misunderstandings. Without a shared understanding, team members may think they have understood each other, but in fact, their understanding is based on completely different frames of reference and is actually at cross-purposes. This can lead to misunderstandings and sometimes conflict within virtual teams, jeopardizing working relationships and performance. Unfortunately, the literature suggests that such contextual information is rarely exchanged or remembered by virtual team members.

There is also some interest in dispersed expertise and knowledge within virtual teams, which can have both negative and positive implications. When a team is dispersed and does not share the same physical context, it can be harder to know who has particular knowledge or expertise. This is exacerbated by the fact that teams have a tendency to focus on commonly held information, overlook unique data, and assume that everyone knows the same information. On the positive side, the higher diversity that is typically found in virtual teams can lead to higher levels of novel and nonredundant knowledge because people from different locations and backgrounds are likely to have access to different types and sources of knowledge. This wider knowledge pool can bring huge benefits to virtual teams, but only if they are able to overcome the inherent difficulties of bringing it all together.

Relationships

Relationship issues such as conflict, cohesion, and trust have also received attention in the literature. It is often assumed that virtual teams will experience more

conflict than colocated teams because of the increased likelihood of misunderstandings. However, evidence for this assumption is mixed. Nevertheless, research suggests that a remote colleague is more likely to be blamed if things go wrong than a colocated colleague. This is the result of an attribution error, whereby the distant person's context is much less salient than the colocated person's context. A team member is much more likely to be aware of the situational constraints of a colocated person and take these into account, whereas without knowledge of the remote colleague's context, the person is likely to be the focus of attention, and so the colleague will be blamed without consideration of his or her situation.

Research has found that virtual teams are less cohesive than traditional colocated teams because they lack face-to-face interaction. However, other research suggests that in some circumstances, virtual teams are actually more cohesive than colocated teams. Studies using experimental, ad hoc virtual teams whose members are visually anonymous to each other and know very little about each other have shown that extremely high attraction and team identity can develop very quickly. When cues about individuals are not available, a group identity will be inferred from whatever cues remain (e.g., they are all students). This effect is thought to enhance the attraction to other group members.

Similarly, it is often assumed that trust will be lower in virtual teams than in colocated teams because of their lack of close contact, but the research on this is inconclusive. Some research suggests that although trust may be lower in the early stages of virtual team formation, over time, it becomes equivalent after repeated interactions demonstrating trustworthiness. Still others have suggested that trust may be immediate based on stereotypical representations of the virtual collaborators (e.g., that people in certain professions are automatically trustworthy). However, this type of trust is assumed rather than evidence based, and so it may not be justified over time.

RECOMMENDATIONS

Many researchers and practitioners have made recommendations on how to get the most out of virtual teams. These suggestions include the following:

- Have an initial face-to-face meeting to develop a shared understanding of the team's goals, roles, and processes and its different contexts, expertise, and other aspects of diversity.
- Explicitly exchange contextual information (e.g., about culture, ways of working, expectations, national holidays) and explicitly identify the range of expertise within the team. Ensure that everyone on the team is made aware of this information.
- Use technology appropriately for the task at hand and have face-to-face meetings at important project junctures when richer media are required (e.g., when tasks are complex, interdependent, and involve emotions, and when shared understanding is low).
- Emphasize a common group identity (to foster cohesion), but also be aware of differences (to aid shared understanding and knowledge exchange).

—Carolyn Axtell and Steven Fleck

See also Telecommuting; Virtual Organizations

FURTHER READING

- Axtell, C. M., Fleck, S. J., and Turner, N. (2004). Virtual teams: Collaborating across distance. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (Vol. 19, pp. 205–248). Chichester, UK: Wiley.
- Duarte, D. L., & Snyder, N. T. (2001). *Mastering virtual teams* (2nd ed.). San Francisco: Jossey-Bass.
- Gibson, C. B., & Cohen, S. G. (Eds.). (2003). *Virtual teams that work: Creating conditions for virtual team effectiveness*. San Francisco: Jossey-Bass.
- Hinds, P. J., & Kiesler, S. (Eds.). (2002). *Distributed work*. Cambridge, MA: MIT Press.
- Lipnack, J., & Stamps, J. (2000). *Virtual teams: People working across boundaries with technology* (2nd ed.). New York: Wiley.
- Majchrzak, A., Rice, R. E., King, N., Malhotra, A., & Ba, S. L. (2000). Computer-mediated inter-organizational knowledge sharing: Insights from a virtual team innovating using a collaborative tool. *Information Resources and Management Journal*, 13, 44–53.

W

WEB-BASED ASSESSMENT

See COMPUTER ASSESSMENT

WHISTLE-BLOWERS

Whistle-blowing occurs when a member of an organization reports practices, under control of the organization, that are perceived to be illegal, immoral, or in some way illegitimate. Whistle-blower reports of organizational wrongdoing are increasingly making news headlines (e.g., fraud, corruption, and other unethical acts in organizations like Enron, WorldCom, Arthur Andersen, and Tyco). Such reports are more frequently made by members of the accused organization such as employees, board members, or internal auditors, rather than by external auditing agencies. These individuals, referred to as whistle-blowers, risk retaliation both by their organization (via job loss, demotion, or harassment) and sometimes even by the public (character assassinations, accusations of being spies or *squealers*) in their efforts to expose perceived transgressions.

Although whistle-blowers typically have access to both internal (supervisor, internal affairs investigator, human resources director) and external (external auditing agency, news media, lawyer) channels by which to report an organizational transgression, nearly all of them initially attempt to report wrongdoing through internal channels. Although this means of whistle-blowing is less threatening to the organization (external reports often result in great public scrutiny

or legal intervention), whistle-blower reports are frequently buried or ignored. When appropriately handled, whistle-blowing can be beneficial to the organization, especially when it results in the cessation of practices that would otherwise harm employees and consumers or negatively affect the reputation of the organization.

PREDICTORS AND CORRELATES OF WHISTLE-BLOWING

Three categories of variables are relevant to the whistle-blowing process and may serve as predictors of whistle-blowing actions: whistle-blower characteristics, whistle-blowing context, and aspects of the wrongdoing and wrongdoer.

Whistle-blower Characteristics Associated With Whistle-blowing

A variety of personal characteristics related to the decision to engage in whistle-blowing have been examined and include whistle-blower demographics (age, sex, level of education, level of job held, etc.), personality variables (i.e., locus of control), morality (i.e., ethical judgment), and other characteristics, such as job performance, organizational commitment, role responsibility to blow the whistle, and approval of whistle-blowing. Although results seem to differ slightly across studies, the results of a recent meta-analytic review of the extant literature suggest whistle-blowers (as compared with inactive observers) appear to be male, have good job performance, be more highly educated, hold higher-level or supervisory positions, score higher on tests of moral reasoning,

and value whistle-blowing in the face of unethical behavior. Whistle-blowers are also more likely to report a role-related responsibility or obligation to blow the whistle. Age and organizational tenure as predictors of whistle-blowing have yielded mixed results.

Contextual Factors Associated With Whistle-blowing

Compared with the personal characteristics of whistle-blowers, contextual variables appear to better predict whistle-blowing decisions. Relevant variables may include supervisor and coworker support, organizational climate, threat of retaliation, and organization size. Potential whistle-blowers who perceive a threat of retaliation by the organization, immediate supervisors, or coworkers are much less likely to blow the whistle than those who do not perceive a retaliatory climate; perceptions of supervisor or top management support are instrumental in the decision to blow the whistle. Whistle-blowing also occurs more frequently in organizations where whistle-blowing is valued and where the whistle-blower and organization are value congruent.

Characteristics of Wrongdoing or Wrongdoer Associated With Whistle-blowing

Evidence suggests that characteristics of the wrongdoing, such as perceived severity of the wrongdoing, evidence of wrongdoing, or characteristics of the wrongdoer, such as the likability of the wrongdoer, may have significant implications in whistle-blowing decisions. Potential whistle-blowers also seek to gather solid evidence of the transgression before taking any action. Whistle-blowing occurs more frequently when the whistle-blower has been personally affected by the wrongdoing. External claims are especially likely when the organization depends on the continuation of the wrongdoing.

PREDICTORS AND CORRELATES OF RETALIATION AGAINST WHISTLE-BLOWERS

Retaliation against a whistle-blower may take many forms, ranging from attempted coercion of the whistle-blower to withdraw accusations to outright exclusion from the organization. Other retaliatory acts may

include organizational attempts to undermine the complaint process, isolation of the whistle-blower, character defamation, imposition of hardship or disgrace on the whistle-blower, exclusion from meetings, elimination of perquisites, and other forms of discrimination or harassment. Retaliation may be motivated by the organization's desire to silence the whistle-blower completely, prevent a full public knowledge of the complaint, discredit the whistle-blower, or discourage other potential whistle-blowers from taking action.

Organizational response to whistle-blower action (retaliation, reward, no action) depends in part on whether management agrees with the merit of the claim and the whistle-blower's right to take action. Organizations that value the perceived ethicality of their practices and those that value report of unsanctioned practices are more likely to reward than retaliate against a whistle-blower. Under circumstances wherein an organization is dependent on the continuation of the wrongdoing or when it is not dependent on the whistle-blower, the organization is likely to both retaliate and continue the wrongdoing.

Importantly, retaliation is not always initiated by organizational top management. Sometimes acts of retaliation are initiated by a supervisor or coworker with or without the approval of top management. Supervisors may be motivated to retaliate against whistle-blowers for many reasons, but they frequently do so out of fear that a whistle-blowing claim signals their inability to maintain order and compliance within their departments or the fear that valid complaints will result in the restriction or cessation of their own operations or influence. Potential predictors of retaliation against whistle-blowers may relate to characteristics of the whistle-blower, actions taken by the whistle-blower, contextual variables associated with the climate in which the transgression occurred, and characteristics of the wrongdoing.

Characteristics of the Whistle-blower Associated With Retaliation

Whistle-blower characteristics potentially predictive of retaliation include age, education level, job level, role responsibility to report transgressions, and value congruence with the organization. Demographic characteristics of whistle-blowers are thought to be less predictive of retaliation than are contextual variables. Research suggests, however, that individuals

who blow the whistle because it is their job to do so, because of an audit or role responsibility, are less likely to be retaliated against and are more likely to be successful in stopping the transgression. Similarly, older whistle-blowers are more likely to be retaliated against than are younger whistle-blowers. Research suggests whistle-blowers who are valuable to their organization (because of age, experience, education, job level) are more likely to be retaliated against than are their *less valuable* counterparts. Finally, whistle-blowers whose values regarding right and wrong are incongruent with those of the organization are more likely to be retaliated against, presumably because top management does not deem the act to be as severe as is perceived by the whistle-blower.

Actions Taken by the Whistle-blower Associated With Retaliation

Specific actions taken by a whistle-blower during the process of making a claim may also influence whether and to what extent retaliation occurs. Such actions may include whether the whistle-blower used an internal or external channel to report wrongdoing, whether the whistle-blower attempted to remain anonymous, how successful the whistle-blower was in ultimately curbing the wrongdoing, and whether others in the organization ignored the wrongdoing. Research suggests that when a whistle-blower reports wrongdoing through external channels, he or she is more likely to receive retaliation; and such retaliation is likely to be more severe than when internal channels are used. Similarly, whistle-blowers who unsuccessfully attempted to remain anonymous during the whistle-blowing process are more likely to experience retaliation. Inconsistent results have been reported regarding the effectiveness of the whistle-blower in curbing wrongdoing and experience of retaliation; however, the preponderance of research suggests that the majority of whistle-blowers are unsuccessful in exacting desired changes.

Contextual Variables Associated With Retaliation

Contextual variables examined in relation to retaliation include top management, supervisor, and coworker support, as well as organizational climate for whistle-blowing. Lack of support by supervisors and top management is predictive of retaliation

against whistle-blowers. Similarly, in organizations where whistle-blowing is not sanctioned, coworkers are typically less willing to give the whistle-blower support or protection from retaliation, thus contributing to its occurrence.

Characteristics of the Wrongdoing Associated With Retaliation

Aspects of the wrongdoing potentially associated with retaliation include the frequency of the wrongdoing, its severity, and the whistle-blower's evidence of wrongdoing. When wrongdoing is widespread within the organization or when the organization is dependent on its continuation, top management is more likely to lash out at the whistle-blower. When a whistle-blower's report cites multiple incidents of wrongdoing, multiple individuals involved in the wrongdoing, or multiple sources of evidence, potential for retaliation is reduced.

SUMMARY

Whistle-blowing on organizational wrongdoing has become increasingly publicized, and its potential to positively affect the organization and its constituents has been highlighted. Whistle-blowing assists organizations and federal agencies in halting practices that would otherwise harm employees and consumers. Unfortunately, many whistle-blowers fear and even suffer retaliation after reporting organizational transgressions. Organizations may do well to actively encourage whistle-blowing claims on unsanctioned and illegitimate practices through the following actions:

- Reaffirming the organization's commitment to ethical practices
- Promising protection from retaliation
- Enumerating the protocol for issuing whistle-blowing claims
- Communicating the process by which claims are investigated
- Reviewing the types of activities or practices considered by the organization to be unethical or unsanctioned
- Issuing an overt request that unsanctioned practices be reported

To be effective, however, the organization must ensure that these espoused ethical values are consistent with the values enacted on a daily basis and that

internal reporting channels are both *free from leaks* and staffed by trustworthy individuals.

—*Jessica R. Mesmer-Magnus and
Chockalingam Viswesvaran*

See also Corporate Ethics; Corporate Social Responsibility; Counterproductive Work Behaviors; Integrity at Work; Organizational Justice

FURTHER READING

- Dozier, J. B., & Miceli, M. P. (1985). Potential predictors of whistle-blowing: A prosocial behavior perspective. *Academy of Management Review*, *10*(4), 823–836.
- Dworkin, T. M., & Baucus, M. S. (1998). Internal vs. external whistle-blowers: A comparison of whistle-blowing processes. *Journal of Business Ethics*, *17*, 1281–1298.
- Mesmer-Magnus, J. R., & Viswesvaran, C. (in press). Whistle-blowing in organizations: An examination of the correlates of whistle-blower intentions, actions, and retaliation. *Journal of Business Ethics*.
- Miceli, M. P., & Near, J. P. (1988). Individual and situational correlates of whistle-blowing. *Personnel Psychology*, *41*, 267–281.
- Near, J. P., & Miceli, M. P. (1996). Whistle-blowing: Myth and reality. *Journal of Management*, *22*(3), 507–526.
- Sims, R. L., & Keenan, J. P. (1998). Predictors of external whistle-blowing: Organizational and intrapersonal variables. *Journal of Business Ethics*, *17*, 411–421.

WITHDRAWAL BEHAVIORS, ABSENTEEISM

Absenteeism (alternatively, absence) is an individual's lack of physical presence at a given location and time when there is a social expectation for that person to be there. An absence is a behavioral outcome or state rather than a behavior itself, because many different actions can make up an absence, such as lying on the beach if at the same time a person is expected to conduct a face-to-face meeting with employees. Moreover, attendance and absence should not be thought of as straightforward opposites. An individual can be absent from many settings simultaneously if groups or individuals from each of those settings have contradicting expectations. In the same way, a person can be in attendance at one location (such as work) while being absent from another (such as home), as long as different social referents generate role conflict about

attendance. However, an individual can attend only one setting because attendance is merely physical presence there.

For decades researchers have often ascribed many causes to absence, leading to distinctions between involuntary and voluntary absences. Such attributions are problematic, especially when they are applied to absence measures. Those attributions can be made only on the basis of empirical relationships between absences and other variables and on solid estimates of the proportions of observed variance because of latent voluntary or involuntary factors.

Absenteeism is a narrowly defined construct. Some researchers have suggested that absence be entrenched in a broader psychological construct such as avoidance of work, withdrawal from the work role, or adaptation to the work environment. Studying absence as an isolated phenomenon is likely to undermine the practitioners' focus on prediction, because of an absence's high proportions of specific, dynamic, and random variance. By combining many related behaviors (e.g., lateness, grievance filing, sabotage) into a broader construct or behavioral family, the combination might be characterized by more common variance and could be more readily predictable.

Widening the scope of the construct in which to embed absence might improve its predictability. Nevertheless, abandoning the study of absence in favor of the study of work role withdrawal and adaptation is premature. One reason is that those constructs, especially the latter, might be overly broad. Job adaptation could comprise almost any work-related behavior. Another reason is that the terms themselves imply causes for the constructs, and that the purported determinants of the constructs are often part of their stated definitions. That is, the behavioral constructs have been described as responses to negative work attitudes.

Virtually all absence research has been based on variance theories. A variance theory is one that states that X is a necessary and sufficient condition for the outcome Y . In other words, Y is completely determined by X . As such, variance theories of absence suggest that the underlying mechanisms that drive absence are mechanistic. (Remember, in conventional ordinary least squares [OLS] regression, R^2 has a maximum value of 1.0 and unexplained variance is determined by the equation $1 - R^2$.) Thus absence researchers have constructed theories with the prime objective of maximizing the variance explained in the

dependent variable by the independent variables, and random variance is considered error.

Researchers should not always evaluate the merits of a theory solely on percentage of variance explained. First, conceptual parsimony may be more preferable than maximization of explained variance if the latter comes with the cost of ambiguity. Second, it is possible to find statistically significant results on the basis of chance alone.

Some have challenged the convention that a *good* theory of absence explains all the variance by arguing that stochastic or process theories may be better suited for explaining absence than variance theories. Essentially, a process theory tells a little story about how something comes about; but to qualify as a theoretical explanation of recurrent behavior, the manner of the storytelling must conform to narrow specifications. A process theory is defined as follows:

- *X* is a necessary condition for *Y*, but not a sufficient condition.
- *X* will cause *Y* stochastically (using a random variable).

That is, whether *X* causes *Y* depends on some probabilistic process. Thus process theories, unlike variance theories, leave residual uncertainty by construction.

A prominent process theory of absence suggests that absence reflects the dynamic operation of a set of motives, all of which are time varying. Thus to explain the timing of absence and attendance, consider the changing strength of motives to attend work and motives to engage in activities that require absence from work. Unfulfilled motives increase in strength with time, and this changing motive strength can be modeled as a set of differential equations. Thus if all motives were internal, there were not external constraints on time allocation, and a person could act on motives without cost, the individual could construct a deterministic model of time allocation and fully explain the timing and duration of activities. However, random events such as work stoppages, accidents, and illness impose external constraints on time allocation.

The notion of process theories highlights the probability of many possible constructs that could be causes or consequences of absenteeism. However, different sets of researchers have sliced out different sets of explanatory constructs and investigated them using simple hypotheses, all based on variance theories.

The most prominent simple hypothesis is the work attitude-absence hypothesis, in which absenteeism

results from negative work attitudes, which are a function of aversive work environments or dissatisfying work experiences. This is the benchmark hypothesis studied since the early 1950s and subject to more investigations than any other hypothesis about absenteeism. Meta-analyses show that work attitudes typically are not strong predictors of absenteeism. Attitude theory suggests that for there to be a relationship between an attitude and behavior or occurrence, both must correspond in terms of their levels of specificity. Job satisfaction, organizational commitment, and job involvement are general attitudes; and absence is a specific behavior. Thus we do not necessarily expect a strong relationship.

Some researchers have argued that absence reflects inherent and long-standing personality characteristics that account for the moderate stability of absence over time and situations. *Absence proneness* emerged as the explanatory concept. However, unlike most other personality characteristics, which are measured through conventional psychological scales, absence proneness has been inferred through less conventional methods. For example, some researchers have inferred absence proneness from the relationship between prior absence and subsequent absence, arguing that those who tend to be absent more in a given period will continue to be absent more in later periods.

Absence can be influenced by factors outside an individual's control, including weather conditions, transportation modes and routes, and personal health. Further, perceived control over attendance may also be an important determinant of work absences, more so perhaps than actual control. Albert Bandura's social cognitive theory provides a basis for the relationship between perceived control and behavior. Perceptions of control over attendance may be a function of past attendance experiences and structural interferences or role conflict between the demands of the work setting and the demands of other settings.

Some theorists have attempted to combine some of the simple theories for integrative theories. However, most are completely inductive integrations, and their usefulness depends on their fit to future data. Others are more properly called frameworks than theories because they specify collections of variables rather than relations between well-defined constructs. To be tested completely, these theories require the operationalization of large numbers of variables in consort. These frameworks have serious flaws, not the least of which is that they all posit relations between extremely

broad explanatory constructs and a very narrow dependent construct.

Perhaps absence-specific attitudes, social pressures, perceived environmental constraints, and work morals or ethics can all be modeled as part of an absence or participation decision process. Many researchers have implicitly espoused a decision-making perspective on absenteeism. Despite the potential for overcoming past limitations and integrating diverse findings, only a few investigations of absence have explicitly used a decision-making approach.

Some researchers have maintained that absenteeism is a differentiated phenomenon based on causes attributed to each absence occurrence by the absentee. Potential absence-inducing events should be classified by the freedom those events provide an individual in deciding whether or not to stay away from work. For example, a variety of employees were in home interviews asked to make attributions of their prior absences as well as potential future absences. The vast majority of individuals attributed prior and potential future absence to factors beyond personal control, such as illness, rather than to events within their own control, such as leisure activities. Attributing absence to medical illness is consistent with evolving social beliefs about what constitutes acceptable reasons for absence in a particular context. This conclusion is consistent with research demonstrating that medical absence was systematically related to work and nonwork motives.

Research has found additional factors related to a decision to be absent from work. Using an expectancy theory framework, some researchers have hypothesized that hobby and leisure time, kinship responsibilities, and personal illness influence absence decisions. Others found that absence was related to the value of nonwork hours, which supports the view that absence is a function of motivation processes extant in work and nonwork domains. One set of authors used a policy capturing design to model individual decisions to be absent based on the factors previously reviewed. Employees responded to hypothetical scenarios describing factors that might contribute to their decisions to be absent on a particular day. The relative importance of the antecedents of absence decisions varied substantially across individuals. With the exception of personal illness, which was a significant factor for all employees, some factors that resulted in significantly higher estimated absence for some individuals led to significantly lower estimated absence

for others—including hobby or leisure activities, work demands, and day of the week. Although these studies suggest several factors relating to absence decisions, this area of research is largely in an exploratory stage.

One notable development in absence research has been a growing awareness of the importance and mistreatment of time. Some researchers have argued that the ordering of relationships, in time, should prompt researchers to work through their conceptual schemes and methodological choices more deeply and increase the yield of future studies. Slightly more than half used a postdictive design, which seems to be roughly the same proportion overall. This state of affairs raises serious questions about the true sequence of absenteeism's origins and outcomes. For example, job satisfaction is the affective variable most often connected with absenteeism, in an approach that treats absences as responses to aversive work environments. However, in studies designed to evaluate the reverse ordering, both postdictive and predictive correlations are roughly the same size.

—Joseph J. Martocchio

See also Withdrawal Behaviors, Lateness; Withdrawal Behaviors, Turnover

FURTHER READING

- Harrison, D. A., & Martocchio, J. J. (1998). It's time for absence: A 20-year review of origins, offshoots, and outcomes. *Journal of Management*, *24*, 305–350.
- Hulin, C. L. (1991). Adaptation, persistence, and commitment in organizations. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (2nd ed., pp. 445–505). New York: Wiley.
- Hulin, C. L., Henry, R., & Noon, S. (1990). Adding a dimension: Time as a factor in the generalizability of predictive relations. *Psychological Bulletin*, *107*, 328–340.
- Johns, G. (1997). Contemporary research on absence from work: Correlates, causes, and consequences. In C. L. Cooper & L. T. Robertson (Eds.), *International review of industrial and organizational psychology* (Vol. 12, pp. 115–173). New York: Wiley.
- Martocchio, J. J., & Harrison, D. A. (1993). To be there or not to be there? Questions, theories, and methods in absence research. *Research in Personnel and Human Resources Management*, *11*, 259–329.
- Steel, R. P. (1990). Psychometric theory and the problem of relating prior and subsequent absences. *Journal of Organizational Behavior*, *11*(5), 407–411.

Steel, R. P., & Rentsch, J. R. (1995). Influence of cumulation strategies on the long-range prediction of absenteeism. *Academy of Management Journal*, 38(6), 1616–1634.

WITHDRAWAL BEHAVIORS, LATENESS

In organizational research employee lateness can be considered the orphan of behavioral outcomes. Compared with absence and turnover, the two other commonly studied withdrawal behaviors in the field, investigations of lateness and its correlates are much fewer in number; and perhaps more important, they are not anywhere as rich in theoretical explanations of the underlying construct. In organizations with set time schedules, lateness has traditionally been defined as arrival after the beginning of the workday. Both the individual and the organization suffer from employee lateness. An individual coming late may be docked some pay or, if it continues at an unabated rate, may be asked to leave. Because time can be translated into money, an employee, such as a worker on an assembly line or a salesperson in a department store, who does not arrive at work at the scheduled time may have a negative impact on the firm's performance. At the simplest level, this can be seen in the loss of work hours. A late arrival, particularly if the function performed at work is critical, may disrupt an organization's production schedule. Even when the employee is part of a service-oriented organization, the individual's lateness may affect the quality or quantity of service offered, especially when fellow workers or consumers depend directly or indirectly on the latecomer's presence.

CHARACTERISTICS OF LATENESS

In common with absenteeism and other organizational behaviors such as poor performance, employee lateness may have an element of neglect and disrespect toward work associated with it. In most cases its *psychological* message to others is negative. When some employees are tardy, morale and work motivation within the organization are likely to deteriorate. Thus a coworker who sees a colleague constantly arriving late, particularly if sanctions are not clearly defined or apparent, may start to think along the same lines and begin to change behavior.

Nevertheless, lateness differs from most other organizational behaviors in that it is often partially or entirely *invisible* from view. As compared with absence and turnover, lateness is less apparent and more readily hidden. Absences are relatively prominent as both supervisors and coworkers are aware when they have occurred. Similarly, turnover, an employee leaving one job and going to work somewhere else, is difficult to hide. Moreover, depending on the employee's position in the organization and the relevant policy, a late arrival may or may not be noted in personnel files. Absences, however, are nearly always recorded in an individual's file. This difference between the quality of the data collected may largely explain the fact that the literature contains many more empirical studies of absence and turnover than lateness.

CONCEPTUALIZING EMPLOYEE LATENESS

Although there are some suggestions in the literature that absence and tardiness are unrelated or even negatively related, the weight of the empirical evidence indicates that at least a moderate positive association should be expected. One popular notion in the field is that lateness is the first stage of a withdrawal sequence. In such a scenario, lateness is perceived as a more moderate response, which may continue until a stage of voluntary leaving, the most extreme expression of withdrawal, is attained. The assumption here is that an underlying mechanism exists, gradually leading a person to engage in more severe forms of withdrawal. Accordingly, an increase in perceived work problems will lead to more extreme behaviors. Attitudes such as dissatisfaction with the job or with the working conditions may very well serve as the underlying cause or so-called problem leading employees to arrive late.

Antecedents of Lateness

If one assumes that the outcome measure of lateness is a volitional act chosen by an employee, it is possible to posit three levels of variables that play a role here: personal, group or organizational, and extraorganizational. The first type of variable includes attitudinal measures and personality. Without a doubt, the two attitudinal indicators, job satisfaction and organizational commitment, have been the focus of a majority of the studies in the field. Findings have generally shown a moderately negative correlation between these antecedents and lateness. Recently,

organizational researchers have started to consider variables other than attitudes and, in particular, personality indicators as possible predictors. The latter had been neglected or rejected for decades; but because of new instruments such as the Big Five dimensions (in particular, conscientiousness and emotional stability), moderate personality–lateness associations have been observed. Some investigators have argued that the role of personality is more likely to be seen as a moderator than as a direct predictor.

One particular personality measure, punctuality, has been found in some cases to be associated with lateness. Interestingly, this measure has wider applications than just work-related lateness. Unlike the other common withdrawal behaviors, lateness has clear counterparts in non-work-related activities. An individual chronically late for work may also be tardy when meeting friends, getting to a wedding or other celebration, or starting out on a vacation.

The group and organizational variables are said to exist within a specific work environment where common policies, norms, and work values differ significantly from those held among other groups or in other organizations. The basis for many of these antecedents is management policy, leadership style, organizational culture, organizational learning, reward, and formal or informal intraorganizational communication. Such policy may include the type of sanctions meted out for lateness or the degree of tolerance for some type of lateness behavior conveyed by management. It is very likely that within-group homogeneity will be accompanied by other shared attitudes and behaviors.

The next level of antecedents includes extraorganizational variables. The variables of interest here are those that neither the individual nor the organization can control. The most blatant examples in the literature include national culture, values, environment, and even international considerations. In the larger society, values, common beliefs, and assumptions help form certain norms that influence attitudes and behavior. The concepts of work time, leisure time, and lateness behavior vary considerably across nations. More specifically, time perceptions have been shown to be at least partially related to cultural contexts. In some societies arriving one minute after the start of a meeting would be frowned on, whereas in others, lateness of as much as one hour would not be considered inappropriate behavior.

In conclusion, a few words about a relatively new and promising variable seem in order here. By broadening the whole notion of organizational antecedents, job embeddedness provides a construct

that is actually composed of personal-, organizational-, and extraorganizational-level variables. It includes three major dimensions:

1. Perceptions of fit with job, organization, and community
2. Links with job, organization, and community
3. Sacrifices entailed by leaving the job

An individual who is high on this measure may very well find it difficult to manifest any type of organizational withdrawal behavior.

LATENESS AND THE NEW WORK ENVIRONMENT

At this point a word or two about recent changes in the work environment and their impact on withdrawal research, in general, and lateness, in particular, is warranted. Definitions and pertinent measures may need to be revised. For example, is lateness or absence still a legitimate concept in an organization that allows employees to work at home rather than at the office or headquarters (i.e., telecommuting)? Similarly, does flextime allow the manager to calculate lateness for each employee? Perhaps most important, an expansion and consideration of other forms of lateness or *work* withdrawal are needed. One broad change might include missing work any time of the day, not only at the beginning. Workers who do not put in a full day of work even though they arrived *on time* can be placed into this new category. This expansion of the lateness concept allows us to study many situations that occur frequently in the modern organization. Thus workers who spend an inordinate amount of time surfing the Internet for personal reasons, leave the office for long lunch breaks, or leave early would all be subsumed in the new and broader category of lateness.

Future Directions

Again, it will be important, theoretically and practically, to understand the relationship between the classical definitions of lateness, the new concept of hours missed any time during the workday, and the new work environments. At present, the various types of missed work hours are just too difficult to gage, and employers do not have any objective or systematic way of recording such behavior. Nevertheless, it goes without saying that organizations, although becoming

more open to different types of working environments, must consider the various forms of lateness and develop policies for monitoring and, if need be, sanctioning such misbehaviors.

SUMMARY

Management has a clear and present need to control all types of lateness, classical as well as the new kind. Through an understanding of the process, controlling or at least minimizing the negative effects of withdrawal may be attainable. Moreover, if there is a sequential component involved here, it may be more effective to deal with lateness at the beginning of the process rather than at a later stage when the costs become greater. Employee lateness is not unidimensional, in its antecedents or its outcome, and the awareness of this fact allows for a greater understanding of the whole phenomenon.

—Meni Koslowsky

See also Attitudes and Beliefs; Withdrawal Behaviors, Absenteeism; Withdrawal Behaviors, Turnover

FURTHER READING

- Adler, S., and Golan, J. (1981). Lateness as a withdrawal behavior. *Journal of Applied Psychology*, 5, 544–554.
- Blau, G. J. (1994). Developing and testing a taxonomy of lateness behavior. *Journal of Applied Psychology*, 79, 959–970.
- Furnham, A. (1992). *Personality at work*. London: Routledge.
- Koslowsky, M., Sagie, A., Krausz, M., & Dolman, A. (1997). Correlates of employee lateness: Some theoretical considerations. *Journal of Applied Psychology*, 82, 79–88.
- Landy, F. J., Rastegary, H., Thayer, J., & Colvin, C. (1991). Time urgency: The construct and its measurement. *Journal of Applied Psychology*, 76, 644–657.
- Mobley, W. H., Griffeth, R. W., Hand, H. H., & Meglino, B. M. (1979). Review and conceptual analysis of the employee turnover process. *Psychological Bulletin*, 86, 493–522.

WITHDRAWAL BEHAVIORS, TURNOVER

In its simplest form, turnover refers to whether an employee stays or leaves. Refinements in the measurement and definition of turnover have led researchers to consider the *voluntariness*, *avoidability*,

and *functionality* of turnover. Voluntary turnover refers to situations in which employees have an opportunity to remain with their employer but choose to leave. Involuntary turnover refers to situations where employees do not have a choice concerning continued employment, such as employer-initiated termination. Turnover has been conceptualized as avoidable when the reasons for leaving are related to the organization, including low pay and long hours, and unavoidable when reasons are not work related, such as spouse relocation and family demands. Finally, turnover that benefits the organization, such as when high performers stay and low performers leave, has been termed functional turnover, whereas the opposite pattern is thought to reflect dysfunctional turnover. Although these three dimensions are defined by their extremes, they are perhaps better captured along a continuum in practice.

KEY MODELS AND CRITICAL ANTECEDENTS

Content Models

Content models attempt to specify antecedent variables that help predict employee turnover. At least 50 different predictors have been examined in previous research including demographic variables, work attitudes, intentions and cognitions related to quitting, and job search activities. Meta-analysis procedures have been used to summarize the strength of the relationships that have been found in previous research between these antecedents and turnover behaviors. In general, these results reveal modest effects. In absolute terms, few relationships exceed .30, and most are less than .20.

As a class, demographic variables such as education, marital status, and age are only weakly related to turnover. For other demographic variables such as race, gender, and cognitive ability the average correlation is near 0. There are two notable exceptions to this general pattern of findings. Turnover tends to be greater for employees with children and employees with longer tenure, but these effects are fairly small.

Work attitudes have a long history of research in the turnover literature. In particular, low to moderate negative relationships have been found between job satisfaction and turnover, and between organizational commitment and turnover. Weaker associations have been found for specific facets of satisfaction, such as satisfaction with a supervisor, coworkers, pay, promotion opportunities, and work content. Perceived organizational support (POS), which involves employee beliefs about how much their organization values and

supports them, has been found to correlate negatively with turnover intentions and actual turnover. Research on organizational justice supports the contention that perceived unfairness is associated with greater levels of employee turnover. In particular, justice dimensions (i.e., procedural, distributive, interactional) have shown negative relationships with intentions to quit and turnover, suggesting that employees who feel they are treated fairly in terms of outcome allocations, procedures, and interpersonal treatment are more likely to remain with the organization.

Perhaps the strongest predictor of turnover is the employee's reported intentions to quit. Similarly, withdrawal cognitions and thinking of quitting are positively related to actual turnover, as are job search intentions and behaviors. As a class, cognitions and intentions related to quitting along with job search activities represent the best predictors of turnover to date. Although also positively related to turnover, perceptions of available alternatives and comparisons of these alternatives with one's present job tend to show somewhat weaker associations.

Other variables that have been studied in relation to turnover include actual pay, stress, lateness, absenteeism, and job performance. Weak, positive effects have been found for stress-related variables, lateness, and absenteeism. Weak, negative effects have been found for pay and job performance. Overall, content models of turnover help identify *what* variables predict quitting behavior on the part of employees. Process models, which are reviewed next, conceptually organize these variables to help understand *how* employees make these decisions.

Process Models

One of the earliest process models emphasized the importance of two factors in explaining turnover behavior: the perceived desirability of movement and the perceived ease of movement. Put forth in the late 1950s, the basic idea of the model is that employees will quit when they are unhappy with their jobs and when they feel that there are alternative employment opportunities available. Thus, desirability of movement has been assessed through measures of job satisfaction, whereas ease of movement has been captured through some measure of alternative job opportunities. Empirical tests of this two-factor approach have revealed fairly weak relationships with turnover. As a result, many of the later models have expanded the

network of antecedent variables and have offered new perspectives on the causal sequencing of these dimensions. These approaches have been called *intermediate linkage models* and reflect the growing complexity of turnover models that have dominated the literature since the 1970s. The logic of this perspective is that job dissatisfaction prompts employees to think about quitting and evaluate the costs and benefits of searching for another job. At that point employees may develop intentions to search for another job, actually carry out the search, and evaluate the alternatives that are found. If these alternatives are more favorable than the current job, employees will develop intentions to quit, followed by actual turnover. Variations on this basic model have appeared in the literature, and as a class, the intermediate linkage models have received modest empirical support. Meta-analysis data revealed the strongest support for a reduced linkage model that included only the linkages between dissatisfaction, withdrawal cognitions, and turnover.

Given the generally low predictive power of earlier models, new approaches to the study of turnover processes have emerged since the 1990s. The unfolding model of employee turnover represents one of these recent advancements and draws from basic research in decision making and social psychology. The approach suggests that multiple decision paths underlie turnover, and some of these do not involve much thought or planning on the part of the employee. The model introduces the notion of *shocks to the system*, or a particular jarring event that initiates deliberate judgments by employees concerning their employment relationship. Examples include receiving unsolicited job offers, experiencing a merger, and spouse relocation. These shocks are said to prompt different script-driven actions, which may or may not lead to a search for alternatives, lower job satisfaction, and actual quitting. The model is more complex than previous approaches and emphasizes the timing and sequencing of events to explain when, why, and how employees leave. In particular, four paths are specified by the model to explain the different ways in which employees leave their jobs. The first path is characterized by a shock to the system in combination with a plan for leaving. For example, employees may accept a position with full knowledge that they will quit once some period of time passes or they earn a specific amount of money. Once the shock occurs (e.g., three months have passed), the employee quits. It is important to note that traditional antecedents of turnover such as dissatisfaction and search for alternatives do not

enter the process. The second path also involves a shock to the system but does not include a specific plan or script concerning alternative jobs. For example, some employees may quit spontaneously after receiving a harsh review, learning of an ill family member, or being given new, unwanted job responsibilities. The third path in the model is more gradual in that the shock leads to minor dissatisfaction and a search for alternatives. As an example, employees who receive unsolicited job offers (i.e., a shock to the system) may begin to contemplate their satisfaction relative to the new alternatives, and eventually quit after thoughtful deliberation. The fourth and final path is characterized by dissatisfaction compounded over time, which may or may not be coupled with an active search for alternatives. For example, employees may decide that after several years of work, the job falls short of their expectations. In response, some employees will quit without an alternative in hand, whereas others will leave on finding an alternative that is more attractive. Note that this final path is most closely associated with the traditional approach of the intermediate linkages model that dissatisfaction leads to intentions to leave and actually leaving. There is some empirical support for the paths outlined in the unfolding model, although additional research is certainly needed to refine the model and replicate these effects.

It is also important to note the existence of a wide range of economic models that help explain turnover. These approaches emphasize labor market conditions such as the availability of alternatives or the supply and demand of labor. Because these models tend to focus on factors unrelated to the individual, they are not reviewed here.

NEW DIRECTIONS

Over time, approaches to the study of turnover have become more complex. The unfolding model of turnover is one approach that pushes turnover theory and research in new directions. Research has also shown that simple correlational designs can oversimplify relationships between antecedent variables and turnover. Studies that account for interactions among antecedents reveal that simple additive relationships may be insufficient for explaining turnover behavior. In addition, researchers have found support for non-linear effects in some instances.

Another avenue of inquiry that holds promise concerns the study of those factors that promote retention

of employees. Although on the surface one might expect that the same set of factors would be responsible for both turnover and retention, researchers have shown that there may be subtle but important differences in the processes underlying these phenomena. Researchers have proposed the construct of *job embeddedness* to capture the broad set of factors that cause individuals to remain with their employer. The concept builds on earlier turnover models that included both work and nonwork factors to explain why employees quit. The components of job embeddedness include the following:

- Links to others within and outside the organization
- Employees' perceptions of fit with their work and community
- Assessments of what employees would have to sacrifice if they left their jobs

Empirical evidence shows that job embeddedness explains incremental variance in both turnover intentions and actual turnover beyond work attitudes and job alternatives.

Finally, there is recent research that synthesizes research on both turnover and attachment processes and proposes a set of eight motivational forces that can help explain intentions and decisions related to quitting or staying with an organization. These forces and a description of each are in the following list:

1. *Affective*: Reflects the emotional responses toward the organization; emotional comfort motivates attachment, while discomfort motivates quitting.
2. *Calculative*: Reflects a rational assessment of the probability of attaining goals within the organization in the future; favorable assessments motivate attachment, whereas unfavorable assessments motivate quitting.
3. *Contractual*: Reflects a response to norms of reciprocity based on psychological contracts; fulfillment of obligations motivates staying, whereas perceived violations motivate quitting.
4. *Behavioral*: Reflects the actual and perceived costs of quitting; higher costs motivate staying, whereas lower costs motivate quitting.
5. *Alternative*: Reflects self-efficacy toward finding an alternative opportunity; low self-efficacy motivates staying, whereas high self-efficacy motivates quitting.
6. *Normative*: Reflects motivation to comply with perceived expectations of others concerning turnover

decisions; high motivation to comply with expectations to remain motivates staying, whereas high motivation to comply with expectations to leave motivates quitting.

7. *Moral and ethical*: Reflects a desire to maintain consistency between values and beliefs about turnover; values that emphasize persistence motivate staying, whereas values that emphasize change or variety motivate quitting.
8. *Constituent*: Reflects the degree to which employees feel attachment toward others within the organization; high attachment to constituents motivates staying, while low attachment motivates quitting.

Overall, the model of motivational forces provides a parsimonious taxonomy of the array of factors that lead employees to quit. Further, they also fill a gap in the literature by specifying the conceptual processes that link antecedent variables such as work attitudes with turnover and retention outcomes. Like the unfolding model, the motivational forces also offer an opportunity to account for changing relationships among variables over time. Empirical research that tests the value of these proposed advantages is needed.

PRACTICAL RECOMMENDATIONS

Given the costs often associated with turnover, a number of suggestions for reducing and managing turnover have been suggested in the academic and practitioner literatures. Most follow from empirical research, but many of the techniques themselves have yet to be subjected to rigorous empirical evaluation.

- *Identify the nature and extent of turnover*: Find out where turnover is greatest and identify the extent to which it is functional versus dysfunctional; ensure that retention efforts are targeting the right people.
- *Enrich the job*: Look for ways to improve the job itself; consider ways to restructure the job to reduce monotony and improve employee motivation.
- *Train supervisors*: Many employees leave supervisors, not the job; provide supervisors with continuous training and updating in management skills; use feedback from direct reports, peers, supervisors, and other constituents to help supervisors gain perspective.
- *Promote fairness in the workplace*: Communicate difficult decisions with respect and concern for those affected; allow employees to participate in decisions that will affect their jobs; enforce rules and procedures consistently across employees.
- *Monitor employee attitudes*: Implement regular employee opinion surveys and act on the findings; consider including measures of job satisfaction, organizational commitment, and organizational fairness.
- *Provide incentives to stay*: Tie rewards to tenure; consider awarding perks that enhance embeddedness in the organization and community.
- *Offer realistic previews of the job*: Employees may quit because of a mismatch between their expectations and the reality of what the job involves; provide a reasonable perspective on both the positive and negative aspects of the job.
- *Attend to nonwork needs*: Consider employees' needs outside the work domain; some companies have responded by providing services and programs such as flexible work arrangements, on-site child care, fitness facilities, tuition reimbursement, concierge services, and eldercare benefits.

—John P. Hausknecht

See also Withdrawal Behaviors, Absenteeism; Withdrawal Behaviors, Lateness

FURTHER READING

- Griffeth, R. W., Hom, P. W., & Gaertner, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management*, 26, 463–488.
- Hom, P. W., Caranikas-Walker, F., Prussia, G. E., & Griffeth, R. W. (1992). A meta-analytical structural equations analysis of a model of employee turnover. *Journal of Applied Psychology*, 78, 890–909.
- Lee, T. W., & Mitchell, T. R. (1994). An alternative approach: The unfolding model of voluntary employee turnover. *Academy of Management Review*, 19, 51–89.
- Maertz, C. P., Jr., & Campion, M. A. (1998). 25 years of voluntary turnover research: A review and critique. *International Review of Industrial and Organizational Psychology*, 13, 49–81.
- Maertz, C. P., Jr., & Griffeth, R. W. (2004). Eight motivational forces and voluntary turnover: A theoretical synthesis with implications for research. *Journal of Management*, 30, 667–683.
- Mitchell, T. R., Holtom, B. C., Lee, T. W., Sablinski, C. J., & Erez, M. (2001). Why people stay: Using job embeddedness to predict voluntary turnover. *Academy of Management Journal*, 44, 1102–1121.
- Mobley, W. H. (1977). Intermediate linkages in the relationship between job satisfaction and employee turnover. *Journal of Applied Psychology*, 62, 237–240.

Trevor, C. (2001). Interactions among actual ease-of-movement determinants and job satisfaction in the prediction of voluntary turnover. *Academy of Management Journal*, 44, 621–638.

WORKAHOLISM

Workaholism is a popular term used to describe individuals who are captivated by work. The term *workaholic* was first coined more than 30 years ago to refer to an individual whose increased need to work hinders one or more life functions. Over the years it has become a colloquial term used increasingly in the popular press, on Web sites, and in the scientific literature. The philosophy of squeezing more of everything into a single 24-hour day has become an accepted way of life. In fact, working excessive hours is often seen as a prerequisite for success. As a result it appears that some individuals may find it extremely difficult to release themselves from work, even when they are given the opportunity to do so.

DEFINITIONAL ISSUES

Although the term *workaholism* has become commonplace, unfortunately, there has been little empirical research (and consensus) examining what it means when someone is referred to as a workaholic. The modest amount of existing research has been done in a fragmentary manner; without a common definition, it becomes challenging to develop a holistic picture of workaholism. Definitional issues pertaining to workaholism are summarized in the following text.

A commonly held perspective is that workaholism is simply an extreme form of job involvement. Although the two constructs have been considered synonymous in the practitioner literature, job involvement is clearly distinct from workaholism in that job involvement has an attitudinal component regarding work, whereas workaholism refers to behavioral patterns and an overall outlook on work. High job involvement does not necessarily relate to workaholism in that workers might be highly engaged in their jobs and consider work as a key element in their lives; but they may not be workaholics (e.g., they can still leave work at the end of an eight-hour day and not think about it until returning to work the next day). Hence, workaholism is not merely an extreme case of job involvement.

In an attempt to define workaholism, some researchers have placed a quantitative requirement on its borders in that the total number of hours worked per week determines workaholic tendencies. Surprisingly, the literature has generally shown that hours worked alone do not indicate a workaholic. Many external reasons, such as the need for money or the organizational climate (i.e., overall atmosphere of the organization), may account for the long work hours. Therefore, perhaps workaholics are (in part) those individuals who are intrinsically motivated to work long hours because of an inability to disengage from work.

Other researchers have highlighted the opposite end of the continuum such as attitudes and value-based characteristics of workaholism. These researchers conceptualize workaholism in terms of the attitude of the worker in regard to the job including enthusiasm, commitment, and involvement. Another emergent body of literature has defined workaholism as consisting of three behavioral tendencies:

1. Spending discretionary time in work activities
2. Thinking about work when not at work
3. Working beyond organizational or economic requirements

Despite the plethora of definitions considered to describe workaholism, Janet Spence and Ann Robbins's instrument is by far the most frequently used self-report measure of workaholism. Similar to other recent conceptualizations of workaholism, their scale consists of three factors that constitute workaholism:

1. Excessive work involvement
2. Drivenness to work
3. Lack of work enjoyment

Work involvement refers to the extent to which individuals constructively use their time (both on and off the job) and dedicate themselves to productivity at work. Drivenness to work reflects an individual's internal drive to work. Work enjoyment is the degree to which an individual derives pleasure from work.

WHY SHOULD WE CARE?

Workaholism is detrimental to individual well-being, causing stress, burnout, anxiety, and health complaints.

Additionally, workaholics are more prone to such secondary addictions as alcoholism and overeating. Workaholism may also affect the lives of the people with whom the workaholic employee is associated. Excessive engagement in work is likely to disrupt work–life balance, such as balancing both personal and family needs with work demands, and may hinder interpersonal relationships. In fact, spouses and children of workaholics feel lonely, unloved, and emotionally or physically abandoned; workaholism puts a strain on marital relations and is a leading cause of divorce. Finally, workaholism results in negative organizational outcomes (e.g., absenteeism, turnover). In fact, the high (and likely unrealistic) standards set by workaholic managers could lead to resentment, conflict, and low morale among coworkers. The excessive costs of workaholism to the self, the family, and the organization itself warrant that individuals pay closer attention to this crucial concept.

WORKAHOLISM SYNDROME

In the medical field, a syndrome refers to a cluster of symptoms occurring on a regular basis and thus constituting a disease to which some particular name is applied. The concept of a syndrome has been used in psychological research to characterize, among many other areas, burnout, effects of physical abuse in women, and posttraumatic stress. For example, burnout is characterized as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment. Hence, people who experience burnout feel these characteristics in tandem.

Similarly, the workaholic is portrayed by a set of distinct characteristics. In this sense workaholism is also conceptualized as a multifaceted syndrome in that a set of key components characterizes the workaholic. Employees who experience high work involvement, high drive to work, and low work enjoyment in conjunction with each other are more likely to be workaholics than those who just experience a subset of the symptoms. For workaholism to truly be a syndrome, each of the three components is a necessary (though not sufficient) condition for somebody to be classified as a workaholic.

A large stream of research has found that typical variables associated with workaholism include job involvement, work stress, and work–life imbalance. The empirical literature has also shown that workaholics experience less job and life satisfaction than

nonworkaholics. To create effective intervention programs, it is imperative that both the correlates and symptoms of workaholism be taken into account by mental health professionals and career counselors. A dimensional focus enables practitioners and their clients to examine specific correlates of workaholism instead of the global construct. For example, in terms of work–life balance, it is imperative that workplace standards be more supportive of balanced priorities and healthier lifestyles to encourage those workaholics who strive to make behavioral changes.

—Shahnaz Aziz

See also Work–Life Balance

FURTHER READING

- Harpaz, I., & Snir, R. (2003). Workaholism: Its definition and nature. *Human Relations, 56*, 291–319.
- McMillan, L. H. W., Brady, E. C., O’Driscoll, M. P., & Marsh, N. V. (2002). A multifaceted validation study of Spence and Robbins’ (1992) Workaholism Battery. *Journal of Occupational and Organizational Psychology, 75*, 357–368.
- Mudrack, P. E., & Naughton, T. J. (2001). The assessment of workaholism as behavioral tendencies: Scale development and preliminary empirical testing. *International Journal of Stress Management, 8*, 93–111.
- Spence, J. T., & Robbins, A. S. (1992). Workaholism: Definition, measurement, and preliminary results. *Journal of Personality Assessment, 58*, 160–178.

WORK ETHIC

See PROTESTANT WORK ETHIC

WORK–LIFE BALANCE

Work and family are considered the primary domains in a person’s life. The interface between the work and family domains of life is studied across psychology subfields (e.g., clinical, developmental, social) and by other disciplines (e.g., anthropology, sociology, family studies, economics, women’s studies). Industrial/organizational (I/O) psychologists are interested primarily in how interactions between work life and family life, or more broadly the *nonwork* aspects

of one's life, influence important individual and organizational outcomes. *Work–life* or *work–family balance* refers to the extent to which an individual is able to meet the often competing demands associated with work and nonwork roles. The terms *work–family* and *work–life* are often used interchangeably; but *family* sometimes refers more specifically to familial roles (e.g., spouse, parent), whereas *life* may refer more broadly to familial roles and other nonwork roles (e.g., church member, community volunteer). Because most research has focused on the interface between work and family roles, the term *work–family* is used here. The term *balance* is sometimes criticized in the literature because it implies an *equal* investment in work and family that may not be sought or required to achieve harmony among work and other life roles. Research shows that some individuals report greater balance when investments in work and family roles are unequal.

MODELS OF THE WORK–FAMILY INTERFACE

Traditionally the work–family interface has been conceptualized in terms of several different models, including segmentation, compensation, spillover, and conflict. The *segmentation* model holds that the work and family domains are largely separate and have little interaction in an individual's life. The *compensation* model contends that the domains can serve a complementary function in that deficiencies a person experiences in one domain can be made up for in the other (e.g., a happy home life may compensate for a dissatisfying job). The *spillover* model assumes that a person's experiences in one domain seep over into the other, acknowledging that the spillover may be either positive or negative. Having an argument with a coworker and then being impatient at home with children is an example of negative work-to-family spillover. Enjoying a relaxing weekend with family followed by a productive Monday at work is an example of positive family-to-work spillover.

WORK–FAMILY CONFLICT

It is the *conflict* model that has dominated theory and research on the work–family interface in I/O psychology. The basic premise of the conflict perspective is that work and family roles are incompatible; they compete with and interfere with one another for an individual's limited resources. Thus researchers most

often study the nature of conflict or interference between work and family roles, the predictors of such conflicts, and the consequences of work–family conflict. Early research considered work–family conflict in general, but research on the topic has evolved to specify the direction of conflict, both work interference with family and family interference with work. Research shows that individuals experience greater work interference with family than family interference with work. Compared with work boundaries, family boundaries are considered more permeable, and the family domain is more accommodating of work demands than the reverse.

In addition to the directionality of conflict, research also considers conflict's dimensionality. Typical forms of work–family conflict include time-based, strain-based, and behavior-based conflicts. *Time-based* conflicts occur when time devoted to one role makes it difficult to meet responsibilities of another role. For example, working late may interfere with picking up children from school. *Strain-based* conflicts happen when the strains associated with one role interfere or infringe on another role. For example, marital strife may interfere with concentration at work. And finally, *behavior-based* conflicts result when behaviors required in one role are incompatible or inconsistent with behaviors required in another role. For example, a supervisor may find that giving direct orders gets things accomplished at work, but the same tactic produces negative results at home. Each form of conflict can occur in both directions; for example, time-based work interference with family and time-based family interference with work.

Antecedents of Work–Family Conflict

Numerous antecedents of work–family conflict have been studied. Research shows that work stressors, lack of control or unpredictability in work routines or scheduling, long work hours, high work demands, and job stress are all associated with greater work–family conflict. Work–family conflict also tends to be greater for those who have more children, younger children, high caregiving demands such as elderly parents or chronically ill children, little family support, and high family stress. Often, however, antecedents do not have simple direct effects on work–family conflict. For example, although long work hours are generally associated with greater work–family conflict, this is especially the case when

an individual is required to work more hours than desired.

In terms of individual differences, higher levels of negative affectivity and neuroticism and lower levels of extraversion, self-monitoring, and proactive personality are associated with greater work–family conflict. Research regarding gender differences in the experience of work–family conflict is mixed. Although some research suggests that women experience more work–family conflict than men, other research shows no gender differences. It is clear in both the scientific literature and popular press that work–family conflict is not solely a women’s issue. Both men and women are concerned about the work–family interface, and research suggests that the opportunity to achieve work–family balance is a high priority for both men and women; it is among the employment features that people are least willing to trade off.

Consequences of Work–Family Conflict

Considerable research has been devoted to the consequences of work–family conflict. Industrial/organizational psychologists have focused the greatest attention on job-related attitudes as work outcomes. Work–family conflict is negatively related to job satisfaction, organizational commitment, organizational citizenship behavior, and job performance. Work–family conflict is positively linked to work stress, poor health indicators such as depression or substance abuse, turnover intentions, and actual turnover. Although not the focus of most I/O research, some research has considered the influence of work–family conflict on family-oriented attitudes and outcomes. Work–family conflict has been negatively linked to life satisfaction, marital satisfaction, family satisfaction, and family role performance.

REDUCING WORK–FAMILY CONFLICT

Research has examined the impact of employers’ family-friendly initiatives on employees’ work–family conflict, job attitudes, and outcomes. Many family-friendly policies focus on creating greater flexibility in work schedules, including reduced or part-time hours, flextime, compressed workweeks, and job sharing. Other programs potentially provide opportunity for meeting family demands and balancing work and family, including sick leave, maternity and paternity

leave, lactation programs, child care and eldercare, telework, concierge services, and informational resources and referrals.

Family-friendly benefits vary in their scope, availability, and focus. Scope refers to which employees are eligible for the benefits. Although some benefits have the potential to apply to all employees (e.g., flextime), other benefits may only be relevant for a subgroup of employees (e.g., lactation programs). Moreover, even when a benefit is relevant, it may not be equally available to all employees. For example, telework programs may be limited to employees with certain job specifications, and on-site child care may be available only to those who can afford it. Family-friendly benefits also vary in terms of their focus. Some programs focus on employee or family health and well-being. Some are designed to increase the likelihood that employees will be present at work. Others are aimed at increasing productivity, regardless of location.

There is some question as to whether or not family-friendly benefits actually help families. Part of the concern is that the existence of family-friendly benefits may limit individual choice. For example, if an organization offers sick child care, do parents still have the option to stay home and care for an ill child themselves? Many family-friendly programs are intended to ensure that employees are present at work and to give employees more time to engage in work activities. Finally, organizationally sponsored programs may be overly focused on family interference with work, whereas research shows that work interference with family is more prevalent.

Nonetheless, employees generally appreciate family-friendly benefits and are attracted to employers that offer them, regardless of whether or not they are personally eligible for the benefits. Family-supportive policies are associated with reduced work–family conflict, enhanced organizational commitment, and organizational citizenship behavior. Family-friendly benefits also have been positively linked to share prices, especially in industries that are high-tech and those where women are concentrated.

There is substantial evidence, however, that family-friendly benefits are underused for several reasons. First, employees are often unaware of the benefits their employers offer and their eligibility for them. Second, employees may be afraid of the negative career consequences of using family-friendly benefits. Third, even when formal family supportive policies exist, the organizational culture and climate may not support

their use. Family-friendly benefit use is greater when the organizational culture and climate are generally supportive of family. Employees are more likely to use family-friendly benefits when they are encouraged to do so by supervisors and coworkers.

In addition to encouraging benefit use, organizational insiders such as supervisors, coworkers, and mentors offer informal support that is instrumental in alleviating work–family conflict. Informal support is also linked to greater individual accommodations for family. Often because of the lack of formal policies, and sometimes despite them, many work accommodations for family are negotiated on an individual case-by-case basis between the employee and immediate supervisor. Coworkers likewise offer affective and instrumental support on an individual basis.

Although men and women both experience work–family conflict, women make more work role adjustments to accommodate family than men. For example, women are more likely than men to use employer-sponsored family-friendly benefits. Women are also more likely than men to restructure their work to meet family demands. Although both men and women take advantage of work schedule flexibility, women are more likely than men to use that flexibility to meet family needs. This type of gender difference manifests itself early in career decision making. As young women consider career options, they are influenced by the type of family life they desire and envision. Young men, in contrast, tend to focus more exclusively on their interests when making educational and career decisions.

INDUSTRIAL/ORGANIZATIONAL RESEARCH LIMITATIONS

Industrial/organizational work–family research has a number of limitations. Much of the work in this area relies on cross-sectional survey research methods. More longitudinal work is needed, and a greater variety of research methods (e.g., daily diaries, participant observation) is desirable. Although some research considers the experiences of couples, most of the research is conducted at the individual level. Work–family interface issues tend not to be examined at the family unit level or at the work group level, but there are likely to be important dynamics in both.

The samples in I/O work–family research tend to be professionals and managers. Thus we know relatively little about laborers, low-income workers,

and workers with multiple job. Moreover, research tends to focus on employees' work outcomes and some health outcomes including stress. The outcomes for family members such as spouses or children are seldom considered. Research has yet to delve deeply into work–family issues as related to alternate family structures such as single parents, ethnic differences, cultural differences, and intergenerational dynamics. Work to date also tends to ignore both career and family developmental stage. Research lacks a rich treatment of how these variables influence the work–family interface.

EMERGING TOPICS

Although the conflict perspective has dominated research on the work–family interface to date, there is also a long-standing recognition that multiple role occupancy, such as performing multiple roles in both the work and family domains, can be beneficial to psychological well-being. According to expansionist theory, this is most often the case when the roles are high quality and are experienced as rewarding. Occupying numerous low-quality roles that offer few rewards, however, has a detrimental effect on well-being.

There is an emerging trend toward more positive conceptualizations of the work–family interface. Consistent with the notion of positive spillover, concepts such as *work–family balance*, *work–family fit*, *work–family role integration*, *work–family enrichment*, and *work–family facilitation* all assume more beneficial interactions between the work and family domains. The central thesis is that participation in one domain is facilitated by the skills, resources, and experiences gained through participation in the other domain. Research suggests, for example, that resource-rich jobs (e.g., those characterized by high autonomy, complexity, authority, and variety) produce work–family facilitation. Preliminary work suggests that work–family facilitation may buffer the negative effects of work–family conflict on mental health.

There is widespread agreement that the distinctions and boundaries between the work and family domains are becoming increasingly blurred. Thus, research is beginning to consider the causes and consequences of less boundary distinction. The causes, primarily technological advancements that enable many people to work from virtually anywhere and produce 24-hour accessibility, are perhaps more readily apparent than

the consequences. It is important to note that the same technologies that make it possible to work anytime and anywhere also appear to make it easier to maintain ties with family members and to meet family responsibilities. However, the question of whether or perhaps more appropriately under what circumstances these blurred boundaries result in greater work–family facilitation or more pronounced work–family conflict remains a critical future research topic.

The work–family interface is embedded in multiple contexts. Research has primarily focused on the family and organizational contexts in which the interplay occurs. However, the interaction between work and family domains may also be considered in light of a number of additional contexts, including community, societal, political, ethnic, cultural, and national contexts. The frame of reference influences which work–family issues are salient and how they are understood. Cross-cultural work–family research, for example, demonstrates how work–family conflict is influenced not only by characteristics of the work and family contexts but also by features of the cultural and national environments in which the work–family interface occurs.

—Debra A. Major

See also: Quality of Work Life; Role Conflict; Stress, Models and Theories; Telecommuting

FURTHER READING

- Allen, T. D. (2001). Family-supportive work environments: The role of organizational perceptions. *Journal of Vocational Behavior, 58*, 414–435.
- Barnett, R. C., & Hyde, J. S. (2001). Women, men, work, and family: An expansionist theory. *American Psychologist, 56*, 781–796.
- Eby, L. T., Casper, W. J., Lockwood, A., Bordeaux, C., & Brinley, A. (2005). Work and family research in IO/OB: Content analysis and review of the literature (1980–2002) [Monograph]. *Journal of Vocational Behavior, 66*, 124–197.
- Frone, M. R. (2003). Work–family balance. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology*. Washington, DC: American Psychological Association.
- Grzywacz, J. G., & Butler, A. B. (2005). The impact of job characteristics on work-to-family facilitation: Testing a theory and distinguishing a construct. *Journal of Occupational Health Psychology, 10*, 97–109.
- Kossek, E. E., & Lambert, S. J. (2005). *Work and life integration: Organizational, cultural, and individual perspectives*. Mahwah, NJ: Lawrence Erlbaum.
- Major, D. A., Cardenas, R. A., & Allard, C. B. (2004). Child health: A legitimate business concern. *Journal of Occupational Health Psychology, 9*, 306–321.
- Major, D. A., & Germano, L. M. (in press). The changing nature of work and its impact on the work–home interface. In F. Jones, R. Burke, & M. Westman (Eds.), *Work–life balance: A psychological perspective*. London: Psychology Press.
- Parasuraman, S., & Greenhaus, J. H. (2002). Toward reducing some critical gaps in work–family research. *Human Resource Management Review, 12*, 299–312.

WORK MOTIVATION

Work motivation is one of the most central and highly researched topics in industrial/organizational (I/O) psychology. Even the earliest textbooks in I/O psychology addressed motivation and topics related to it, such as morale, job attitudes, productivity, and job performance. Several definitions have been offered, but the one adopted here was first advanced by the author in 1984: Work motivation originates within and beyond the individual to initiate and determine work-related behavior.

The focus of most attention on work motivation has been on the *effort* people expend at working, the *intensity* component of the definition. Yet it is critical to keep the other components in mind to fully understand work motivation. Although an individual may not be working very hard toward the goals others set, the person may have plenty of motivation to achieve goals other than those prescribed by managers or critics (the *form* and *direction* components).

It is also important to distinguish between motivation and its antecedents and its consequences, particularly the latter. Observers often conclude that a person's motivation is low (usually implying not enough effort) or misguided (inappropriate goals) on the basis of observing low standards of *performance*, which is the accomplishment of some standard or criterion. This conclusion is often false, resulting in what social psychologists refer to as the fundamental attribution error—attributing low judged performance to low motivation, a characteristic of the individual. Considerable research and theory show that performance is a multiplicative function of motivation *and* individual ability as well as the constraints or opportunities offered by the context in which work is occurring. These distinctions are more than a matter of

theoretical or conceptual semantics: They have real, important applied implications if one is to understand job performance, employee withdrawal (in its various forms), creativity at work, career choices, and myriad other work-related phenomena. The source of the poor performance is frequently the context or the person's ability to do the job.

SOME POPULAR THEORIES

There are many popular and well-known theories of work motivation, most of which were first proposed during the 1960s and 1970s. Among managers, they are certainly well-known, some more than others, and some believe that they may be more valid (in terms of their capacity to predict individual work-related attitudes, emotions, and behaviors) than current social scientific methods can demonstrate.

The various theories of work motivation are all predicated on a few fundamental models of human functioning, that is, on a few basic ontological assumptions about human nature. Perhaps the most widely known of these theories are those based on the premise that people are fundamentally need-driven creatures. Hedonism is a central tenet of these models, which share the view that people strive to seek pleasure and avoid pain. Henry Murray developed an insightful definition of human needs during the 1930s that is still in use today. Building on that tradition, Abraham Maslow offered the best known of these theories in the 1940s. He believed that human needs are arranged in hierarchical categories, such that some needs are more *prepotent* than others. For example, as the more basic needs are becoming satisfied, other less urgent needs increase in relative importance. Maslow's theory is frequently oversimplified in interpretation. A key concept in thinking about work motivation and behavior is *overdetermination*, which indicates that most human behavior, except that related to the most basic biological functions, are instigated and directed by more than a single motive (or need). Too frequently, textbooks, teachers, and consultants claim that Maslow believed that behavior was determined by the forces of single needs, one at a time, and that the particular need in force at any given time followed the structure of his famous hierarchy.

More recent versions of need theory have been offered by David McClelland, a student of Henry Murray, who made major contributions in our understanding of three particular needs that have considerable

importance for work motivation—the needs for achievement, power, and affiliation—and Clayton Alderfer, who offered a simplified version of Maslow's hierarchy.

Frederick Herzberg and his colleagues advanced a controversial theory of job satisfaction and work motivation in 1959. The theory was heavily criticized for methodological and other reasons, but it was instrumental in spawning later theories of job design that have many implications for work motivation. Indeed, the meaningfulness factor appearing in these later theories (from the 1980s) is enjoying attention now as part of the *positive organizational scholarship* movement.

There are a variety of theories that rest on the assumption that humans are basically information-processing creatures. Collectively, they are the most significant class of current theories. In the 1960s J. S. Adams offered a theory that claimed that work motivation could be understood in terms of people's perceptions of the exchange relationship they have with the employer. Social comparison processes with other individuals played a huge role in the dynamics of this theory, which has evolved over the past 15 years to diverse and more advanced thinking about justice. In fact, justice theories are, as a group, one of the freshest and most progressive bodies of theory to emerge in recent times.

A variety of expected value theories emerged in the late 1960s and early 1970s. The common theme among them is that work motivation is a decision-making process by which people choose among alternatives to maximize their expected utility. Perceptions about the expected value of outcomes associated with alternatives and the perceived probability that those outcomes will accrue are the major parameters of the model.

Popular behaviorist models from the 1960s and 1970s have given way to modified forms that admit cognitive elements. Currently, Albert Bandura's social cognitive theory is one of the most viable approaches of this new generation. The central tenet of this approach is that psychosocial functioning results from three-way interactions among people, their behavior, and the environment.

Edwin Locke and Gary Latham's goal-setting theory is probably the most successful of current contenders. Based on the information processing model, it enjoys the most scientific validity and applied value for practitioners. In a nutshell it claims that people are motivated to pursue goals, based on intentions. Difficult, specific goals are the most motivating, as long as they are accepted by the individual, particularly when they are accompanied by feedback.

Participation, rewards, deadlines, and other incentives enhance goal striving only to the extent that they influence goal acceptance.

A survey of the leading theories published in the *Annual Review of Psychology* in 2005 concluded that, as a group, theories of work motivation have advanced considerably over the previous 30 years, largely by becoming more fully articulated and refined with the inclusion of mediating and moderating effects. Also as a group, work motivation theories have recently been judged as one of the two most valid and useful bodies of knowledge in the organizational sciences. Aside from a sharp increase in research and theory involving human affect, there have been few *fundamentally new* models offered in three decades. Future progress will most likely require the exploitation of other basic models of human functioning, such as spirituality.

—Craig C. Pinder

See also Expectancy Theory of Work Motivation; Intrinsic and Extrinsic Work Motivation; Motivational Traits; Need Theories of Work Motivation; Reinforcement Theory of Work Motivation; Self-Concept Theory of Work Motivation

FURTHER READING

- Bandura A. (1991). Social cognitive theory of moral thought and action. In W. M. Kurtines & J. L. Gerwitz (Eds.), *Handbook of moral behavior and development* (Vol. 1, pp. 45–103). Hillsdale, NJ: Lawrence Erlbaum.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50, 370–396.
- McClelland, D. C. (1975). *Power: The inner experience*. New York: Halstead.
- Murray, H. A., & Shneidman, E. S. (Eds.). (1981). *Selections from the personology of Henry A. Murray*. New York: Harper & Row.
- Pinder, C. C. (1998). *Work motivation in organizational behavior*. Upper Saddle River, NJ: Prentice Hall.

WORKPLACE ACCOMMODATIONS FOR THE DISABLED

Workplace accommodations for the disabled are those practices, policies, and procedures put into place by

employers to assist in the integration of and participation by disabled people in the workplace. These accommodations are necessitated by national, state, or provincial legislation, such as the Americans With Disabilities Act in the United States or the federal Human Rights Act in Canada, that require employers to provide employment opportunities to disabled individuals who traditionally have been underrepresented in the workforce. Workplace accommodation is important to industrial/organizational (I/O) psychologists and human resources managers (HRMs) because many aspects of the personnel systems that they develop, implement, and evaluate are affected when an accommodation is made.

WHAT ASPECTS OF THE PERSONNEL SYSTEM ARE SUBJECT TO THE ACCOMMODATION REQUIREMENT?

All parts of the personnel system can come under scrutiny of courts and regulators who are tasked with enforcing legislation that prohibits employment discrimination against disabled individuals. These individuals can be impaired either physically or mentally. An example of an accommodation for a visually impaired person in the hiring process would be the provision of employment test materials in double-size print. A person in a wheelchair could be provided with a workstation that is suited to wheelchair access. A person with attention deficit disorder might be provided with detailed written instructions, so they do not miss a step in completing their assigned task. The elements of the personnel system that require attention, as well as the subsequent accommodations made, will depend on the nature of the disability, the effect of that disability on worker behavior and performance, and the conditions currently existing in the workplace.

WHO DECIDES ON WHAT ACCOMMODATIONS ARE REQUIRED AND HOW THEY SHOULD BE IMPLEMENTED?

Workplace accommodation often is a straightforward and intuitively obvious matter that can be resolved quickly, inexpensively, and effectively through discussion between the employer and the disabled individual. For example, a claims adjuster who works most of the day at a computer might be provided with a larger screen as simple job redesign to accommodate a visual impairment. This may be the only workplace

accommodation required for that person to succeed on the job. At other times, however, a workplace accommodation is more complex and may require the combined expertise and efforts of a multidisciplinary team, including the disabled person, an I/O psychologist, a health care provider, a human resources manager, and a line supervisor or manager. This is especially true for persons with mental disabilities (e.g., depression, autism, dyslexia) that are *invisible* but still present formidable obstacles to the disabled person who wishes to enter and succeed in the workplace. In these cases it is not apparent whether it is the disability per se or the lack of ability to perform the job requirements that is at the bottom of the person's difficulties in adapting to and functioning in the workplace. Disentangling and resolving these issues may take considerable time and effort.

Where a multidisciplinary team undertakes the identification of a workplace accommodation, the team members should bring distinct, but complementary, talents and perspectives to the task. The I/O psychologist will bring skills and experience in identifying the essential job duties through the use of job analysis and, as needed, assessing the job skills of the disabled individual. The health care provider (e.g., psychiatrist, neuropsychologist, clinical psychologist) will bring insight into the etiology of the disorder, its likely effects on behavior and performance in the workplace, and a prognosis for recovery. The human resources manager will bring an in-depth knowledge of the personnel system of the employer, especially organization policies and procedures (related to hiring and promotion, for example) with which the workplace accommodation will have to articulate. The line supervisor or manager will be able to determine whether an individual accommodation is practicable to achieve within the unit under supervision (it is futile to propose an accommodation that realistically cannot be implemented in the office or on the shop floor). The disabled person also should contribute to team discussions and decisions about how the disability should be accommodated. Other technical experts or stakeholders—such as an occupational therapist, a rehabilitation psychologist, or a union representative—might be asked to participate in the multidisciplinary team to identify and recommend the workplace accommodation, depending on the nature of the disability; the prognosis for recovery of the disabled person; or the labor-management climate within the organization.

In complex cases of workplace accommodation, the team members should use a structured decision

process to help guide their discussions and decisions. Steven Cronshaw and Brenda Kenyon proposed a model to guide team members through four steps of identifying and implementing an individual accommodation in the workplace. Whatever the workplace accommodations identified and recommended for implementation, management will be responsible for putting the accommodation in place. Prior participation of the line manager or supervisor in identifying the required workplace accommodation will make informed and successful implementation of it much more likely.

HOW FAR MUST AN EMPLOYER GO TO PROVIDE WORKPLACE ACCOMMODATION?

Some employers feel trepidation that workplace accommodation may interfere with organizational productivity or their ability to compete in the global economy. Typically, legislators have considered this possibility and have sought to balance the rights of the disabled worker for gainful employment with the need of the employer for a productive workplace and reasonable control of costs associated with implementing workplace accommodation. The Americans With Disabilities Act, for example, states that a worker must be able to perform the essential duties of the position and that it is not a reasonable accommodation to excuse a disabled worker from the performance of these essential duties. The I/O psychologist can help the employer identify the essential functions of the job through job or task analysis and differentiate them from nonessential duties from which a disabled person might be excused as part of an individual accommodation. As well, workplace accommodations usually are not required beyond the point where financial or other costs would place an undue or unreasonable burden on the employer. What is *unreasonable* for a given employer will depend on the size of the organization and its ability to absorb the costs associated with the workplace accommodation.

SUMMARY

The need for workplace accommodation engendered by disability legislation offers an opportunity for I/O psychologists to bring their science into application for the benefit of disabled workers and their employing organizations. The goal is to make available the workplace affordances that will enable the entry of

disabled workers into full workforce participation while ensuring that their success also makes the needed contribution to the efficiency, effectiveness, and productivity of the organization. Social movements in many countries are providing the impetus to greater inclusion of disabled persons in all spheres of life, including employment. As a result, workplace accommodation, and the involvements of I/O psychologists in providing accommodation to disabled individuals, will grow in importance for the foreseeable future.

—Steven F. Cronshaw

See also Americans With Disabilities Act

FURTHER READING

Cronshaw, S. F., & Kenyon, B. L. (2002). An application model relating the essential functions of a job to mental disabilities. In J. C. Thomas & M. Hersen (Eds.), *Handbook of mental health in the workplace*. Thousand Oaks, CA: Sage.

WORKPLACE INCIVILITY

Workplace incivility refers to behaviors that people experience at work that are rude and discourteous, and that generally go against norms for mutual respect and dignity. Examples of incivility include being berated for an action in which one played no part, being excluded from a meeting, and having one's credibility undermined in front of others. Neglecting to greet one another, interrupting others while speaking, failing to return borrowed supplies, and spreading rumors and gossiping constitute incivil acts. Incivility is considered a subset of counterproductive work behaviors (CWBs), employee deviance, and workplace aggression. However, incivility only includes behaviors that are relatively mild (e.g., verbal, passive, and indirect), whereas CWB, deviance, and aggression also include behaviors that are physical, active, and direct. Although incivility is less intense than other forms of CWB or deviance, it is far more common. Unlike employee deviance or aggression, incivility is characterized by an ambiguous intent to harm. That is, an act of incivility may be perceived by the instigator or target as a deliberate attempt to cause harm or it may be attributed to more benign causes. For example, the instigator may claim the behavior was because of

ignorance or an oversight on his or her part or may accuse the target of misunderstanding the behavior or being overly sensitive. Incivility is also distinct from mobbing, bullying, and social undermining in that these constructs generally refer to a recurring pattern of deliberately injurious behavior wherein an individual may be systematically targeted by one or more individuals at work. The unique contribution that is made by including incivility alongside these distinct albeit related constructs is the idea that behaviors do not necessarily have to be clearly and deliberately hostile to negatively affect an individual or organization.

Interest in workplace incivility has grown recently as interest in uncivil behavior in society at large such as cell phone use and road rage has increased. The common perception is that incivility is on the rise, but no empirical data are available to substantiate this view. However, several changes in the way we work may have contributed to a relaxing of social norms and a concurrent increase in incivility. For example, organizations have loosened formal rules for dress and behavior as companies become flatter and less formal to increase responsiveness and encourage innovation and creativity. The absence of these formal cues for behavior may be contributing to an increase in incivility. Modern communication technology may also be a factor as electronic communication such as e-mail and instant messaging is more susceptible to misinterpretation because it is unable to convey the subtleties of nonverbal communication including body language and voice intonation that can mean the difference between a statement interpreted as gentle ribbing or a provocative insult. Moreover, the increasing racial and ethnic diversity of the workforce means employees are more likely to encounter others with different cultural norms and expectations regarding what is acceptable and courteous behavior. Finally, the increase in corporate downsizing, restructuring, and mergers coupled with a heightened emphasis on short-term profitability often means that workers are expected to do more with less. All these factors translate into a more complex and fast-paced working environment that leaves little time for niceties and proper manners.

SOCIAL INTERACTIONIST PERSPECTIVE

Incivility is generally characterized as occurring within an interactive social exchange dynamic

described as an incivility spiral wherein an act of workplace incivility on the part of one individual leads to an act of incivility by a second party (the original target) that may be of equal or increasing intensity. In the former case, the exchange is nonescalating, but these exchanges may have cumulative negative consequences for organizations by altering norms about such behavior and increasing emotional fatigue among participants and observers of the exchange. The latter case, however, results in an escalating spiral of incivility wherein each act of incivility is followed by an increasingly negative act. Situations such as these have the potential to lead to more intense forms of CWB, perhaps resulting ultimately in aggression or violence wherein the intent to inflict harm is indisputable.

INSTIGATORS AND TARGETS

Instigators of workplace incivility are more likely to be male, and some are also high performers at work. Instigators do not discriminate based on gender or age when choosing a target; however, they are more likely to target individuals who hold lower status positions than themselves. Thus, incivility is more likely to be perpetrated by individuals in positions of power and aimed at individuals with less power. Research indicates that being the target of incivility can lead to increased job stress and job dissatisfaction. Targets often respond by withholding effort or other citizenship behaviors, avoiding the instigator, performing other counterproductive behaviors, or leaving the organization. The effects of incivility may also extend beyond the original involved parties to affect other individuals who may witness uncivil exchanges by creating a stressful working environment, changing organizational norms about how people treat each other at work, and potentially leading to spillover uncivil behavior.

PREVENTION

There are many steps that organizations can take to reduce the occurrence of workplace incivility. Perhaps the most important is to set and clearly communicate expectations and standards for employee behavior to build a culture that will not tolerate rudeness or incivility. To be effective, it is critical that these policies are supported and modeled at all levels of the organization, particularly by those in top management. The selection

and recruitment process should also align with the organization's policies on civil interpersonal treatment. Companies should take care to inform potential hires of behavioral expectations and standards and use the interview process and reference checking to identify individuals with a higher propensity to instigate incivility. Organizations can also provide training to employees to provide them with more productive ways of interacting with others and to make them more aware of the negative effects of incivility. Employee performance appraisals and evaluations should also reflect these standards for behavior. Finally, individuals who violate policies against incivility should incur consequences regardless of status. Because many instigators are in positions of power and possess valuable knowledge and skills, organizations may be reluctant to take action; however, the costs of tolerating incivility are too great to be ignored.

—Lisa M. Penney

See also Counterproductive Work Behaviors, Interpersonal Deviance

FURTHER READING

- Cortina, L. M., Magley, V. J., Williams, J. H., & Langhout, R. D. (2001). Incivility in the workplace: Incidence and impact. *Journal of Occupational Health Psychology, 6*(1), 64–80.
- Johnson, P. R., & Indvik, J. (2001). Rudeness at work: Impulse over restraint. *Public Personnel Management, 30*(4), 457–465.
- Pearson, C. M., Andersson, L. M., & Porath, C. L. (2000). Assessing and attacking workplace incivility. *Organizational Dynamics, 29*(3), 123–137.
- Pearson, C. M., & Porath, C. L. (2005). On the nature, consequences, and remedies of workplace incivility: No time for “nice”? Think again. *Academy of Management Executive, 19*(1), 7–18.
- Penney, L. M., & Spector, P. E. (in press). Job stress, incivility, and counterproductive work behavior (CWB): The moderating role of negative affectivity. *Journal of Organizational Behavior*.

WORKPLACE INJURIES

The term *workplace injury* refers to any wound or damage to the human body as a consequence of an event or a series of events in the work environment.

Events in this definition refer to the manner in which the injury was produced, such as a fall from a ladder or a series of events such as repetitive strain. Workplace injuries are often referred to in different ways—for example, industrial injuries, occupational accidents, unsafe working, and incidents—a number of which implicitly presuppose no causality (accidents), blame the victim (unsafe working), or communicate a façade of unbiased detachment (incidents). We use the term *workplace injuries* here because it most accurately describes the phenomenon.

In this entry we first provide a simple way of classifying workplace injuries and draw some examples from prevalence data summarized by the Bureau of Labor Statistics (BLS), a division of the United States Department of Labor. With this as background, we then describe two strands of research in industrial/organizational (I/O) psychology that have worked toward understanding the predictors of workplace injuries.

CLASSIFICATION AND PREVALENCE

Taxonomies for classifying workplace injuries vary considerably, and often correspond to how governmental agencies (e.g., BLS, Occupational Safety and Health Administration [OSHA]) classify information on both workplace injuries and the industries in which they occur. Each year in the United States, for example, the BLS collects workplace injury data from thousands of work establishments. Instead of adopting a particular classification system here, however, we classify workplace injuries on two dimensions that refer to the nature of the injury and transcend industry sector: *timing* (acute or chronic) and *physical severity* (minor or major). Acute workplace injuries have sudden onset, and examples of these include cuts and bruises, sprains, needlesticks, and burns. A chronic injury persists for a longer period of time and may include a category of injuries including carpal tunnel syndrome attributed to repetitive strain (e.g., keyboarding, some assembly-line tasks). Within this definition of chronic injuries, we do not include workplace illnesses that characterize longer-term exposure to harmful substances, including poisoning and radiation, or possible interactions between these harmful substances and social contagion like sick building syndrome. Alongside injury timing, the physical severity of injuries ranges from negligible irritation to death. The consequences of a minor injury might be

some on-the-job first aid, little suffering for the victim, and no significant loss of work, whereas a more major injury might involve hospitalization, more widespread suffering for the victim and family, and prolonged and even total loss of life and work.

Although workplace injuries can occur in any employment situation and wide variation does exist in workplace injuries by industry, a number of occupations and workplaces consistently rank among the most dangerous as measured by worker fatalities. For example, at the time of this writing, fishing and logging ranked as the two most dangerous occupations in America, with death rates nearly 18 and 30 times, respectively, that of a typical American workplace (i.e., 4.0 per 100,000 workers). Thus in terms of events in dangerous workplaces, falling trees in forests, drowning in open water, traveling to or from high altitudes (69.8 deaths per 100,000 workers for pilots and navigators and 69.8 deaths per 100,000 workers for structural metal workers), and car crashes on highways (drivers and sales workers such as pizza delivery drivers face 37.9 deaths per 100,000 workers) are, on average, the most dangerous work situations facing U.S. workers. Data reported in the BLS's annual Survey of Occupational Injuries and Illnesses suggest that millions of nonfatal workplace injuries occur in workplaces every year. Private industry, for example, reported approximately 4.4 million nonfatal injuries and illnesses in 2003. We believe that figures for nonfatal workplace injuries are conservative at best, and leave it up to the reader to explore the injury classification system, industrial and occupational rates, and systemic threats to reliable and valid workplace injury data relevant to their context.

RESEARCH ON PREDICTING WORKPLACE INJURIES

Psychological research on the prediction of workplace injuries has two broad strands, with the first having more of a historical foothold in psychology as it has been applied to workplace injuries. The first strand of research attempts to predict the occurrence of workplace injuries from individual differences such as *accident proneness* and personality traits. Studies of workers in munitions factories during World War I described accident-prone individuals as people who had a natural propensity to be injured on the job. Researchers at the time attributed this to inadaptability on the part of the worker and went as far as

suggesting that encouraging accident-prone workers to work more safely was a waste of time, perhaps even a source of unnecessary apprehension. With the enthusiastic uptake of scientific management principles at the time, the rather vague notion of accident proneness was ironically swept into industrial practice and became a popular albeit unreliable way of selecting workers for manufacturing settings. The legacy of accident proneness unfortunately pervades even modern selection approaches for safety-critical settings and deserves explicit mention here given the pervasiveness of the myth and the lack of systematic evidence of its nature.

A more methodical approach to understanding the individual differences perspective on predicting workplace injuries involves personality traits. Although the notion that workplace injuries are caused by personal characteristics is unfounded, there is moderate evidence that certain personality characteristics are correlated with injury occurrence. Empirical evidence suggests modest correlations between workplace injury occurrence and some Big Five personality traits such as neuroticism and negative affectivity. Despite this, we note that little variation in workplace injury can be uniquely explained by these variables. From a practice perspective, it appears to be of little value to exclude the proportion of the working population that scores highly on these personality traits to avoid the possibility of workplace injuries. In the face of correlational evidence, we argue that deselecting, for example, highly neurotic employees from a workforce would make no practical difference in the number and type of injuries actually experienced; and we believe instead that a more fruitful line of inquiry should focus on the *interaction* between personality traits and characteristics of the work situation, the latter of which we discuss next.

The second strand of research in the prediction of workplace injury focuses on how people perceive their work environment, including the nature of the tasks they are required to perform such as work design and salient workplace relationships including supervisor influence. Of the two, research on the link between work design and injuries is the less definitive. Although most existing studies on this topic suggest that work characteristics are correlated with injuries, there is little consistency regarding which work characteristics are most important. For example, across a number of studies, high job control, moderate job demands, high role clarity, and low physical hazards

are four important situational predictors of injury occurrence; however, other studies have found less significant relationships for all these work characteristics. In sum, although recognition of work design factors in the prevention of injury is growing, the evidence is far from clear and not causal. Although evidence of the relationship between work characteristics and injuries suffers the same lack of causal data as does the personality and injury relationship discussed earlier, we suggest that changing work design is more instructive than selecting (or deselecting) personnel for three reasons. First, the correlations between work characteristics and injuries are, on average, larger than those of personality and injuries. Second, there is considerable evidence of the potential of work redesign in improving other indicators of well-being such as job-related mental health. Third, redesigning work (e.g., increasing timing and method control, increasing role clarity) to promote healthy work is more within the control of managers for an existing workforce with a range of personality traits.

Among situational factors that are related to workplace injury occurrence, the role of high-quality leadership presently seems to provide the most compelling findings. Across a range of different theories of leadership behavior (e.g., transformational leadership, leader-member exchange theory), there are moderate correlations reflecting that the presence of a high-quality supervisor is related to lower injury occurrence among the supervisor's workers. High-quality leadership could affect the occurrence of injury through a number of mechanisms. For example, a caring and stimulating supervisor might heighten the general sense of how important workplace safety is and increase awareness and attentiveness, thereby reducing the risk of injuries. In contrast, a supervisor with poor leadership behaviors might not communicate concern for subordinates' well-being or generate a disaffected climate that encourages shortcuts to be taken, thereby increasing the chance of injuries. Although existing research suggests a qualitative difference between the preventative effects of high-quality leadership and the detrimental effects of poor leadership, research on the mechanisms linking leadership and workplace injuries more generally is less clear.

—Nick Turner and Julian Barling

See also National Institute for Occupational Safety and Health/Occupational Safety and Health Administration; Occupational Health Psychology; Workplace Safety

FURTHER READING

- Barling, J., & Frone, M. R. (Eds.). (2004). *Psychology of workplace safety*. Washington, DC: American Psychological Association.
- Barling, J., Loughlin, C., & Kelloway, E. K. (2002). Development and test of a model linking safety-specific transformational leadership and occupational safety. *Journal of Applied Psychology, 87*, 488–496.
- Frone, M. R. (1998). Predictors of work injuries among employed adolescents. *Journal of Applied Psychology, 83*, 565–576.
- Hemingway, M. A., & Smith, C. S. (1999). Organizational climate and occupational stressors as predictors of withdrawal behaviours and injuries in nurses. *Journal of Occupational and Organizational Psychology, 72*, 285–299.
- Landen, D. D., & Hendricks, S. (1995). Effect of recall on reporting of at-work injuries. *Public Health Reports, 110*, 350–354.
- Nichols, T. (1997). *Sociology of industrial injury*. London: Mansell.

WORKPLACE ROMANCE

The subject of workplace romance is hardly a new one; Robert E. Quinn published his groundbreaking article on the formation, impact, and management of workplace romances in 1977. In 2004 it was estimated that nearly 10 million workplace romances develop annually in organizations throughout the United States. Highly publicized examples include the illicit relationship between Boeing's CEO Harry Stonecipher and executive Debra Peabody and the genuine relationship between Microsoft's Chairman Bill Gates and manager Melinda French.

A workplace romance is a dating or marital relationship that involves mutually desired sexual attraction between two members of the same organization. Workplace romances are classified as one of the following five types:

1. *Companionate*: Both employees are genuinely in love with one another and seeking a long-term companion or spouse.
2. *Passionate*: Both employees are genuinely in love with one another and seeking adventure, ego satisfaction, excitement, or sexual gratification.
3. *Fling*: Both employees are seeking adventure, ego satisfaction, excitement, or sexual gratification.
4. *Mutual User*: Both employees are seeking advancement, financial rewards, increased vacation time, lighter workloads, power, security, or other job-related benefits and resources.
5. *Utilitarian*: One employee (e.g., a subordinate) is seeking advancement, financial rewards, increased vacation time, lighter workloads, power, security, or other job-related benefits and resources, whereas the other employee (e.g., a supervisor) is seeking adventure, ego satisfaction, excitement, or sexual gratification.

One study revealed that 36% of workplace romances are passionate, 23% are companionate, 22% are utilitarian, and 19% are flings. Workplace romances are also described in terms of each participant's organizational rank. Lateral romances occur between employees who have equal rank such as two peers, whereas hierarchical romances occur between employees who have unequal rank, for example, a supervisor and a subordinate.

Workplace romances can affect vital organizational variables such as participants' job performance and motivation to work. In addition, dissolved workplace romances can foster sexually harassing behavior between former relational participants. Accordingly, scholars in fields such as industrial/organizational (I/O) psychology, organizational behavior, and human resource management have conducted research aimed at providing an understanding of the formation, impact, and management of workplace romances.

FORMATION OF WORKPLACE ROMANCES

Explanations for how workplace romances develop are based on social psychological theories of repeated exposure, interpersonal attraction, love, emotion, attitudes, social exchange, group dynamics, and impression management. The main antecedent factors proposed to explain the formation of romances between two employees include their degree of physical and functional proximity to one another, repeated social interactions with one another, similarity of work- and nonwork-related attitudes, physiological arousal in one another's presence, physical attraction to one another, favorability of attitudes toward workplace romance, and job autonomy. Another antecedent factor proposed to explain whether employees decide to partake in workplace romances is the nature of their organization's culture with respect to workplace romance. An organization's culture is determined in part by whether

or not it has a formal workplace romance policy and, if so, whether the policy prohibits workplace romances altogether or instead stipulates conditions under which workplace romances are acceptable versus unacceptable. The culture is also determined in part by whether it has workgroup norms that disapprove versus approve of workplace romances.

With respect to formation factors, recent studies have shown that employees who have more favorable attitudes toward workplace romance are more likely to participate in workplace romances than are employees who have less favorable attitudes toward workplace romance. Recent studies have also shown that employees who have the opportunity to make decisions about their own and others' work, and who have the freedom to move around physically and interact with others at work, are more likely to participate in workplace romances than are employees who do not have this degree of autonomy in their jobs.

IMPACT OF WORKPLACE ROMANCES

Workplace romances can affect, both positively and negatively, participants' work-related attitudes and behavior. Examples of proposed impact factors include romance participants' levels of job performance, work motivation, job satisfaction, job involvement, and organizational commitment. Coworkers can also be affected by observing workplace romances. For example, a workgroup's morale may be lowered by observing a hierarchical romance wherein the higher-rank participant exhibits job-related favoritism toward the lower-rank participant.

With respect to impact factors, recent studies have produced mixed results such that participating in a workplace romance has been shown to be both positively associated with and not associated with participants' levels of job performance. One study also showed that employees' participation in a workplace romance is positively associated with their levels of job satisfaction and, to a lesser degree, their levels of commitment to the organization.

Finally, dissolved workplace romances can foster sexually harassing behavior between former relational participants. Indeed, federal cases have dealt with dissolved workplace romances that led to sexual harassment claims supported by the courts. A prior history of workplace romance between a plaintiff and defendant may, however, sway investigators' decisions about the plaintiff's sexual harassment claim. Studies

have shown that investigators' knowledge of a prior history of workplace romance, and knowledge of specific features of the dissolved romance, affects how they respond to an ensuing harassment claim.

MANAGEMENT OF WORKPLACE ROMANCES

Considering the impact of workplace romances, organizations typically must manage these liaisons. For example, depending on the level of work disruption caused by a romance, managerial interventions may entail either no action; positive action such as counseling; or punitive action such as a reprimand, suspension, transfer, or termination for one or both participants. Recent studies conducted by the Society for Human Resource Management indicate that about 70% of organizations do not have a formal workplace romance policy. However, those that do (e.g., IBM, Pfizer, Wal-Mart, Xerox) typically permit but discourage lateral romances and prohibit hierarchical romances. Finally, some organizations advise workplace romance participants to sign a consensual relationship agreement. Also known as *love contracts*, these written agreements are used to stipulate terms and conditions of the romance and to prevent costly sexual harassment lawsuits. Unfortunately, the advantages and disadvantages of using consensual relationship agreements have not been studied empirically.

—Charles A. Pierce, Ivan S. Muslin,
and Tobias M. Huning

See also Sexual Harassment at Work

FURTHER READING

- Foley, S., & Powell, G. N. (1999). Not all is fair in love and work: Coworkers' preferences for and responses to managerial interventions regarding workplace romances. *Journal of Organizational Behavior*, 20, 1043–1056.
- Pierce, C. A., & Aguinis, H. (2003). Romantic relationships in organizations: A test of a model of formation and impact factors. *Management Research*, 1, 161–169.
- Pierce, C. A., Broberg, B. J., McClure, J. R., & Aguinis, H. (2004). Responding to sexual harassment complaints: Effects of a dissolved workplace romance on decision-making standards. *Organizational Behavior and Human Decision Processes*, 95, 66–82.
- Powell, G. N. (2001). Workplace romances between senior-level executives and lower-level employees: An issue of work disruption and gender. *Human Relations*, 54, 1519–1544.

Quinn, R. E. (1977). Coping with cupid: The formation, impact, and management of romantic relationships in organizations. *Administrative Science Quarterly*, 22, 30–45.

WORKPLACE SAFETY

It is probably reasonable to assume that most employees in the developed world go to work each day in the belief that they can return home safely at the end of their workday. Yet the available data from a number of industrialized countries over the last 15 years suggests that this assumption is questionable. Workplace fatalities continue at an alarming rate. In 1995 and 1998, in the United States of America, there were more than 6,000 fatal work injuries. By 1999 there were approximately 833 fatal workplace injuries in Canada. The frequency of disabling work injuries is also staggering. For example, in 1995 there were approximately 3.6 million injuries requiring time off work in the United States, with approximately 1.1 million employees injured at work each year between 1993 and 1996 in the United Kingdom.

But these data only speak to the extent of the problem. The social meaning of these data can perhaps best be appreciated by comparing the number of people who die in workplace safety incidents with those who die from other causes. First, more people are killed each year in workplace safety incidents than are murdered each year in Canada. Others have extended this focus to show that workers are substantially more likely to be injured or killed on the job than they are to experience the same consequence at the hands of a criminal. Second, despite the understandable public attention given to illnesses, injuries, and fatalities from breast, prostate, or colorectal cancer, vehicular-related deaths, firearms, and AIDS, more people are still injured and killed each year in workplace safety incidents in the United States.

Despite the magnitude of these data, the issue of workplace safety has largely escaped the focus of psychological research. In this entry we consider three issues. We will first consider the nature and measurement of workplace safety. Thereafter, we address psychological factors at work that promote or detract from workplace safety. Last, we focus on some of the psychological consequences of workplace safety infractions.

THE NATURE AND MEASUREMENT OF WORKPLACE SAFETY

Debate continues as to the most appropriate way to conceptualize and operationalize workplace safety. Most frequently, workplace safety is measured as the number of workplace fatalities, injuries, and lost time from work—broadly speaking, accidents. Perhaps by default, then, workplace safety is usually conceptualized as the absence of injuries and fatalities, or accidents. Although acknowledging that it is not advisable to offer a definition of a construct by stating what it is not, we begin this section with a strong caution against the use of the term *accident*. Terminologically, *accident* implies an event that is random, hence neither predictable nor preventable with no plausible assignment of blame. Yet most postaccident workplace investigations reveal that the event in question was both predictable and preventable. As such, continued use of the term *accident* is not only descriptively inaccurate; it might also impede theorizing and empirical research, and potential misspecification will certainly detract from any comparison of preventive efforts.

Conceptualizing workplace safety in terms of accidents has other problems, too. It does not account for the fact that there are realistic concerns about the accuracy of workplace safety data, the fact that different jurisdictions define incidents and accidents differently (e.g., what constitutes an injury), and that these data are not normally distributed. Taken together, these problems make it difficult to conduct reliable and valid research that is likely to enhance both theory and practice.

A different way of conceptualizing and measuring workplace safety that would enhance theory and research is possible by focusing on safety-related behaviors rather than the consequences of not behaving safely. Three behaviors are worthy of attention. First, some research has concentrated attention on the proximal behaviors that precede injuries. In the restaurant industry, for example, cuts and lacerations are frequent injuries, and the most proximal behaviors that might constitute working safely include being in contact with broken glass or having a knife slip while working in the kitchen. Second, research has focused on employee compliance, such as with safety regulations and supervisory requests, and might be important in the extent to which injuries and fatalities and lost time from work are reduced. Still, it is unlikely

that safety compliance would enhance safety (as opposed to limit injuries). The third behavior, referred to as safety participation or safety initiative, reflects a set of behaviors that employees enact when they go beyond compliance with normal safety regulations to assist the organization and its members in improving safety. Employees demonstrate safety initiative when they engage in voluntary behaviors such as agreeing to serve on safety committees or discuss and implement ways to work safely with their colleagues. Together, these three behavioral aspects constitute safety performance; turning the focus in workplace safety to safety performance as opposed to workplace injuries alone might well benefit prevention-oriented research and practice.

PSYCHOLOGICAL FACTORS THAT PROMOTE WORKPLACE SAFETY

There has been a considerable amount of research on the causes of workplace safety. In this respect we acknowledge that a large body of knowledge has accumulated on ergonomics, or human factors engineering, which is generally concerned with the optimal design of machines, equipment, and the physical environment. Although some psychological research has contributed to the field of ergonomics, such as cognitive psychology and perception, we choose to focus in this section on those aspects that are more clearly psychological, namely leadership, psychological climate, and high-performance work systems.

Leadership and Workplace Safety

Organizations typically accept without question that leadership makes a difference. Yet this belief has not been applied to the understanding and management of workplace safety; instead, a command-and-control style of management has been more likely to be implemented to achieve greater levels of employee compliance. Three streams of research now indicate that workplace safety may well benefit from high-quality leadership.

First, perhaps the longest standing approach to understanding the effects of leadership on workplace safety has examined leaders' commitment to safety. Findings across several decades have demonstrated consistently that when leaders manifest a high commitment to workplace safety, organizations enjoy better safety records, their supervisors are more likely

to use a participative style in managing safety, and employees are more motivated to work safely.

A second stream of research is based on leader-member exchange theory, within which it is assumed that when leaders enact behaviors for the benefit of employees such as employees' safety, employees will reciprocate because of a feeling of mutual obligation. Research findings show that leader-member exchanges do indeed influence safety but that this effect is indirect. In one research study, high-quality leader-member exchanges resulted in better safety communications between supervisors and team members, and it was enhanced communication that influenced safety. In another study, high-quality leader-member exchanges resulted in what the authors called *safety citizenship*, which itself may parallel safety initiative.

The third stream of leadership research is based on transformational leadership, which may be especially suited to workplace safety. Transformational leadership reflects behaviors that tangibly show concern for employees, are value based, and inspire employees to go beyond what they previously thought was unattainable and think for themselves. Several findings have emerged from research on transformational leadership and workplace safety. First, paralleling research on leader-member exchange theory, effects of transformational leadership on safety seem to be indirect. Second, transformational leadership influences safety (and reduced injuries) in the extent to which it enhances perceptions of the safety climate, raises individuals' awareness of safety, and increases interactions with employees in which safety issues are discussed. Third, one research study on teenage supervisors shows that transformational leadership behaviors can be taught, which has important preventive implications.

Psychological Climate and Workplace Safety

Safety climate reflects shared perceptions regarding policies, procedures, and practices and can exist at both the organizational and team levels. Research spanning at least three decades has primarily investigated the consequences of group-level safety climate on various aspects of safety performance. The results of this research are both consistent and impressive. In positive safety climates (for example, when employees believe that management offers safety training

because they want to rather than because they have to), safety performance is enhanced and injuries are reduced in a variety of different contexts, such as private sector organizations and military units, and at different levels, including organizational, team-level, and individual safety performance.

Research has also investigated the factors that predict positive safety climates across different levels. Although there is less research on the predictors than the outcomes of safety climates, research has demonstrated the importance of high-quality leadership (within both leader-member exchange and transformational leadership frameworks). Given the importance of safety climate to subsequent safety performance, a greater research focus on the development of safety climate is certainly warranted.

High-Performance Work Systems and Workplace Safety

In different ways research has addressed the effects of leadership and climate on workplace safety for decades. By contrast, research assessing the effects of high-performance work systems is certainly more recent. High-performance work systems reflect a group of separate but interrelated practices that together attract, recruit, select, train, develop, motivate, and retain employees. These systems enhance conditions that encourage employees' pride in their work, extra effort, and identification with the organizations' goals. Over the past 15 years, research findings have continued to demonstrate strong links between high-performance work systems and both employee attitudes and performance such as productivity, sales, and turnover.

Recent research has shown that organizations' injury rates are associated with the extent to which a high-performance work system was in place, even after controlling for critical variables such as the organizational size, organization age, and union status. However, although impressive, such studies at the organizational level cannot provide information on how employees are affected by a high-performance work system such that their safety is enhanced. A separate study conducted at the individual level of analysis enables us to understand how this takes place. Using a sample of Canadian employees in the petroleum and telecommunications industries, the extent to which employees believed a high-performance work system was in place was indirectly associated with the number of safety incidents reported as well as

their own personal safety orientation (which included employee compliance with safety regulations, willingness to take the initiative on safety issues, safety knowledge, and safety motivation). More important, this study identified how these effects emerged: Employees who believed they had access to a high-performance work system manifested high trust in management and held more positive perceptions of the company's safety climate, which in turn affected self-reported safety incidents and personal safety orientation.

The high-performance work system research just described focuses on the system as a whole. Other research has investigated individual components of high-performance work systems, and two examples of the more specific focus will suffice. First, it would avail little to implement high-performance work systems if individuals were still left with boring, meaningless work over which they believed they had no control. Research shows that having a high-quality job (one in which training has been available and provides opportunities for autonomy) influences employee morale, which in turn affects workplace safety. In addition, having a high-quality job also exerts direct effects on workplace safety, presumably because autonomy promotes the learning, proactivity, and problem solving that enables preventive action.

Second, teams are an integral part of high-performance work systems and should enhance safety for several reasons: for example, they enhance cohesion, information sharing, and the extent to which individuals feel more responsible for each other's well-being. In studies in the coal mining and railway industries, employees working in teams that are more autonomous had better safety performance than their counterparts who worked less interdependently. Perhaps more tellingly, as the familiarity between team members decreased because of absenteeism, safety infractions increased.

PSYCHOLOGICAL CONSEQUENCES OF WORKPLACE SAFETY INFRACTIONS

Not surprisingly given the enormous personal, organizational, and societal costs of safety infractions, research has long focused on factors that cause workplace injuries and fatalities. Where research has focused on the consequences of safety incidents and infractions, most studies have addressed its financial consequences, or the consequences for the organization in terms of the number of workdays lost.

There are now some data from which we can begin to understand the psychological or attitudinal consequences of being injured at work. Specifically, suffering an injury of sufficient severity to require time away from work is associated with heightened distrust of management and feelings of a lack of influence, both of which result in job dissatisfaction. In turn, this job dissatisfaction results in employees thinking about quitting the organization. It remains for research to investigate this issue further because of the *hidden* attitudinal consequences of suffering a workplace injury both to the affected employees and to the organization. As well, research will need to focus on employees indirectly affected by injuries, such as those who might have seen the fatality or injury occur, or who might identify closely with friends or colleagues who are killed or injured on the job.

—Julian Barling and Nick Turner

AUTHORS' NOTE: The authors acknowledge Jenni Carson for comments on an earlier version of this entry.

See also National Institute for Occupational Safety and Health/Occupational Safety and Health Administration; Workplace Injuries

FURTHER READING

- Barling, J., & Frone, M. R. (Eds.). (2004). *Psychology of workplace safety*. Washington, DC: American Psychological Association.
- Barling, J., Loughlin, C., & Kelloway, E. K. (2002). Development and test of a model linking safety-specific transformational leadership and occupational safety. *Journal of Applied Psychology, 87*, 488–496.
- Goodman, P. S. (1979). *Assessing organizational change: The Rushton quality of work experiment*. New York: Wiley.
- Pearson, C. A. L. (1992). Autonomous workgroups: An evaluation at an industrial site. *Human Relations, 45*, 905–936.
- Zacharatos, A., Barling, J., & Iverson, R. D. (2005). High performance work systems and occupational safety. *Journal of Applied Psychology, 90*, 77–93.
- Zohar, D. (2000). A group-level model of safety climate: Testing the effect of group climate on microaccidents in manufacturing jobs. *Journal of Applied Psychology, 85*, 587–596.

WORK SAMPLES

Work samples, in the strictest sense, are hands-on performance tests or simulations of the job, which are

used to estimate current or predict future performance on similar tasks. Uses of work samples include the following:

- *Selection:* Work samples can be used to decide which applicants to hire. This is the most typical use of work samples.
- *Performance measurement and evaluation:* Work samples are sometimes used to estimate an individual's current level of job performance when other measures are unavailable. This is discussed at greater length in a following section.
- *Vocational assessment of disabled workers:* Work samples are commonly used to determine whether applicants with disabilities can perform the duties required on different types of jobs. These types of work samples are used to provide career counseling and vocational guidance to disabled workers.
- *Trainability measure:* Work samples are sometimes used after a short training session to decide whether the person should be selected to continue in a lengthier training program. In these cases the work sample is intended measure trainability to predict how successful the person will be in the training program.
- *Training evaluation:* Work samples are commonly used at the completion of a training program to determine whether the training was effective at improving performance.

The defining feature of work samples is physical replication of the critical tasks performed on the job; however, many other selection tools that do not replicate the work environment can also be considered work samples. Consequently, certain types of simulations fit more squarely under the *work sample* label than others. In the broadest sense of the term, any tests assessing specific skills, knowledge, or aptitudes that are critical for performance on the job in question may, in some cases, be characterized as work samples.

WORK SAMPLE CHARACTERISTICS

All work samples are based on the concepts that the test samples behaviors instead of measuring traitlike constructs and that those behaviors sampled are similar to those elicited on the job. Therefore, work samples are job specific. Although one work sample could be used to predict the same job at multiple organizations, the same test may no longer qualify as a work sample if used to predict a different type of job. To illustrate: A test measuring speed and accuracy of identifying number transcription errors could serve as a work sample for data entry clerks. However, the

same test is not a work sample for a quality control position in a candy factory even if the test is a valid predictor of performance for both jobs. In the first instance, the test measures behavior similar to that required on the job (checking numbers); in the second instance, the test is likely an indicator of the construct *attention to detail*. Therefore, researchers cannot determine if a test is a work sample without knowledge of the job to be predicted.

Fidelity to the Job

Work samples can range from high fidelity (an exact duplication of job tasks) to low fidelity (having a measurement format that differs from the job tasks). Examples of high-fidelity work samples from a broad range of jobs include flight simulators, dragging a fire hose and climbing a ladder, blueprint reading tests, typing and filing tests, dental carving tests, sewing tests, tests of microscope use, driving tests, assessment center simulations (i.e., in-basket tests, leaderless group discussions, business games, subordinate simulations), police report writing tests, computer programming tests, and so on.

Low-fidelity work samples fall into one of two main categories:

1. *Physical ability tests* such as manual dexterity tests, optical exams, and strength tests
2. *Paper-and-pencil tests* such as job knowledge measures (e.g., farming knowledge test), situational judgment tests, and job-specific skills or aptitude tests (e.g., math tests)

As such, some researchers have used the term *work sample* to refer to a variety of selection tools commonly used by industrial/organizational (I/O) psychologists.

WORK SAMPLE DISADVANTAGES

Although work samples are often useful tools, there are three occasions when their usefulness may be limited:

Cost of Work Samples

The first disadvantage is concerned with the cost or utility of the tool. Development and maintenance of a simulation can be expensive. High-fidelity work simulations must be tailored to tasks performed on the

job, and personnel must be trained to administer and score the work sample. In some cases the expense of work samples may outweigh the potential incremental validity of work samples over other tests. For example, when hiring a carpenter it might not be cost-effective to ask 30 applicants to actually build a cabinet. The expenditure of time and materials for a high-fidelity cabinet-building simulation may be excessive. Instead, low-fidelity simulations of the job such as situational judgment tests or job knowledge measures may be more utilitarian. However, the cost of a high-fidelity simulation can vary greatly depending on the complexity of the simulation. For example, with low-complexity repetitive jobs in manufacturing such as assembling computer chips, a high-fidelity work sample soldering wire connections may be quite cost-efficient.

Work Samples as Measures of Current Performance

Work samples are sometimes used to estimate current employee job performance when other measures such as supervisor ratings are unavailable. In these instances, the work samples no longer serve as predictors but rather as proxy criterion measures for a variety of human resource (HR) practices including the following: validating other selection tools, evaluating training outcomes, assessing individual or workforce training needs, giving performance appraisals, or even making promotion and pay decisions. However, the cautions against using work samples as criterion measures are with good reason. Even work samples with point-to-point correspondence to the job can differ from day-to-day performance. Levels of motivation in work samples are high. However, typical levels of motivation in day-to-day performance can vary greatly across individuals. This means work samples measure what an individual *can* do (maximal performance) but not necessarily what an individual typically *will* do (typical performance). In other words, motivation on the job that is a direct determinant of performance is not necessarily measured in a work sample. Therefore care should be taken in assuming work samples are accurate measures of current job performance.

Trainable Knowledge and Skills

Using work samples as a selection tool may not be feasible or appropriate when the work sample measures

knowledge or skills that are easily trainable. In entry-level positions, applicants are expected to learn on the job. In addition, some applicants may have experience, making them appear to be better performers than those who do not. But if a small amount of training would change someone's score on the work sample, many inexperienced but future high performers would be falsely rejected when using the work sample. This limits the usefulness of a work sample for two reasons. First, it lowers the criterion-related validity of the work sample. Second, members of protected classes may differ in their opportunities to gain experience in certain jobs (e.g., women in construction). If this is the case, the work sample would result in adverse impact, and awareness of the work sample may further have a *chilling effect* on those who would otherwise apply. Although adverse impact of work samples can often be defended on the basis of content validity, if the skills are easily trainable at low cost to the organization, the work sample could be subject to legal challenge.

WORK SAMPLE ADVANTAGES

Despite the disadvantages just mentioned, work samples that assess skills that applicants *cannot* easily acquire on the job can offer several advantages over other commonly used selection tools including good legal defensibility, realistic job previews, and positive applicant reactions. Well-designed work samples have clear content overlap with the job; therefore they are usually legally defensible on the basis of content validity alone. This type of validity evidence tends to be well accepted by the courts. In addition, most work samples are also face valid, or *look like* the job. Although face validity is not a legally defensible type of validity, it does lead to more positive reactions and perceived *fairness* by applicants when compared with other common selection tests. Work samples also offer a realistic preview of the job allowing applicants to better judge their own qualifications for and interest in the position. As a result of the perceived fairness and ability to self-assess their own performance, applicants may be less likely to quit shortly after hire. Both the content validity and face validity of work samples make work samples typically the least legally challenged and most legally defensible of all commonly used selection tools.

In addition to positive reactions and legal defensibility, research has also shown that work samples can have positive criterion-related validities that match or even

exceed those of other selection tools. On average, the meta-analytic estimate of work sample validity for predicting job performance is .46, and training performance is .42. Why do they predict so well? One explanation is that work samples are based on the tenet that past performance is the best predictor of future performance. However, proper work sample design plays a central role in whether a work sample measures up to that tenet. Critical design features include job analysis emphasizing behaviors and tasks, content validity (i.e., bandwidth and fidelity to the job), rater training to increase accuracy and reduce bias (i.e., leniency, severity, and halo), standardization of administration and scoring, assessment of interrater reliability, and emphasis on rating of behaviors. The presence of these features in a work sample increases the likelihood of, but does not guarantee, significant criterion-related validity. Moreover, because some jobs are easier to simulate than others, work samples may better predict performance in jobs with clearly defined and short-duration tasks that do not change over time (e.g., clerical or manufacturing jobs) than in jobs with less structured and longer-duration tasks that do change over time (e.g., project managers and engineers).

WORK SAMPLES: PAST, PRESENT, AND FUTURE

Published research on work samples began as early as the 1930s; however, research interest in work samples has slowed through last 30 years. Instead, research has turned to more specific types of work samples, including situational judgment tests and assessment centers. But despite the lull in academic research, actual use of all types of work samples has continued in applied settings. Technological innovations continue to make simulations less expensive and more realistic. Virtual reality, voice recognition software, and computerized scoring are just a few of the new technologies incorporated in work sample design. Yet research on work samples has not kept pace with these changes. Questions about whether this new technology can improve work sample predictive validity remain unanswered. Because technology limits our ability to create complex simulations, the utility of work samples in the future is unknown. Nevertheless, one thing is certain—work samples are as much a tool of the future as they are of the past.

—Chaitra M. Hardison

See also Adverse Impact/Disparate Treatment/Discrimination at Work; Americans With Disabilities Act; Assessment Center; Job Analysis; Job Knowledge Testing; Job Performance Models; Situational Judgment Tests; Validation Strategies

FURTHER READING

- Asher, J. J., & Sciarrino, J. A. (1974). Realistic work sample tests: A review. *Personnel Psychology*, 27, 519–533.
- Callinan, M., & Robertson, I. T. (2000). Work sample testing. *International Journal of Selection and Assessment*, 8, 248–260.
- Hardison, C. M., Kim, D. J., & Sackett, P. R. (2005). *Meta-analysis of work sample criterion related validity: Revisiting anomalous findings*. Paper presented at the Twentieth Annual Conference of the Society of Industrial Organizational Psychology, Inc., Los Angeles.
- Robertson, I. T., & Kandola, R. S. (1982). Work sample tests: Validity, adverse impact and applicant reaction. *Journal of Occupational Psychology*, 55, 171–183.
- Smith, F. D. (1991). Work samples as measures of performance. In A. K. Wigdor & B. F. Green, Jr. (Eds.), *Performance assessment for the workplace: Vol. 2. Technical issues* (pp. 27–52). Washington, DC: National Academy Press.
- Terpstra, D. E., Mohamed, A. A., & Kethley, R. B. (1999). An analysis of federal court cases involving nine selection devices. *International Journal of Selection & Assessment*, 7, 26–34.

WORK VALUES

Individuals hold central beliefs about two broad aspects of work. First, they have beliefs regarding how they ought to behave in work-relevant contexts (working hard, acting with integrity, respecting others). Second, they have preferences regarding what the work environment will provide for them (a challenging job, high pay). Although authors have usually focused on one or the other of these different approaches to work values, they are, in fact, related. Work values defined as generalized beliefs about modes of conduct at work form a primary component of the self-schema, the *ought* self, whereas work preferences compose a part of the *desired* self. Self-relevant beliefs tend to be the most deeply held and influential of cognitions, and thus values are stable and central beliefs, having powerful influences on

other cognitions, motivation, and action in the workplace. Work values are not merely evaluative responses; they are embedded within self-identity.

Based on the preceding definitions, work values defined in the ought frame are a powerful influence on preferences regarding objects or organizational characteristics. Work values, as they address one of a very few primary domains in life, act as an organizing structure for much of the rest of our system of cognition. Perceptions, motivation, attitudes, and opinions are all subject to this structure. Many concepts thought of as factual are influenced by work value systems, for example, the belief that jobs that require more responsibility also require more pay.

STRUCTURE AND ORIGIN OF WORK VALUES

Most authors conceptualize the structure of individual work value systems as ordered in terms of their impact on evaluations of objects, events, and behavior at work; but others have disagreed with such a ranking approach. Because values are socially desirable, individuals tend to learn them in an all-or-nothing fashion as children (always be honest, always achieve the highest possible level of performance). As individuals mature, they integrate these beliefs into a value system. This leads to the necessity of choosing one value over another when they come into contact with conflict; but over time, individuals may try to represent multiple values in their behavior.

Several general categories of work values are commonly identified; these typically include extrinsic or instrumental values (high pay), intrinsic or cognitive values (a challenging job), relational or social values (respectful relationships between coworkers), and power or self-enhancement values (gaining promotion or status). They are seen as more specific manifestations of general life values, but it may be argued that work values also affect life values over time. Evidence tends to support this *spillover* relationship between life and work values; however, it has also been proposed that a compensatory model may represent the relationship between different domains. For example, if individuals are particularly driven to achieve extrinsic outcomes at work, they may focus on relationships in their personal lives. This conceptualization has received minimal support to date.

Differences in work values may also be traced to cultural values based on the developmental history of particular nations or regions. A small number of value

dimensions seems to generalize across national cultures; thus such values are pivotal in understanding differences in such work-related cognition and behavior as communication, conflict resolution, and status organizing processes. Research on cultural values indicates that general clusters of these values revolve around basic problems that all human societies must solve:

- The nature of the relationship of the individual to the collective
- The use of hierarchy versus egalitarianism as a means to ensure societal order
- The nature of the relationship to the natural and social world (mastery or control versus harmony or adaptation)

These cultural patterns influence work values in that some cultural values are compatible with certain work values, whereas others conflict. For example, hierarchical approaches to social order are consistent with power and self-enhancement work values, and egalitarianism and harmony as cultural values are consistent with a strong emphasis on relationships at work.

In addition to cultural context, work values are acquired from other societal institutions (family, economic, and political). Besides these contextual influences, individual differences, such as personality, also play a role in the development of an individual's work value system. Work values and personality tend to be related, but they both also contribute uniquely to variance in occupational preferences. Because life values are learned early and relate to relatively stable factors such as culture and personality, they are difficult to change during adulthood. Such change requires a change in an entire system of related beliefs, attitudes, and perceptions. Direct conflict of values may produce change, and having violated a value once, individuals may find it easier over time to violate that value until it has lost its importance. Repeated failure of value-related behavior to produce positive outcomes may also produce change. These processes are likely to explain long-term, cross-situational value changes in adults. Overall, the finding of a tendency toward a desire for increased balance of work and nonwork values provides support for the idea that work ethic values in the United States have tended to erode as related behaviors, or lack thereof, have failed to significantly change lifestyles. Evidence indicates

not only that generational differences in work values exist but that values also change as employees age.

Organizational socialization is one important process through which work values are conveyed to employees. Cultural attributes of the organization, such as myths, stories, repetition, and more formal socialization processes, are used to teach employees what they should value in the work context. Leaders or founders may propagate the values of the organization among employees. To be internalized, however, a value must be functional at the individual level or be presented as the sole course of action available. Work values that are stated or espoused by the organization will eventually lose their priority if reward systems do not support them. In such situations employees learn that what they should say is substantially different from what they should do (enacted values). Employees bring values to the organization, and so at times may influence those of the organization, especially if large numbers or particularly powerful employees are hired.

WORK VALUE EFFECTS AND OUTCOMES

Work values influence perceptions regarding what occurs in the work environment, in particular, in highly uncertain contexts. They also act as an influence on behavioral decisions. In general, values lead to goals, which in turn lead to behavior. In addition to the mediating effect of goals, moderators (such as having discretion over action) and the labeling of an action as value relevant can determine whether values will predict behavior in specific situations. Work values act as motivational elements in that they indicate which behaviors are more desirable to perform than others from an ideal perspective, either because the behavior itself is valued, or because the behavior moves the actor toward a valued object or event. Acting on values may or may not fulfill innate needs.

Certain values play important roles in influencing particular behaviors. For example, a dominant honesty value produces more ethical decisions. These relationships between work values and behavior are often small at any one point in time but stronger over time, as with other individual differences. Additionally, in some instances, individuals use value statements (espoused, as opposed to enacted, values) to provide legitimacy for behavior that has already occurred. In these cases we might argue that the behavior is generating espoused work values, as opposed to work values leading to behavior.

Shared value systems, or work value congruence, has received a substantial amount of research attention. Several types of congruence have been identified; for example, supplementary fit, in which similarity with others in the work environment is the basis for congruence, and complementary fit, in which different attributes may be brought to the aggregate by different individuals to *round out* the unit or organization. With regard to work values, supplementary or similarity-based congruence has received the most attention. Shared work values have been shown to influence internal processes positively. Common patterns of cognition lead to reduced conflict and uncertainty; shared goals; and more predictability, trust, and satisfaction. This view is consistent with the Attraction–Selection–Attrition framework, which states that organizations tend to attract and retain similar people, and thus become more homogeneous over time. Value congruence has been explored at multiple levels (individual–organization, supervisor–subordinate, between coworkers, within teams).

Although sharing enacted work values tends to produce positive affective responses by way of common processing, the ability to articulate espoused values congruent with organizational management may relate more consistently to individual performance evaluations. A related view of value sharing, drawn from the organizational culture literature, is represented by the fragmentation perspective, which argues that shared beliefs are temporary because of the existence of multiple belief systems in any complex and uncertain environment.

Although evidence consistently shows that work value similarity generates more positive attitudes, the

relationship between value sharing and performance remains unclear. One option is that positive affect generated by value congruence will lead to higher performance. Other areas of research (i.e., the cross-cultural and group decision-making literatures) suggest that too much homogeneity may reduce performance in creative or changing situations and that constructive conflict should be generated by a diversity of task-relevant perspectives. If so, this conflict must be managed carefully to positively influence effectiveness.

—Elizabeth C. Ravlin

See also Attitudes and Beliefs; Motivational Traits; Organizational Culture; Person–Organization Fit

FURTHER READING

- Kristof, A. L. (1996). Person–organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology, 49*, 1–49.
- Meglino, B. M., & Ravlin, E. C. (1998). Individual values in organizations: Concepts, controversies, and research. *Journal of Management, 24*, 351–389.
- Roe, R. A., & Ester, P. (1999). Values and work: Empirical findings and theoretical perspective. *Applied Psychology: An International Review, 48*, 1–21.
- Schwartz, S. H. (1999). A theory of cultural values and some implications for work. *Applied Psychology: An International Review, 48*, 23–47.
- Smola, K. W., & Sutton, C. D. (2002). Generational differences: Revisiting generational work values for the new millennium. *Journal of Organizational Behavior, 23*, 363–382.

Appendixes: Pursuing a Career as a Successful Industrial and Organizational Psychologist



We gratefully acknowledge the Society for Industrial and Organizational Psychology (SIOP) for providing content for these appendixes. As a division of the APA and an organizational affiliate of APS, the society seeks to enhance human well-being and performance in organizational and work settings by promoting the science, practice, and teaching of industrial-organizational psychology through education, public awareness, and opportunities for information exchange among members of the field. To learn more about the society, we direct you to their Web site: www.SIOP.org.

To pursue a successful career in industrial and organizational (I/O) psychology, a graduate degree is recommended. A master's degree takes, on average, two years to complete. **Appendix 1** describes the educational approach and topics studied in this type of degree program. A doctorate takes substantially longer to complete, five years on average. The range of topics studied is quite similar to that for the master's degree; however, the depth of study and focus on conducting applied research are the distinguishing characteristics of a doctoral program. **Appendix 2** provides a detailed summary of the education and training usually found in a doctoral program.

Once you have decided on a degree type, you must pick a graduate school. A complete listing of graduate programs in I/O psychology (and related areas) can be found in **Appendix 3**. To help navigate this list and learn about graduate program rankings, please visit <http://siop.org/GTP/>.

A common denominator across almost all graduate programs is a reliance on a scientist-practitioner training model. The hallmark of this approach is using

science and research to understand and work to improve individual and organizational health, well-being, and effectiveness. You will read from and perhaps even attempt to publish research in a wide range of scientific journals. **Appendix 4** provides a comprehensive listing of the journals you will be seeing in your graduate education.

Upon graduation, your career options will be terrifically diverse. You can pursue a career in academia or become a practitioner. **Appendix 5** outlines the most common academic and practitioner job titles for I/O psychologists.

To find a good job, many prospective candidates choose to network in professional groups. Appendix 6 provides a thorough listing of such groups throughout the world. Membership in one or more of these groups is also a terrific way to gather current information, stay in touch with colleagues, benchmark problems and solutions, and feel part of a special community of professionals dedicated to studying and working to improve the world of work.

Appendix 1. Guidelines for Education and Training at the Master's Level in Industrial and Organizational Psychology

PURPOSE OF THE GUIDELINES

These guidelines have been written to aid faculty and curriculum planners in the design and change of master's-level graduate programs in industrial/organizational (I/O) psychology. Master's-level training in I/O psychology is widespread. Lowe (1993) identified 55 programs designed to award a master's degree in I/O psychology as a stand-alone degree, but she acknowledged that this was a conservative estimate. The large majority of these programs are not affiliated with a doctoral program (Koppes, 1991).

The impetus for these guidelines is threefold. First, the Society for Industrial and Organizational Psychology, Inc. (SIOP) is interested in providing guidance to, and supporting, such programs. Second, the National Conference on Applied Master's Training in Psychology (1990) has recommended the adoption of specialty guidelines such as this. Finally, this is a companion document to the *Guidelines for Education and Training at the Doctoral Level in I/O Psychology* (SIOP, 1985)¹ that called for the creation of guidelines for master's-level education. As the

content of this document is an outgrowth of the work that was done for the doctoral-level guidelines, there is much similarity between the two sets of guidelines.

These guidelines were not written to provide the basis for graduate studies program certification, determining eligibility for specialty licensing as an I/O psychologist, establishing eligibility for membership in the Society, or highlighting the continuing education and training needs of the profession. In addition, these guidelines were not designed to be a set of recommendations for education in related fields (e.g., labor and human resources, organizational behavior). Although it is recognized that many academic disciplines or specialties are concerned with developing related subject matter and skills, these related areas are beyond the scope of the guidelines.

PERSPECTIVE OF THE GUIDELINES

These guidelines list, categorize, and describe competencies that should guide curricular and pedagogic decisions by faculty responsible for training I/O

These guidelines were prepared by the Master's Education Subcommittee of the Education and Training Committee of the Society for Industrial and Organizational Psychology, Inc.

EDITOR'S NOTE: Information for this appendix was graciously provided by the Society of Industrial and Organizational Psychology.

students at the master's level. Because almost all of the competencies listed here are also contained in the doctoral guidelines, the reader might ask the obvious question: What distinguishes master's-level and doctoral-level education? The distinctions are described in the following sections.

BREADTH OF TRAINING

Master's-level students will typically receive a narrower breadth of training than will doctoral students. This stems largely from the fact that fewer hours are required for the master's degree. Thus, the competencies listed in Table A.1.1 may not be covered as fully at the master's level as they might be at the doctoral level. As a result, there may be considerable variability in program content among master's-level I/O programs (e.g., one program may emphasize "organizational" issues, while another emphasizes "industrial" issues). Lowe (1993) provides evidence of the variability of master's-level I/O programs.

DEPTH OF TRAINING

Master's students are expected to demonstrate basic-level competencies (e.g., regression analysis, classical test theory), but only to be exposed to higher-level concepts (e.g., causal modeling, generalizability theory). For example, whereas a doctoral student may take several courses in statistical analysis, the master's student may have just one or two courses. Besides fewer hours, master's education is typically delivered with a lower faculty-to-student ratio than is true of doctoral-level training (Lowe, 1993). This type of training is consistent with the generalization that master's-level students will typically be consumers of I/O knowledge rather than producers of new knowledge. As such, they are engaged in applying this knowledge to issues involving individuals and groups in organizational settings. Those involved in research usually do so under the guidance of a doctoral-level psychologist.

CAREER OPTIONS

The career options are different for master's-level versus doctoral-level graduates. Schippmann, Schmitt, and Hawthorne (1992) reviewed the work roles of I/O students whose terminal degree is the master's degree

versus the PhD. They concluded that there are "substantive differences between the kinds of work" performed by these two groups. There were very few master's graduates in academic roles, whereas master's graduates were more highly represented in jobs such as compensation, training, data analysis, and generalist human resource management positions compared with doctoral graduates.

FURTHER EDUCATION

Some master's-level students are interested in continuing to doctoral study. Master's programs may be designed to serve students who want either (a) predoctoral training, (b) practitioner-oriented training (terminal master's degree), or (c) both. Since doctoral-level education in I/O psychology is based on the scientist-practitioner model, programs that provide predoctoral training should also have a scientist-practitioner focus. Thus, when designing such programs, research skills probably should be weighted more heavily (category II competencies) compared with specific content issues (category III competencies). This type of program would also be appropriate for master's-level I/O practitioners who work in research settings. Programs designed to meet the needs of students for whom the master's degree will be their highest degree may opt to place greater weight on content issues relative to research skills.

These and other distinctions between master's-level and doctoral-level training lead to substantial differences in the two levels of training. However, none of the differences highlighted earlier suggests that the basic content of the field changes as a function of the level of education. Thus, the competencies in this document and the companion guidelines for doctoral programs are similar. The perspective of these guidelines is that the competencies identified in Table A.1.1 (particularly sections II and III) are ideals that probably no program will meet completely. They are provided to aid faculty and curriculum planners as they start new programs or try to improve their current programs.

TITLE

A semantic difficulty is encountered in a document such as this. What is the appropriate title, or label, for persons who have completed a master's degree in I/O

Table A.1.1 Areas of Competence to Be Developed in Master's-Level I/O Psychology Programs

This table lists the recommended areas of competence to be developed in students in master's-level I/O programs. Competencies listed in Section I may be obtained as part of the student's psychological training at the undergraduate level. Competencies listed in Section IV are optional.

- I. Core Psychological Domains (may be acquired at the undergraduate level)
 - A. History and Systems of Psychology
 - B. Fields of Psychology
- II. Data Collection and Analysis Skills
 - A. Research Methods
 - B. Statistical Methods/Data Analysis
- III. Core I/O Domains
 - A. Ethical, Legal, and Professional Contexts
 - B. Measurement of Individual Differences
 - C. Criterion Theory and Development
 - D. Job and Task Analysis
 - E. Employee Selection, Placement, and Classification
 - F. Performance Appraisal and Feedback
 - G. Training: Theory, Program Design, and Evaluation
 - H. Work Motivation
 - I. Attitude Theory
 - J. Small Group Theory and Process
 - K. Organization Theory
 - L. Organizational Development
- IV. Additional I/O Domains (educational experiences in these domains are considered desirable but not essential)
 - A. Career Development Theory
 - B. Human Performance/Human Factors
 - C. Consumer Behavior
 - D. Compensation and Benefits
 - E. Industrial and Labor Relations

psychology? The term "psychologist" is inappropriate because the use of that term is regulated by law in some states and is usually restricted to persons who have completed doctoral training and/or have been licensed. Further, the employment settings in which these graduates work are so diverse that a job-based title is also inappropriate (e.g., human resource manager, trainer, organization consultant). Titles assigned to other psychological subdisciplines at the master's

level (e.g., mental health specialist, caseworker, school counselor) are inappropriate.

The following title is used in this document: "master's-level I/O practitioner." While it is descriptive, it is both unwieldy and, in some cases, misleading. A shorter title would be preferable (e.g., MBA), but the fact that many people are presently unfamiliar with the discipline of I/O psychology makes the use of a very short acronym inappropriate (e.g., MIOP). Further, some master's-level graduates will work in research and/or educational settings, which makes the use of the word "practitioner" problematic. However, since most master's-level graduates work in applied settings (Ekeberg, Switzer, & Siegfried, 1991; Schippmann et al., 1992), "practitioner" is often an appropriate term.

Admittedly, a document such as this cannot mandate the use of a particular title. Nor is it the committee's desire to do so. If, and when, a different title achieves popular acceptance, these guidelines should be changed to reflect that fact. Meanwhile, it is important for students in master's-level I/O programs to be identified with the discipline. The title "master's-level I/O practitioner" serves that purpose.

COMPETENCIES

A competency-based approach is adopted here (as it is in the doctoral guidelines) as opposed to recommendations about specific curriculum designs and educational experiences. These guidelines focus on the outcomes of training, and on the knowledge, skills, behavior, and capabilities necessary to function as a master's-level I/O practitioner. The primary rationale for this approach is contained in the concept of "equifinality." It is frequently the case that several alternative curriculum arrangements are equally effective at producing competent graduates. There are several means to the same end. Focusing on curriculum design loses sight of this.

The competencies presented in Table A.1.1 are taken largely from the doctoral-level guidelines. However, there are some significant dissimilarities. First, they are grouped into four major categories. These categories are meant to make some molar distinctions among the competencies. Category I competencies are those that any person who obtains a graduate degree in any field of psychology should possess (see also National Conference on Applied Master's Training in Psychology, 1990). Many

students will acquire a substantial portion of this information in an undergraduate psychology program.

Master's-level I/O programs should ensure that their students have exposure to the broad field of psychology. Category II competencies relate to data collection and analysis. These competencies are important even to "consumers" of knowledge because they enable them to make informed judgments about new research. This training can be very useful to organizations in a variety of applications. Category III competencies are at the "core" of the I/O discipline. Ideally, these should receive substantial coverage by any program. However, of necessity an entire course may not be devoted to each of these competencies, but they could be grouped together in a variety of ways. Category IV competencies are beneficial, but are not at the "core" of the discipline. Many programs might find that other departments or colleges can provide the training for these competencies (e.g., consumer behavior in a marketing department).

A second difference is that some of the competency descriptions have been rewritten to reflect a lower level of sophistication. For example, the statistical methods/data analysis competency description notes that students should be familiar with (as opposed to competent in) path analysis, factor analysis, and so on. Third, two doctoral-level competencies (decision theory and individual assessment) were eliminated completely. Decision theory is partially subsumed under other competencies (the cognitive-affective bases of behavior section under Fields of Psychology, Employee Selection, Human Performance). Within I/O psychology, the practice of Individual Assessment is generally conceded to require licensure, and thus a doctorate. Finally, two competencies have been added (both in Category IV), namely, Compensation and Benefits and Industrial and Labor Relations. These are areas for which many master's-level I/O practitioners are responsible (Schippmann et al., 1992).

The additions, deletions, and changes described earlier were based on four sources of information. First, SIOP sponsored a survey of I/O and organizational behavior programs, and specifically extended this survey to include master's programs (SIOP, 1992). The second source was the personal experience of the committee members as master's-level educators and their exposure to a variety of master's-level I/O programs. Third, the job analysis information reported

by Schippmann et al. (1992) and by Ekeberg et al. (1991) was consulted. Finally, each of the committee members asked several of their colleagues, in both industry and academics, to critique a draft of these guidelines, and their suggestions and comments were incorporated as appropriate.

Related Competencies

The bulk of this document describes the areas or domains recommended specifically for training in I/O psychology. However, before presenting them, it is useful to comment on other areas considered, but judged not to be appropriate as part of this document.

One such set of competencies that had been suggested might be termed "personal skills." These include effective oral and written communication skills, facility at developing interpersonal relationships, effective work habits, critical analytic thinking ability, and so forth. It is quite clear that success in graduate school depends on possessing these attributes. They are also needed for success in one's career. Yet these personal skills are of universal importance, and thus are not included in the domains list.

A second set of issues was suggested by the National Conference on Applied Master's Training in Psychology (1990). All graduate students in psychology should possess these competencies. These include library research skills and sensitivity to social and cultural diversity. These are important skills, but they do not merit inclusion in this list because they are byproducts of quality graduate study and are not specific to I/O training.

Another cluster of competencies that was not explicated involves areas in which it would be desirable, but not necessary, to have training to ensure career success in I/O psychology. A list of these areas could easily be expanded to include much of the social sciences and business (e.g., content mastery in Economics, Marketing, Labor and Human Resources, and even Accounting). Potentially important process skills would include those needed for employee counseling or individual rehabilitation. Competencies in all these areas would be appropriate and desirable, but they are not made part of these guidelines.

Finally, some think that a good graduate program provides guidance to students in their own career planning and in the use of career enhancement strategies.

Table A.1.2 Curriculum Options Considered in the Guidelines

1. **Formal coursework** is classroom instruction common to university settings in which material pertinent to the domains is covered. This method itself can involve a variety of different techniques including lectures, discussion, presentations, case analysis, experiential exercises, and so forth.
2. **Independent reading/study** is nonclassroom instruction in which the student, in consultation with qualified faculty, assumes responsibility for and commitment to the accomplishment of domain objectives. This method includes all forms of nonclassroom instruction for which self-initiated effort is of central concern and for which such effort can successfully result in the achievement of relevant domain objectives. Examples would include self-initiated effort through reading; generating appropriate review manuscripts, proposals, or reports; designing and conducting a research investigation; and acquiring interactive computer skills.
3. **Supervised experience (internships, practicums)** is nonclassroom instruction in which the student is actively engaged in projects under the direct supervision of qualified personnel. Such projects would be aimed at fulfilling specific training objectives mutually agreed to by the student, the supervisor, and program faculty with special emphasis given to the acquisition of skills. Participation would not be motivated primarily for compensation. This method will often be characterized by in vivo learning opportunities such that the student learns skills that will transfer to settings in which the student will eventually be working.

In all cases, however, there is meaningful professional supervision of the training experience. Although internship supervisors may not be I/O psychologists, their skill and knowledge base, job duties, scope of practice, and ethical principles should be congruent with those of I/O psychology. Students are also supervised by a faculty member who is an I/O psychologist. Examples would include practicum and internship experiences, fieldwork teaching/training, thesis/dissertation research, and so forth.

4. **On-the-job training** is nonclassroom instruction in which capabilities are learned through “hands-on” experience with applied tasks under the explicit guidance of a professionally qualified task expert. Such training is typically done in conjunction with one’s “job,” and participation involves compensation. On-the-job training provides firsthand knowledge of how the skills and knowledge within the domains of I/O psychology can be used to address problems and allows for the opportunity to focus on solutions that will have an impact on the setting in which the student is working.
5. **Modeling/observation** is nonclassroom implicit instruction that is obtained as a result of studying under, working with, and paying attention to professionally qualified personnel in the daily conduct of their jobs and special projects. This method implies that the learning of important skills might well be obtained without explicit instructional intent on the part of the model. On the other hand, modeling may also be done in a purposeful and self-conscious manner. Modeling/observation, because of its personal nature, cuts across several of the training methods described earlier.

Such activities help a student in drawing together personal information and experiences in a formal effort to make a career decision and to map out a suitable career path. Once a decision has been made, appropriate developmental experiences could then be provided in a systematic way. Many schools already incorporate such planning, often using a variety of mechanisms (e.g., assigning formal advisers). However, once again, while this was viewed as a desirable feature of a graduate program, it is not considered to be a competency that graduates ought to possess.

STRATEGIES FOR BUILDING COMPETENCE

Program designers and faculty may develop a student’s capabilities in a competency domain by using

one or more methods or techniques. For many (or most) competencies, multiple means are preferable. A given course is likely to touch upon more than one area, particularly in comparison to doctoral-level training. Moreover, the resources and capacities of a given program also will shape curriculum design. For these reasons, the guidelines do not detail a specific curriculum plan.

Table A.1.2 describes curriculum options identified by the Master’s Education Subcommittee as useful methods for master’s-level training. While other approaches and variations do exist, the list in Table A.1.2 is reasonably inclusive. It would be consistent with the spirit of these guidelines for a program to develop skill or knowledge in several domains using a single particular educational experience (e.g., a

seminar, a supervised field project, or an assigned reading list).

COMPETENCIES ARE DYNAMIC

The competency-based approach of these guidelines is advantageous for several reasons. It maintains a focus on what is to be taught and learned, provides desirable flexibility to curriculum planners, and recognizes the multiple paths to developing most important skills. Nonetheless, it also is true that the recommendations based on such an approach might become dated. Therefore, the present guidelines should be reevaluated regularly. They must be kept up-to-date by continuous reference to the nature of work and conditions surrounding the I/O practitioner at work.

COMPETENCY DESCRIPTIONS

I. CORE PSYCHOLOGICAL DOMAINS

(See preceding discussion, especially the Competencies section, for distinctions among the four domains.)

I.A. History and Systems of Psychology

If I/O students know how the discipline of psychology developed and evolved into its present configuration, then each generation will share the common bonds and language of the discipline. They will also possess a knowledge of the intellectual heritage of our field. Such common knowledge is important for the pragmatic functional role it plays in communication and in preventing frequent repetitions of the mistakes and dead ends of the past. Many historical schools and systems of psychology have a contemporary representative, in either a pure or a diluted form; a knowledge of the roots of these different theoretical positions is important. For example, many contemporary debates about theoretical perspectives appear dysfunctional when viewed against the background of historical developments in our field. A knowledge of our history enables us to appreciate these different approaches both for their unique contribution to psychology and for the alternatives they provide for an understanding of observable phenomena. Finally, an understanding of history and systems of psychology allows integration of I/O psychology into the broader discipline by tracing our roots back to American functionalism, radical

behaviorism, views of Freud, Titchener, Tolman, Spearman, and Cattell and other perspectives that have shaped our thinking about psychology. As consumers of current and future psychological research, master's-level I/O practitioners should understand the relationship of these findings to the broader discipline of psychology.

I.B. Fields of Psychology

I/O psychology is basically the study of behavior of individuals that occurs in a particular setting, that is, organizations of almost any kind. This focus differentiates it from fields of psychology that study basic processes (perception, memory, learning); from fields that study particular populations of individuals (children, mentally disturbed, developmentally challenged); from fields that study analytic procedures or assessment procedures (psychometrics); and from fields that study mechanisms of behavior (physiological psychology, brain research). Although the populations of individuals and the locations are diverse, in this emphasis on behavior in a special setting we are eclectic. Because we borrow ideas, procedures, and paradigms from the other fields of psychology, it is important that we have an understanding of the strengths, weaknesses, and sources of our often unacknowledged borrowings.

While we draw freely from other fields of psychology, we do not borrow equally from all fields. We share a great deal with social psychology, psychometrics, motivation, learning, and personality. In our current work (as a group), we borrow less from clinical, developmental, and physiological-sensory psychology. The importance of these fields of psychology to the I/O area changes over time and varies with the particular interests of the individual I/O practitioner. It is difficult to predict which of the related fields will develop research in the near future that will have an impact on I/O psychology.

In any event, to be consistent with American Psychological Association (APA) and Council for Applied Master's Programs in Psychology (CAMPP) recommendations, students should be exposed to the following broad areas:

1. Biological bases of behavior: physiological psychology, comparative psychology, neuropsychology, sensation and perception, psychopharmacology

2. Acquired or learned bases of behavior: learning, thinking, motivation, emotion
3. Social bases of behavior: social psychology, group processes, organizational and systems theory
4. Individual differences: personality theory, human development, abnormal psychology

Master's-level I/O practitioners should be familiar with the relevant perspectives and applications from these areas.

II. DATA COLLECTION AND ANALYSIS SKILLS

II.A. Research Methods

The domain of research methods includes the methods, procedures, and techniques useful in the conduct of empirical research on phenomena of interest in I/O psychology. The specific topics encompassed by research methods include the scientific method (with attention to issues in the philosophy of science), inductive and deductive reasoning, problem statements and research questions, hypotheses, study designs (experimental, quasi-experimental, and nonexperimental), the nature and definition of constructs, the manipulation of variables (in experimental research), the concepts underlying and methods used for the assessment of the reliability and validity of measures, the administration of various specific types of measures (questionnaires, interviews, observations of behavior, projective measures, etc.), the use of various sampling procedures (probability and nonprobability types) especially as applied to survey research, the conduct of research with various specific strategies (field study, laboratory experiment, field experiment, sample survey, simulation, case study, etc.), the use of statistical methods to establish relationships between variables, the formulation of research-based conclusions, and the ethical standards that govern the conduct of all research involving human participants. Specific knowledge about relative strengths and weaknesses of different research strategies as well as a tolerant appreciation of the benefits of alternative strategies must be developed. While master's-level I/O practitioners will need more expert guidance in using these methods and procedures in complex applications, they should develop the skill to use them in less complex applied situations (such as training evaluation and attitude surveys) and the ability to interpret and evaluate others' research.

II.B. Statistical Methods/Data Analysis

This domain has to do with the various statistical techniques that are used in the analysis of data generated by empirical research. The domain includes both descriptive and inferential statistical methods; it spans both parametric and nonparametric statistical methods. Among the specific competencies, issues and techniques encompassed by the domain are estimates of central tendency; measures of variability; sampling distributions; point and interval estimates; inferences about differences between means, proportions, and so forth; univariate analysis of variance; linear regression and correlation; and multiple regression. These topics are likely to be particularly useful in mainstream organizational research settings such as survey analysis and program evaluation. Knowledge of this domain implies a basic understanding of the statistical foundation of such methods, asymptotic sampling variances of different statistics, the assumptions underlying the proper use of the same methods, and the generalizations, inferences, and interpretations that can legitimately be made based on statistical evidence. In addition, familiarity with the following techniques would be useful to students in their role as consumers of research: multivariate analysis of variance, nonlinear regression and correlation, path analysis, factor analysis, meta-analysis, and causal modeling.

Students should be skilled in using at least one of the major statistical software packages designed for social science research so they can perform appropriate analyses for applied research projects in work organizations.

III. CORE I/O DOMAINS

III.A. Ethical, Legal, and Professional Contexts

This domain has to do with the ethical, legal, and professional contexts within which the master's-level I/O practitioner will operate. I/O master's graduates should have knowledge of, and should behave in accord with, relevant ethical guidelines (e.g., *Ethical Principles of Psychologists and Code of Conduct*; APA, 1992). I/O master's students should know relevant federal, state, and local laws, statutes, regulations, and legal precedents (e.g., the Equal Employment Opportunity Commission's *Uniform Guidelines on Employee Selection Procedures*, 1978). Since a fair amount of

professional work done in organizations is covered by negotiated labor contracts, competency in this domain would also include an awareness of opportunities and constraints imposed by such agreements as well as an appreciation of the labor/management dynamics associated with them. Finally, all master's-level I/O practitioners should have knowledge of the various professional norms, standards, and guidelines relevant to the profession (e.g., *Specialty Guidelines for the Delivery of Services by Industrial-Organizational Psychologists* APA, 1981; *Principles for the Validation and Use of Personnel Selection Procedures*, SIOP, 1987; and *Standards for Educational and Psychological Testing* APA, 1985).

III.B. Measurement of Individual Differences

I/O psychology emphasizes the importance of individual differences in the study of individual behavior. This topic is foundational to many applied issues, such as employee selection, performance appraisal, employee attitude surveys, and training evaluation. A sound background in classical measurement theory is essential (e.g., reliability, validity), and exposure to modern measurement theories and their respective areas of application is highly desirable (e.g., generalizability theory, item response theory, causal modeling). The areas of measurement that are relevant include all knowledge, skills, abilities, and other personal characteristics that affect behavior in work contexts. Master's-level I/O practitioners would not typically be involved in the creation of new measures except under the direction of a PhD-level psychologist. Much of what master's-level I/O practitioners do in this area is subject to close scrutiny by courts of law, civil rights groups, and professional colleagues. Because of these external and internal pressures, master's-level I/O practitioners should be competent to monitor practice and to apply measurement principles in conformance to the highest standards of the discipline.

III.C. Criterion Theory and Development

Almost all applications of I/O psychology (e.g., selection, human resources planning, leadership, performance appraisal, organization design, organization diagnosis and development, training) involve measurements against criteria (standards) of effectiveness

for individuals, groups, and/or organizations. The selection of criteria is not a simple issue and represents a significant area of concern for I/O psychologists. The knowledge base of this domain incorporates understanding the theoretical and practical issues such as single versus multiple criteria, criterion dynamics, the characteristics of good and acceptable criteria (relevance, reliability, practicality), and criteria as a basis for understanding human behavior at work and in organizations. Beyond this knowledge, the master's-level I/O practitioner should have the skills necessary for developing valid criteria and methods of measuring them. These necessarily include skills in many other domains identified in the document (e.g., job analysis, measurement).

III.D. Job and Task Analysis

This domain encompasses the theory and techniques used to generate information about what is involved in performing a job or task, the physical and social context of this performance, and the attributes needed by an incumbent for such performance. Tasks are basic units of activity, the elements of which highlight the connection between behavior and result. A job is a grouping of tasks designed to achieve an organizational objective.

The fundamental concern of job and task analysis is to obtain descriptive information to design training programs, establish performance criteria, develop selection systems, use job evaluation systems, redesign machinery or tools, or create career paths for personnel. The specific steps taken and the type of information gathered will vary depending on the purpose of the job and task analysis. Relevant information that should be considered includes the worker behaviors involved; the knowledge, skills, and abilities required; the standards of performance wanted; the tools, machines, and work aids used; the sources of information available to the incumbent; the social, environmental, and physical working conditions; and the nature of supervision. Similarly, some steps involved in job and task analyses include identifying the purpose of the analysis; preparing, designing, or selecting a job analysis system; collecting job or task information; summarizing the results; and documenting the steps taken for future reference. The individual competent in this domain should have a knowledge of the different approaches to job and task analysis, as well as skill in applying these techniques in the field.

III.E. Employee Selection, Placement, and Classification

This domain consists of the theory and techniques involved in the effective matching of individual needs, preferences, knowledge, skills and abilities with the needs and preferences of organizations. An organization's needs are defined by the jobs assigned to positions in the organization. More specifically, this domain encompasses theory and research in human abilities; test theory development and use; job analysis; criterion development and measurement; classical and decision theory models of selection, placement, and classification; alternative selection devices (e.g., interviews, assessment centers); and legal and societal considerations that affect selection, placement, and classification. In particular, the individual must keep current with the legislation and court decisions related to these issues as well as with responses of the Society to laws and their interpretations. This domain also includes various specialized statistical techniques.

The level of knowledge of the master's-level I/O practitioner should be sufficient to (a) determine the most appropriate selection procedure for measuring knowledge, skill, ability, and/or personal characteristics and the appropriate validation strategies; (b) recognize when a higher level of expertise is necessary to develop and evaluate a selection system; and (c) work under the direction of a PhD psychologist when conducting criterion-related and/or construct validation studies. In addition, the individual should be skillful in applying the theory and techniques of this domain to develop content-valid selection procedures typically found in an employment setting (e.g., interviews, work samples).

III.F. Performance Appraisal and Feedback

Performance appraisal and feedback have a knowledge and skill base. This area centers on the methods of measuring and evaluating individuals as they perform organizational tasks and on taking action (administrative and/or developmental) with individuals based on such appraisals. The knowledge base includes a thorough understanding of rating scale construction and use, as well as understanding of the relative advantages of different rating sources (e.g., supervisory vs. peer). Also relevant are the areas of measurement theory, data analysis, criterion theory and development, motivation theory, and the factors that underlie interpersonal perception and judgment. The skill base includes

procedures for communicating performance evaluations to job incumbents and counseling them in appropriate means of improving their performance. Also, skill in designing a complete performance appraisal and feedback system that meets organizational needs while maintaining and/or enhancing worker motivation and/or performance is desirable.

III.G. Training: Theory, Program Design, and Evaluation

This domain includes theory and techniques used to design, conduct, and evaluate instructional programs. The instructional process begins with a needs assessment, including organizational, job, and task analyses to determine the goals and constraints of the organization and the characteristics of the job and trainees. Familiarity with basic phenomena of learning (e.g., modern learning theory, principles of adult learning, conditioning principles) as well as knowledge of the different approaches to training (e.g., computer-assisted instruction, simulation, behavior modification) are necessary for designing programs. Transfer of training to the desired setting is an important consideration. For programs to be conducted as planned, the instructors must have good instructional skills. Thus, training the trainers may be necessary.

Both the process and the outcome of the program may be evaluated to determine if it has been conducted as planned and whether it has had any effect. Knowledge of design issues such as pre- and posttesting and control groups, as well as organizational constraints, is necessary for planning an evaluation strategy.

III.H. Work Motivation

Work motivation refers to the conditions within the individual and his or her environment that influence the direction, strength, and persistence of relevant individual behavior in organizations when individual abilities and organizational constraints are held constant. Master's-level I/O practitioners need to have a sound background in work motivation at three levels. First, they must be familiar with the theories of human motivation including (but not limited to) need theories, cognitive theories, and reinforcement theories. In all cases, there must be a good understanding of the extensive research and theory that exist outside the domain of work in the basic psychological literature.

At the second level, there must be an understanding of the research and theory in relevant domains of I/O psychology that represent general applications of one or more motivational perspectives (i.e., general strategies for work motivation such as goal setting, job design, incentive systems, and participation in decision making). Finally, there must be an awareness of very specific practices that adapt motivational constructs to specific cases. An example of the latter is the use of management-by-objectives—a combination of goal-setting principles with participation.

III.I. Attitude Theory

Attitudes, opinions, and beliefs are extremely important in organizational settings. They are important in their own right because of humanitarian concerns for the quality of working life of those who are employed in organizations. They are also important for diagnosing problems in organizations. Finally, they are important because they relate to the behavioral intentions and to the behavior of individuals at work. In particular, master's-level I/O practitioners should be aware of the extensive literature on the determinants, consequences, and measurement of job satisfaction and related constructs such as involvement and commitment.

III.J. Small Group Theory and Process

Much of human activity in organizations takes place in the presence of other people. This is particularly true of work behavior. The pervasiveness of interpersonal relationships and task interdependencies in organizations demands that master's-level I/O practitioners have a good understanding of the behavior of people in social groups. Such an understanding requires that they be familiar with research and theory related to interpersonal behavior in small groups. This body of theory and research draws from social psychology, organizational psychology, sociology, and organizational behavior. A suitable background in group theory involves an understanding of leadership and power, interpersonal influence, group effectiveness, conformity, conflict, role behavior, and group decision making.

III.K. Organization Theory

It is well accepted that the structure, function, processes, and other organizational level constructs

have an impact on the behavior of individuals in organizations. Therefore, it is necessary that master's-level I/O practitioners have a good understanding of the nature of complex organizations. This understanding should include, but is not limited to, classical and contemporary theories of organizations, organizational structure, organizational design, technology, and the process of organizational policy formation and implementation.

III.L. Organizational Development

This domain encompasses theory and research about facilitating change in individuals, groups, and organizations to improve their effectiveness. This body of theory and research draws from such related fields as social psychology, counseling psychology, educational psychology, vocational psychology, engineering psychology, and organizational theory. More specifically, this domain concerns theory and research related to individual change strategies including training, socialization, attitude change, career planning, counseling, and behavior modification; interpersonal and group change strategies, including team building and group training, survey feedback, and conflict management; role or task oriented change strategies, including job redesign, role analysis, management by objectives, and temporary task forces; and organizational system directed change strategies, including survey feedback, open systems oriented change programs, human resource accounting, flexible working hours, structural changes, control system changes, sociotechnical systems, and quality circles.

IV. ADDITIONAL I/O DOMAINS

IV.A. Career Development Theory

Theories and empirical research on career development are concerned with the interplay between individuals and environments and attempt to describe the nature of the patterns of positions held and resultant experiences during an individual's working life. Included in this domain are models and explanations of the origin and measurement of individual aptitudes and interests; how individual, social, chance, and environmental factors shape educational and training experiences; specific skill training and development; early work history, occupational choice, organizational/job choice, and change; the sequence of jobs taken after organization entry; and preretirement planning.

Knowledge in this area would reflect an understanding of these interactional processes, developmental events, and phenomena as they are considered both by the individual employee and from the perspective of the employing organization. Knowledge of how organizational practices such as recruitment, selection, job placement, training, performance appraisal, and career planning programs enhance or retard career development is also necessary.

IV.B. Human Performance/ Human Factors

Human performance is the study of limitations and capabilities in human skilled behavior. Skill is broadly construed to include perceptual, motor, and cognitive activities, and the integration of these into more complex behavior. Emphasis is on the interaction of human behavior and the task environments, ranging from detection and identification of simple events to problem solving, decision making, and control of complex environments. Included among the variables that affect human performance are individual differences, organismic variables, task variables, environmental variables, and training variables.

Competency in this area assures awareness of issues of experimental design, some knowledge of computer programming, and quantitative modeling based on techniques from mathematical psychology, engineering, and computer science. Familiarity in the subject areas of basic experimental psychology is combined with an awareness of applied research in such areas as workstation design, workload measurement, control systems, information display systems, and person-computer interactions.

IV.C. Consumer Behavior

The focus of this area is the systematic study of the relationship between the producers (and distributors) and actual or potential consumers of goods and services. This involves many of the following concerns: consumer preferences for product features, product testing, consumer attitudes and motivation, buying habits and patterns, brand preferences, media research (including the effectiveness of advertisements and commercials), packaging design and features, estimating demand for products or services, and the study of the economic expectations of people. There is a substantive or content basis to this domain because there is a body of theory and data amassed dealing

with the antecedents and correlates of consumer behavior that can be learned. There is a skill component as well, since the area is built on the appropriate application of a variety of social science research methodologies (e.g., sampling theory, questionnaire and survey protocol design and execution, individual and group interviewing, stimulus scaling, and mathematical model building).

IV.D. Compensation and Benefits

The reward system for employees can be critical to the success or failure of an organization, and is of intense interest to individual employees as well. Employee benefits constitute a substantial proportion of labor costs. Retirement plans, medical plans, family and parental leave, vacation time, and alternative work schedules are but a few of the issues that an organization must address. This is an applied domain that incorporates many of the competencies identified earlier including job and task analysis, work motivation (e.g., equity and expectancy theory), attitudes (e.g., job satisfaction), and legal and regulatory contexts. In addition, there are specific methods or approaches to the design and implementation of a reward system that should be well understood (e.g., point system of job evaluation).

IV.E. Industrial and Labor Relations

The presence of a union, either formal or informal, in an organization strongly influences human resource management activities. Particularly relevant are the limitations imposed by seniority and job security rules, grievance and arbitration procedures, wage and benefit administration, and union versus management rights regarding job assignments, promotion, discipline, training, attendance, and termination. In addition, the role of unions in supporting systemwide organizational change is critical to the functions of employee and organizational development. Competency in this domain includes familiarity with major labor legislation and with contractual obligations that affect human resource policy implementation, as well as familiarity with labor contract administration processes, with the effects of union-management relationships on disciplinary systems, job and employee evaluation systems, recruitment, selection, placement and training systems, motivation and reward systems, and processes for effecting organizational change.

NOTE

1. A revised version was approved by the American Psychological Association in August 1999.

REFERENCES

- American Psychological Association. (1977). *Standards for providers of psychological services*. Washington, DC: Author.
- American Psychological Association. (1981). Specialty guidelines for the delivery of services by industrial-organizational psychologists. *American Psychologist*, 36, 664–669.
- American Psychological Association. (1985). *Standards for educational and psychological testing*. Washington, DC: Author.
- American Psychological Association. (1992). *Ethical principles of psychologists and code of conduct*. Washington, DC: Author.
- Ekeberg, S., Switzer, F., & Siegfried, W. D., Jr. (1991, April). What do you do with a master's degree in I/O psychology? L. L. Koppes (Chair), *I/O psychology master's level training: Reality in search of legitimacy*. Symposium conducted at the sixth annual conference of the Society for Industrial and Organizational Psychology, St. Louis, MO.
- Equal Employment Opportunity Commission. (1978, August 25). Uniform guidelines on employee selection. *Federal Register*, 43(166), 38290-38315.
- Koppes, L. L. (1991). I/O psychology master's-level training: Reality and legitimacy in search of recognition. *The Industrial-Organizational Psychologist*, 29(2), 59–67.
- Lowe, R. H. (1993). Master's programs in industrial-organizational psychology: Current status and a call for action. *Professional Psychology: Research and Practice*, 24, 27–34.
- National Conference on Applied Master's Training in Psychology. (1990). *Executive summary: Resolutions and standards on education and training for applied master's programs in psychology*. (Available from Rosemary H. Lowe, Department of Psychology, The University of West Florida, Pensacola, FL 32514).
- Schippmann, J. S., Schmitt, S. D., & Hawthorne, S. L. (1992). I/O work roles: Ph.D. vs. master's level practitioners. *The Industrial-Organizational Psychologist*, 29(4), 35–39.
- Society for Industrial and Organizational Psychology, Inc. (1985). *Guidelines for education and training at the doctoral level in industrial-organizational psychology*. Arlington Heights, IL: Author.
- Society for Industrial and Organizational Psychology, Inc. (1987). *Principles for the validation and use of personnel selection procedures* (3rd ed.). Arlington Heights, IL: Author.
- Society for Industrial and Organizational Psychology, Inc. (1992). *Graduate training programs in industrial-organizational psychology and related fields*. Arlington Heights, IL: Author.

Appendix 2. Guidelines for Education and Training at the Doctoral Level in Industrial/ Organizational Psychology

These guidelines were prepared by the Education and Training Committee of the Society for Industrial and Organizational Psychology, Inc., Janet Barnes-Farrell, chair. Members of the Committee were Debra A. Major (subcommittee chair), Jeffrey Reed, Kecia Thomas, Lisa Scherer, and Kathleen Lundquist.

PURPOSE OF THE GUIDELINES

These guidelines replace an earlier version published in 1985 by the Society for I/O Psychology (SIOP; Division 14 of the American Psychological Association). The last version was developed by the members of the 1982 Education and Training Committee of the Society for I/O Psychology (i.e., Klimoski, Hulin, Ilgen, Neumann, Peters, Schneider, and Stone). These guidelines have been written to aid faculty and curriculum planners in the design of doctoral-level graduate programs in industrial/organizational (I/O) psychology. They may also be useful to potential doctoral students in the discipline by providing a preview of doctoral training, suggesting criteria that may be used to select a doctoral program, and giving students an overview of the

competencies they are responsible for mastering during the course of their doctoral education.

The term *guidelines* refers to pronouncements, statements, or declarations that are suggestions or recommendations. Guidelines differ from “standards” in that standards may be mandatory and may be accompanied by an enforcement mechanism. Thus, as guidelines, this document is not intended to be either mandatory or exhaustive or a substitute for appropriate professional judgment, and it may not always be applicable in all situations. The aspirational intent of the guidelines is to facilitate the continued development of I/O psychology.

Although such guidelines have implications for several other related concerns of the Society members, these other concerns will not be addressed here. Specifically, these guidelines were not written for the purpose of providing the basis for graduate studies program certification, determining eligibility for specialty licensing as an I/O psychologist, establishing eligibility for membership in the Society, or highlighting the continuing education and training needs of the profession. Those interested in training at the master’s level are referred to the *Guidelines for*

EDITOR’S NOTE: These guidelines represent the views and expertise of the Society for Industrial and Organizational Psychology, Inc., Division 14 of the American Psychological Association and Organizational Affiliate of the Association for Psychological Science. In issuing these guidelines, SIOP is not speaking for APA, APS, or any other division or unit of APA or APS.

Education and Training at the Master's Level in Industrial/Organizational Psychology (SIOP, 1994). Finally, it should be reiterated that the focus of this document is the training of I/O psychologists. These guidelines are not designed to be a set of recommendations for education in related fields (e.g., labor and human resources, organizational behavior). Although it is recognized that a large number of academic disciplines or specialties are concerned with developing related subject matter and skills, these related areas are beyond the scope of the guidelines.

PERSPECTIVE OF THE GUIDELINES

In many respects, the perspective taken in the current guidelines is consistent with that expressed in the 1985 version. In particular, this revision adheres to the scientist-practitioner model and takes a competency-based approach. In other respects, this version is substantially different from the 1985 guidelines (e.g., our treatment of "personal skills"). Both the similarities and differences are discussed in more detail the following sections.

The scientist-practitioner. Consistent with the traditional orientation and philosophy of the members of the Society, the underlying theme embedded in these training guidelines is that the I/O psychologist is frequently both the generator of knowledge and the consumer/user of such knowledge. As a scientist, he or she develops and evaluates theory using research and empirical skills. As a practitioner, he or she applies and evaluates theory and research under specific conditions. Thus, the I/O psychologist frequently provides psychological services to individuals and groups in organizational settings.

Taking the scientist-practitioner model seriously means that doctoral education needs to focus on both the theory and application associated with all content areas. In preparing for the current version of the guidelines, many I/O psychologists, especially those employed outside the academic setting, have expressed concern that previous guidelines have been too focused on theory. We recommend that theory and practice both receive consideration as students learn about the content of I/O psychology. The relevance of theory to practice and applied research should be emphasized. I/O practitioners working in the field can facilitate the development of doctoral students' practical knowledge by offering internship and research opportunities and sharing their own practical experiences.

This dual emphasis on theory and practice is needed regardless of a student's intended career path. Those interested in academic careers need to understand both theory and practice to develop sound research, the findings of which should have a meaningful applied impact. Academicians will also be charged with teaching new generations of I/O psychologists about the theory and applications associated with each content area. I/O practitioners in industry, government, and consulting are required to use their knowledge and skills to deliver products. Thus, students not only need to know each topic in a theoretical sense; they also need to know how to develop and implement associated products. For example, a student should know how to design and conduct a job analysis or conduct and report on the results of a test validation. Learning about a topic in a theoretical sense is not equivalent to the experience of doing it. Doing it and having firsthand familiarity with the pitfalls, limits, and constraints of a technique is different from, and as critical as, theoretical knowledge.

Competencies

As emphasized in the 1985 *Guidelines*, the goal of graduate training is developing competencies. Taking a competency-based approach, these guidelines focus on the skills, behaviors, and capabilities one needs to function as a new member of the profession. One of the committee's primary goals was to update the competency list to reflect current content thought to be important for I/O psychologists.

The description of each competency area was amended as needed to reflect the current state of the discipline. In some cases competency titles were altered or reorganized to reflect new content and more appropriate groupings within a domain. The current guidelines include four additional competency areas (i.e., Business and Consulting Skills, Health and Stress in Organizations, Job Evaluation and Compensation, Leadership and Management). Consistent with the emphasis on the scientist-practitioner model, every opportunity to emphasize both theory and practice related to a competency has been seized in this revision of the guidelines. The word *theory* was deleted from many of the competency titles to emphasize the point that both the theory and practice related to a competency are important.

Just as both science and practice are inherent in each competency, we also feel that an appreciation of diversity can be applied to each area. Although the concept

has only received theoretical and scientific attention within our field in recent years, the significance of diversity has been long recognized. Thus, graduate training in I/O psychology should take every opportunity to emphasize working with all types of people and developing an appreciation of diverse views.

The 1985 *Guidelines* included a thorough discussion of the efficacy of the competency-based approach over the previously used multiple curricula models of the 1973–1974 *Guidelines* (Schneider, Carlson, Lawler, & Pritchard, 1974). As argued in 1985, we also believe that the competency-based approach allows for a more integrated training model, recognizes the possibility of “equifinality” in the methods used to produce competent graduates, and allows for a broader application of the guidelines regardless of individual program capacities and resources.

Identifying Competencies

A number of sources were consulted in updating the content of existing competency areas and developing new ones. As mentioned previously, we relied most heavily on the 1985 version of the guidelines, only departing from it as deemed necessary. We also found Schippmann, Hawthorne, and Schmitt’s (1992) analysis of the doctoral-level I/O psychologist’s work role particularly helpful. Several discussions of the education and training of I/O psychologists in *The Industrial-Organizational Psychologist* were consulted (e.g., Greguras & Stanton, 1996; Maahs & Major, 1995; Seboldsky, Brady, & Wagner, 1996). Various other sources supplied a sense of where we have been and where we are going as a discipline (e.g., Dunnette, 1990; Howard, 1990). In addition, numerous I/O psychologists in academia, industry, consulting, and the government provided input, as did students at various stages of graduate training.

The 1985 *Guidelines* purposely excluded “personal skills” (e.g., oral and written communication skills, facility at developing interpersonal relationships, effective work habits, critical/analytic thinking ability, etc.). The argument for exclusion was that such skills are of universal importance and should constitute a common concern of graduate training in any field. In this version of the guidelines, many of these skills have been included in a new competency labeled *Consulting and Business Skills*. Our contention is that these skills are critical to competence and success as an I/O psychologist. While such skills are indeed

universally important, they are applied by I/O psychologists in some unique and consistent ways (e.g., to apply for funding, to communicate with executives and constituents outside the discipline). Although we agree with the 1985 *Guidelines* that such skills could presumably be used as selection criteria in the screening of applicants for graduate study, we also recognize that these skills may need to be further developed through graduate training.

Related Competencies

The bulk of this document describes the areas or domains recommended specifically for training in I/O psychology. However, before presenting them, it would be useful to comment on domains considered, but judged not to be appropriate as part of this document.

One cluster of competencies that was omitted involves areas in which it would be desirable, but not necessary, to have training to ensure career success in I/O psychology. A list of these areas could easily be expanded to include much of social science and business (e.g., content mastery in economics, marketing, labor relations, and even accounting). Potential important process capabilities (skills) would include those needed for organizational development efforts, employee counseling, or individual rehabilitation. Competencies in all these areas would indeed be appropriate and desirable, but they are not made part of these guidelines.

Other aspects of graduate training have not been formally incorporated into these guidelines. Any quality graduate program should provide students with a realistic preview particular to that program. Expectations and requirements should be clear and explicit from the outset, beginning with the recruiting process. If a program has a particular emphasis (e.g., training academicians or training practitioners), it is also reasonable to expect that emphasis to be clearly communicated. While these are things that we encourage graduate programs to do, we have not developed specific guidelines for them.

There is a belief that a good doctoral program provides guidance to students in their own career planning and in the use of career enhancement strategies. Such activities assist a student in drawing together personal information and experiences in a formal effort to make a career decision and to map out a suitable career path. Once a decision has been made, appropriate developmental experiences could then be provided in a

systematic way. Many schools already incorporate such planning, often using a variety of mechanisms (e.g., assigning an adviser; establishing a guidance committee). While this is viewed as a desirable feature of a graduate program, it is not expressed as a competency.

Finally, if a primary aim of graduate education is to produce responsible professionals, it seems reasonable that this notion be reinforced throughout graduate training. Helping students understand the ways in which they are responsible for their own education and career development is highly appropriate and desirable. Though we believe that taking responsibility for one's own professional development should be emphasized (e.g., developing a professional network, communicating with peers, participating in the field, etc.), a relevant competency has not been formally articulated.

The Recommended Domains

Table A.2.1 lists the areas identified by the committee as relevant to the training of I/O psychologists at the doctoral level. The competencies were organized into two groups. The first (competencies 1–6) reflects the more general knowledge and skill areas deemed appropriate in the training of I/O psychologists. The second group (competencies 7–25) contains those competencies that reflect substantive content in the field of I/O psychology. The entries are presented alphabetically within their group. Neither the presentation order of the two groupings nor the individual entries should be construed to reflect importance or priority in training at the doctoral level.

In describing the knowledge and skills to be developed, the committee endeavored to stay at the appropriate level of specificity. Our goal was to highlight the key components of each domain well enough to be of help to curriculum designers. We do not describe the totality of the domain. It is also clear that domains are not always easily differentiated. In some cases it may be argued that (analytically/taxonomically) one area could be subsumed within another. Similarly, it is clear that competencies in one domain facilitate mastery or performance in another. These points notwithstanding, the areas listed in Table A.2.1 were all felt to be sufficiently discrete and important to warrant their separate places on the list.

Table A.2.1 Areas of Competence to Be Developed in Doctoral-Level I/O Psychology Programs

1.	Consulting and Business Skills
2.	Ethical, Legal, and Professional Contexts of I/O Psychology
3.	Fields of Psychology
4.	History and Systems of Psychology
5.	Research Methods
6.	Statistical Methods/Data Analysis
7.	Attitude Theory, Measurement, and Change
8.	Career Development
9.	Consumer Behavior
10.	Criterion Theory and Development
11.	Health and Stress in Organizations
12.	Human Performance/Human Factors
13.	Individual Assessment
14.	Individual Differences
15.	Job Evaluation and Compensation
16.	Job/Task Analysis and Classification
17.	Judgment and Decision Making
18.	Leadership and Management
19.	Organization Development
20.	Organization Theory
21.	Performance Appraisal and Feedback
22.	Personnel Recruitment, Selection, and Placement
23.	Small Group Theory and Team Processes
24.	Training: Theory, Program Design, and Evaluation
25.	Work Motivation

The presentation of the domain attempts both to define and to suggest ways to measure or to index achievement. That is, there is frequent reference to indicators or possible ways that skills in a domain are manifested. Many of these might be used by educators to decide whether or not a person is indeed proficient in an area. This is not to imply that those which are presented are the only indicators of proficiency.

Recommended Areas of Competence

Table A.2.1 lists the areas recommended by these guidelines for inclusion in doctoral-level programs in I/O psychology. The majority of these competencies were included in the 1985 version of the guidelines. The description of each competency area was updated as appropriate. In some cases competency titles were altered to reflect new content. In addition, four new competency areas (i.e., Consulting and Business Skills, Health and Stress in Organizations, Job

Evaluation and Compensation, Leadership and Management) were added to the list. Each competency area is described in the following sections.

1. Consulting and Business Skills

Success as an I/O psychologist requires development of a variety of consulting and business skills. Communication, business development, and project management represent broad categories capturing some of the most essential business and consulting skills.

Effective business communication is critical and encompasses a variety of writing, presenting, and interpersonal skills. Business writing is characterized by its brevity, action orientation, attention to the audience, and link to the organization's bottom line. Business presentation involves the development and presentation of information to a business audience that clearly articulates key messages in terms the audience can understand, along with skills in presenting and responding to questions. Effective communication and interpersonal skills are required to interact with and influence organizational members. These skills are particularly important in team contexts. An understanding of how individual efforts facilitate group performance and the ability to contribute as a member of a group are essential.

Effective business development depends on the ability to package ideas, proposals, and requests in a fashion that leads to their acceptance and movement of the organization in desired directions. Many good ideas are rejected because they are poorly communicated or inadequately justified in terms of their benefits. A practical problem-solving approach is frequently required in a business or consulting setting. Relevant content and methodological skill or knowledge, regardless of its source or discipline, along with creative "outside-the-box" thinking, is often required to address and solve practical business problems. This involves understanding how elements relate to a larger whole (e.g., effect of a change in compensation on employee productivity, satisfaction, turnover).

Project management skills focus on the details of organizing work in a business setting, whether as an internal or external consultant. This may include budgeting, scheduling, and managing others so that work is accomplished in an efficient and effective manner. Project management often requires the integration and

utilization of information from several sources. Success is contingent on being able to attend to detail while maintaining a view of the "big picture."

2. Ethical, Legal, and Professional Contexts of I/O Psychology

This domain has to do with the ethical, legal, and professional contexts within which the I/O psychologist operates. The I/O psychologist should have knowledge of and should behave in accord with relevant ethical guidelines (e.g., *Ethical Principles of Psychologists*, APA, 1981, 1992; and the *Ethical Principles in the Conduct of Research With Human Participants*, APA, 1973, 1982). The I/O psychologist should also have knowledge of relevant federal, state, and local laws, statutes, regulations, and legal precedents (e.g., the Equal Employment Opportunity Commission's *Guidelines on Employee Selection Procedures*). Since a fair amount of professional work done in organizations is covered by negotiated labor contracts, competency in this domain would also include an awareness of opportunities and restrictions imposed by such agreements, as well as an appreciation of the labor/management dynamics associated with them. Finally, all I/O psychologists should have knowledge of the various professional norms, standards, and guidelines relevant to their profession (e.g., *Specialty Guidelines for the Delivery of Services by Industrial/Organizational Psychologists*, 1981; *Standards for Providers of Psychological Service*, APA, 1979; *Principles for the Validation and Use of Personnel Selection Procedures*, APA, 1987; and *Standards for Educational and Psychological Testing*, National Council on Measurement in Education, 1985).

3. Fields of Psychology

I/O psychology is basically the study of behaviors of individuals or groups of individuals that occur in a particular type of location—organizations of almost any kind. I/O psychology is a context-centered discipline. This focus differentiates it from fields of psychology that study basic processes (e.g., perception, memory, learning), from fields that study particular populations of individuals (e.g., children, mentally disturbed), from fields that study analytic procedures or assessment procedures (e.g., psychometrics), and from fields that study mechanisms of behavior (e.g., physiological psychology, brain research). Although

the populations of individuals and the locations are different, in this emphasis on behavior in a set of locations we are like educational psychologists in our eclecticism. Because we borrow concepts, procedures, and paradigms from the other fields of psychology, it is important that we have an understanding of the strengths, weaknesses, and sources of our often unacknowledged borrowings.

While we draw freely from other fields of psychology, we may not borrow equally from all fields. We share a great deal with social psychology, psychometrics, motivation, learning, and personality. Historically, the discipline has borrowed less heavily from clinical, developmental, and physiological-sensory psychology. The importance of these fields of psychology to the I/O area changes over time and obviously varies with the particular interests of the individual I/O psychologist. It is difficult to predict which of the related fields will develop research leads and findings in the near and distant future that will have an impact on I/O psychology. In any event, to be consistent with APA recommendations (American Psychological Association Committee on Accreditation, 1996), exposure should reflect competency in the following broad areas:

- a) Biological Bases of Behavior: Physiological Psychology, Comparative Psychology, Neuropsychology, Sensation and Perception, Psychopharmacology.
- b) Cognitive-Affective Bases of Behavior: Learning, Thinking, Motivation, Emotion.
- c) Social Bases of Behavior: Social Psychology, Group Processes, Organizational and Systems Theory.
- d) Individual Differences: Personality Theory, Human Development, Abnormal Psychology.

Students in doctoral programs in I/O psychology should be able to read and to comprehend the issues and controversies involved in basic research published in journals in at least a subset of these related areas. The specific fields of competency and journals read will vary among individuals; but awareness, interest, and reading in several areas seem crucial to both initial doctoral training and continuing education.

4. History and Systems of Psychology

If students in graduate programs in I/O psychology know how the discipline of psychology developed and changed into its present configuration, then each

generation will share the common bonds and language of the discipline. They will also possess a knowledge of the intellectual heritage of our field. Such common knowledge is important for the pragmatic functional role it plays in communication and in preventing frequent repetitions of the mistakes and dead ends of the past. Many historical schools and systems of psychology have contemporary representatives, either in a pure or a diluted form; a knowledge of the roots of these different theoretical positions is important. For example, many contemporary debates about theoretical perspectives appear dysfunctional when viewed against the background of historical developments in our field. A knowledge of our history enables us to appreciate these different approaches both for their unique contributions to psychology and for the alternatives they provide for an understanding of observable phenomena.

An understanding of history and systems of psychology allows integration of I/O psychology into the broader discipline by tracing our roots back to American functionalism, radical behaviorism, views of Freud, Titchener, Tolman, Spearman, and Cattell and other perspectives that have shared the thinking of psychology. Such integration is important to foster an attitude among I/O psychologists that places high value on the development of theoretical approaches to the I/O problems that are well integrated with psychology as a whole. In addition, there is the specific history of the field of I/O psychology to consider. Understanding one's "roots" as an I/O psychologist and our more recent past is essential.

5. Research Methods

The domain of research methods includes the methods, procedures, techniques, and tools useful in the conduct of empirical research on phenomena of interest in I/O psychology. At a general level, the areas encompassed by research methods include the scientific method (with attention to issues in the philosophy of science), inductive and deductive reasoning, problem statements and research questions, hypotheses, the nature and definition of constructs, and study designs (experimental, quasi-experimental, and nonexperimental). At a more operational level, research methods includes, but is not limited to, the manipulation of variables (in experimental research), the concepts underlying and methods used for the assessment of the reliability and validity of measures, the administration of various specific types of measures (questionnaires, interviews, observations of behavior, projective

measures, etc.), the use of various sampling procedures (probability and nonprobability type) especially as applied to survey research, the conduct of research with various specific strategies (field study, laboratory experiment, field experiment, sample survey, simulation, case study, etc.), the use of statistical methods to establish relationships between variables, and the formulation of research-based conclusions. Specific knowledge about relative strengths and weaknesses of different research strategies, an understanding of qualitative research methods, as well as a tolerant appreciation of the benefits of alternative strategies must be developed. Computer literacy has become increasingly important, and programming skills may be particularly useful. Finally, an understanding of the ethical standards that govern the conduct of all research involving human participants is essential.

6. Statistical Methods/Data Analysis

This domain has to do with the various statistical techniques that are used in the analysis of data generated by empirical research. The domain includes both descriptive and inferential statistical methods; it spans both parametric and nonparametric statistical methods. Among the specific competencies, issues and techniques encompassed by the domain are estimates of central tendency; estimates of variability; sampling distributions; point and interval estimates; inferences about differences between means, proportions, and so forth; univariate and multivariate analyses of variance (fixed, random, and mixed effects models); linear and nonlinear regression and correlation; path analysis; multiple discriminant function analysis; multiple and canonical regression; factor analysis; components analysis; cluster analysis; pattern analysis; and structural equation modeling. Knowledge of this domain implies a basic understanding of the statistical foundation of such methods, asymptotic sampling variances of different statistics, the assumptions underlying the proper use of the same methods, and the generalizations, inferences, and interpretations that can legitimately be made on the basis of statistical evidence.

7. Attitude Theory, Measurement, and Change

Attitudes, opinions, and beliefs are extremely important in organizational settings. They are important in their own right because of humanitarian concerns for the quality of working life of those who are

employed in organizations. They are also important for diagnosing problems in organizations. Finally, they are important because they relate to the behavioral intentions and the behaviors of individuals at work. Some of the job attitudes typically studied by I/O psychologists include, but are not limited to, job satisfaction (general and various facets), job involvement, organizational commitment, and perceptions of fairness.

It is also important that I/O psychologists be aware of the extensive literature on attitude theory, attitude measurement, and attitude change. In particular, I/O psychologists must know how attitudes are formed and changed and how they are related to behaviors. With respect to the latter, a knowledge of the literature on the relationship between attitudes and behavior is important if for no other reason than to know the limitations of the connections between these two constructs.

8. Career Development

Theory and research regarding career development are concerned with the interplay between individuals and environments, and they attempt to describe the nature of the patterns of positions held and resultant experiences during an individual's life span. Included in this domain are models and explanations of the origin and measurement of individual aptitudes and interests, how individual, social, chance, and environmental factors shape educational and training experiences, specific skill training and development, early work history, occupational choice, organizational/job choice and switching, the sequence of jobs taken after organizational entry, work/family issues, midcareer plateaus, and retirement planning.

Knowledge in this area would reflect an understanding of these processes, events, or phenomena as they are considered both by the individual employee and from the perspective of the employing organization. Knowledge of how organizational practices such as recruitment, selection, job placement, socialization, training, performance appraisal, and career planning programs enhance or retard career development is also necessary, as is an understanding of the special career issues and challenges faced by particular groups (e.g., women, ethnic minorities, the disabled).

9. Consumer Behavior

The focus of this area is the systematic study of the relationship between the producers (or distributors) and consumers (actual or potential recipients) of

goods and services. Usually this involves many of the following concerns: consumer preferences for product features, consumer attitudes and motivation, buying habits and patterns, brand preferences, media research (including the effectiveness of advertisements and commercials), estimating demand for products or services, and the study of the economic expectations of people. Closely allied to those areas of market research that focus on personal consumption, there is a substantive or content basis to this domain insofar as there is a body of theory and data amassed dealing with the antecedents and correlates of consumer behavior that should be learned. There is a skill component to be mastered as well, inasmuch as the area is built on the appropriate application of a variety of social science research methodologies (e.g., sampling theory, questionnaire and survey protocol design and execution, individual and group interviewing, stimulus scaling, and mathematical model building).

10. Criterion Theory and Development

Almost all applications of I/O psychology (e.g., selection, human resources planning, leadership, performance appraisal, organization design, organization diagnosis and development, training) involve measurements against criteria (standards) that indicate effectiveness on the part of individuals, groups, and/or organizations. The selection of criteria is not a simple issue and represents a significant area of concern for I/O psychologists.

The knowledge base of this domain incorporates understanding the theoretical issues such as single versus multiple criteria, criterion dynamics, the characteristics of good and acceptable criteria (relevance, reliability, practicality), and criteria as a basis for understanding human behavior at work and in organizations. Knowledge of past research in this area, which is quite extensive, is also necessary.

Beyond this knowledge, the I/O psychologist should have the skills necessary for developing valid criteria and methods of measuring them. These necessarily include skills in many of the other domains identified in the document (e.g., Job Analysis, Psychometrics).

11. Health and Stress in Organizations

Job performance and effective organizational functioning can be affected by health and safety factors in the workplace that result in suboptimal working

conditions and reduced productivity. This competency area requires the study of interactions between human physical capabilities and problematic conditions in the workplace in an attempt to understand the limits of performance and negative effects on workers. Among the factors considered are hazardous environmental conditions induced by toxic substances (e.g., chemical, biological, nuclear), loud noises, blinding lights, and noxious odors. Other factors considered are related to organizational structure and job design, such as shiftwork or the requirements of particular tasks. Additional sources of organizational stress that may affect performance, commitment, and attitudinal variables include downsizing, harassment, work–family pressures, and outsourcing. There should be some familiarity with government standards relating to the workplace (e.g., OSHA).

12. Human Performance/Human Factors

Human Performance is the study of limitations and capabilities in human skilled behavior. Skill is broadly construed to include perceptual, motor, memory, and cognitive activities, and the integration of these into more complex behavior. Emphasis is on the interaction of human behavior and tools, tasks, and environments, ranging from detection and identification of simple events to problem solving, decision making, human errors, accidents, and control of complex environments. Included among the variables that affect human performance are individual differences, organismic variables, task variables, environmental variables, and training variables.

Competency in this area assures awareness of issues of experimental design, a grounding in perception, cognition, and physiological psychology, some knowledge of computer programming, and quantitative modeling based on techniques from mathematical psychology, engineering, and computer science. Familiarity in the subject areas of basic experimental psychology should be combined with an awareness of applied research in such areas as workstation design, workload measurement, control systems, information display systems, health and safety, and human–computer interactions.

13. Individual Assessment

This domain refers to a set of skills that are needed for assessing, interpreting, and communicating

distinguishing characteristics of individuals for a variety of work-related purposes. The two primary purposes of individual assessment can be defined broadly as selection (e.g., hiring, promotion, placement) and development (e.g., career planning, skill and competency building, rehabilitation, employee counseling). Individual assessment may help attain multiple goals, many of which are aimed at achieving some form of person–environment fit, including assessee fit to a specific job or career track and assessee fit within a specific organizational context (e.g., department, work group).

Individual assessment incorporates skill in individual testing, interviewing, and appraisal techniques for the purpose of evaluating ability, personality, aptitude, and interest characteristics. Individual assessment also requires identifying, developing, selecting, and/or using the appropriate means for such assessment, and communicating the results and interpretation of assessment accurately in both face-to-face and written form.

A knowledge of the fact that individual assessment focuses on the whole person is required. In addition, a knowledge of the manner in which environmental and contextual factors shape the purpose and use of the accumulated information of individual assessments is necessary.

14. Individual Differences

I/O psychology emphasizes the importance of individual differences in the study of individuals' behaviors. Because this emphasis requires accurate assessments of unobservable psychological traits, a sound background in both classical and modern measurement theories and their respective areas of application is essential. The domain of measurement includes theory and assessment of individual differences in skills and abilities. This exposure would cover the nature of construct measurement and the philosophy of science assumptions underpinning many of our approaches to scale development. Other topics which might be covered are the measurement of attitudes (e.g., job satisfaction) and product preferences by scaling procedures, measurement of performance on complex jobs, and measurement of comparable worth of individuals to organizations.

A great deal of what I/O psychologists do in this area is subjected to close scrutiny by courts of law, civil rights groups, and professional colleagues. Because of

these external and internal pressures, students must be trained to conduct research and to apply measurement principles in conformance to the highest standards of our discipline. Students may also need skills to help communicate their research methods and findings to interested parties outside the discipline.

It is important to recognize the limitations of classical true score theory. Questions about item and scale bias, test equating, minimum competence assessments, mastery testing, tailored testing, and appropriateness measurement raise issues for which classical true score theory can provide only approximate solutions. Although these areas of application were originally studied in relation to ability measurement, they have been generalized to attitude scales, surveys, questionnaires, and rating scales. Thus, it is increasingly important that students in I/O psychology be prepared to use and to conduct research on both classical measurement procedures and more contemporary procedures (e.g., Item Response Theory).

15. Job Evaluation and Compensation

This competency area focuses on determining the appropriate compensation level for skills, tasks, and/or jobs. Job evaluation is a processes by which the relative value of jobs is determined and then linked to commensurate compensation. Job evaluation is closely tied to and usually predicated upon sound job/task analyses. In general, job evaluation and compensation involves identifying compensable factors, attending to perceptions of fairness and equity, and considering issues of comparable worth. Proficiency in this competency area is demonstrated by a theoretical and applied understanding of various job evaluation techniques, compensation strategies (e.g., pay for skills, team-based pay, etc.), and the legal and social issues surrounding compensation.

16. Job/Task Analysis and Classification

This domain encompasses the theory and techniques used to generate information about what is involved in performing a job or task, the physical and social context of this performance, and the attributes needed by an incumbent for such performance. Tasks are basic units of activity, the elements of which highlight the connection between behavior and result. A job is an arbitrary grouping of tasks designed to achieve an organizational objective. It is common for

jobs to be grouped or classified on the basis of a variety of criteria, depending on the purpose and goals of the classification system.

The fundamental concern of job and task analysis is to obtain descriptive information to design training programs, establish performance criteria, develop selection systems, implement job evaluation systems, redesign machinery or tools, and create career paths for personnel. The specific steps taken and the type of information gathered will vary depending on the purpose of the job and task analyses and the classification system. Relevant information includes, but is not limited to, the worker behaviors involved; the knowledge, skills, and abilities required; the standards of performance desired; the tools, machines, and work aids used; the sources of information available to the incumbent; the social, environmental, and physical working conditions; and the nature of supervision. Similarly, some of the steps involved in job and task analyses include identifying the purpose of the analysis; preparing, designing, or selecting a job analysis system; collecting job or task information; summarizing the results; and documenting the steps taken for future reference. The classification of jobs typically entails identifying the purpose and goals of the classification system; designing a classification scheme; categorizing jobs according to the established scheme; and documenting the classification process and outcomes.

The individual competent in this domain should have a knowledge of the different approaches to job/task analysis and classification, as well as skill in applying these techniques to real-world situations. This competency area is likely to continue to evolve as the nature of work in our society continues to change.

17. Judgment and Decision Making

Judgment and decision making encompasses an area of research and knowledge that is both prescriptive and normative in its emphases. This area is important because *judgment and decision making under conditions of uncertainty* probably describes the majority of the decisions managers, psychologists, market forecasters, and budget/policy planners make during the course of their work and research. A knowledge of decision theory, judgment, and problem solving research is important to understanding the critical processes that influence how information is processed and the quality of the decision outcomes.

Many different content areas within the broad area of I/O psychology can be studied explicitly as applications of decision and judgment theory. Such areas as vigilance behavior, employee selection, choice behavior, and human performance in complex environments can be integrated by principles of decision theory that may require fewer concepts than are necessary when each content area is considered distinct and unique. Applications of decision theory to the policies of decision makers, judges, and clinicians allow greater understanding of inferential procedures used by individuals. Approaches for describing and predicting judgment and decision making include Brunswik's lens model, Bayesian inference, subjective expected utility, prospect theory, and the cognitive information processing paradigm. A knowledge of these approaches and an ability to integrate across the different approaches are indicative of breadth as well as depth of training in judgment and decision theory.

18. Leadership and Management

Management and leadership can be approached at different levels. The study of management and leadership at the macro level involves the influences senior-level individuals have in the larger organizational context: setting strategy, directing change, and influencing values. Theory and research may focus on characteristics of leaders, leader style, leader-member interactions, behaviors of leaders, and related phenomena. At a more micro level, leadership and management involve the day-to-day exchange between leaders and followers. This includes challenges faced by line managers in their relationships with subordinates in the assignment of tasks, evaluation of performance, coaching and counseling for improvement, resource planning, and related tasks. Related to many other areas, effective leadership and management involves task analysis, motivation, decision making, career planning, selection, performance appraisal, interpersonal communication, and listening and related skills in a supervisor-subordinate context. Increasingly, attention is placed on team leadership and self-leadership (especially in relation to empowerment) and horizontal leadership (i.e., peer influence processes).

19. Organization Development

This domain encompasses theory and research relevant to changing individuals, groups, and

organizations to improve their effectiveness. This body of theory and research draws from such related fields as social psychology, counseling psychology, educational psychology, vocational psychology, engineering psychology, and organizational theory.

More specifically, this domain concerns theory and research related, but not limited, to individual change strategies including training, socialization, attitude change, career planning, counseling, and behavior modification; interpersonal and group change strategies, including team building and group training, survey feedback, and conflict management; role or task-oriented change strategies, including job redesign, role analysis, management by objectives, and temporary task forces; and organization system-directed change strategies, including survey feedback, open systems-oriented change programs, human resource accounting, flexible working hours, structural changes, control system changes, and quality circles.

20. Organization Theory

It is well accepted that the structure, function, processes, and other organizational-level constructs have an impact on the behavior of individuals in organizations. Therefore, it is necessary that I/O psychologists have a thorough understanding of the nature of complex organizations. This understanding should include, but is not limited to, classical and contemporary theories of organizations, organizational structure, organizational design, technology, and the process of organizational policy formation and implementation. Much of this theory and research is generated by sociologists and those students of organizational behavior who choose as their unit of analysis constructs not primarily within the individual or within the immediate group environment of the individual. Integration of organizational and individual constructs is an important area of study within I/O psychology. Such an integration obviously requires a knowledge of organizational theory.

21. Performance Appraisal and Feedback

Performance appraisal and feedback have both a knowledge and a skill base. This area centers on the methods of measuring and evaluating individuals as they perform organizational tasks and on taking action (administrative and/or developmental) with individuals on the basis of such appraisals.

The knowledge base includes a thorough understanding of rating scale construction and use. Also relevant are the areas of measurement theory, data analysis, criterion theory and development, motivation theory, and the factors that underlie interpersonal perception and judgment. An understanding of the similarities, differences, and inconsistencies among the perceptions of performance and feedback supplied by peers, subordinates, and supervisors is essential.

The skill base includes procedures for communicating performance evaluations to job incumbents and counseling them in appropriate means of improving their performance. Also, skill in designing a complete performance appraisal and feedback system that meets organizational needs while maintaining or enhancing worker motivation or performance is required.

22. Personnel Recruitment, Selection, and Placement

This domain consists of the theory and techniques involved in the effective matching of individual needs, preferences, skills, and abilities with the needs and preferences of organizations. An organization's needs are defined by the jobs assigned to positions in the organization.

More specifically, this domain encompasses theory and research in human abilities; test theory, development, and use; job analysis; criterion development and measurement; recruitment; classical and decision theory models of selection and placement; alternative selection devices (e.g., interviews, assessment centers); and legal and societal considerations that affect recruitment, selection, and placement. In particular, the individual must keep current with the legislation and court decisions related to these issues, as well as with responses of the Society to laws and their interpretations.

23. Small Group Theory and Team Processes

Much of human activity in organizations takes place in the presence of other people. This is particularly true of work behavior. The pervasiveness of interpersonal and task interdependence in organizations demands that I/O psychologists have a good understanding of the behavior of people in work

groups. Though the labels *group* and *team* are often used interchangeably, it is also critical to have a familiarity with the growing teamwork literature. This requires an understanding that extends beyond familiarity with research and theory related to interpersonal behavior in small groups. The body of theory and research concerning groups and teams draws from social psychology, organizational psychology, sociology, and organizational behavior. A good background in group theory and team processes includes, but is not limited to, an understanding of leadership, motivation, interpersonal influence, group effectiveness, conformity, conflict, role behavior, and group decision making.

24. Training: Theory, Program Design, and Evaluation

This domain includes theory and techniques used to design, conduct, and evaluate instructional programs. The instructional process begins with a needs assessment, including organizational, job and task, and person analyses, to determine the goals and constraints of the organization and the characteristics of the job and trainees. Familiarity with basic phenomena of learning (e.g., modern learning theory, conditioning principles), as well as knowledge of the different approaches to training (e.g., computer-assisted instruction, simulation, behavior modification), are necessary for designing programs. An ability to develop meaningful and appropriate training objectives is essential. Transfer of training to the desired setting is an important consideration. For programs to be conducted as planned, the instructors must have good instructional skills. Thus, training the trainers is necessary.

Both the process and the outcome of the program may be evaluated to determine if it has been conducted as planned and whether or not it has had any effect. Knowledge of appropriate training evaluation criteria and design issues, such as pre- and posttesting and control groups, as well as organizational constraints, is necessary for planning an evaluation strategy.

25. Work Motivation

Work motivation refers to the conditions within the individual and his or her environment that influence the direction, strength, and persistence of relevant individual behaviors in organizations when individual abilities and organizational constraints are held

constant. Increasingly, work motivation is a concern at the group level as well.

I/O psychologists need to have a sound background in work motivation in at least three respects. First, they must have a thorough understanding of the theories of human motivation including, but not limited to, need theories, cognitive theories, and reinforcement theories. In all cases there must be a thorough understanding of the extensive research and theory that exist outside the domain of work in the basic psychological literature. At the second level, there must be an understanding of the research and theory in motivationally relevant domains of I/O psychology that represent general applications of one or more motivational perspectives. Such general strategies for work motivation as goal setting, job design, incentive systems, and participative decision making are relevant here. Finally, there must be an awareness of and ability to apply very specific, motivationally oriented practices that adapt motivational constructs to specific cases. For example, understanding and implementing management by objectives involves an application of goal setting principles and participation.

STRATEGIES FOR BUILDING COMPETENCE

Program designers and faculty may develop a student's capabilities in a recommended area by using one or more methods or techniques. In some cases it is likely that multiple means might actually be preferred. A given course may touch on more than one area. Moreover, the resources and capacities of a given program will also shape decisions in this area. For these reasons the guidelines will not detail a specific curriculum plan. However, suggested strategies are provided.

Table A.2.2 describes curriculum options identified as useful methods for doctoral-level training. While other approaches and variations do exist, the list in Table A.2.2 is reasonably inclusive. Table A.2.3 summarizes the recommendations of the guidelines by relating the goals of training to the methods or techniques identified. The entries in this table should be viewed as suggestions of reasonable and appropriate approaches to educating students in the desired knowledge and skill domains. Though the techniques identified are not necessarily the only ones available, an effort was made to match each competency area with the techniques most likely to be effective for development in that domain. The fact that there are multiple entries for training in a skill area should not imply that all techniques listed are required to promote

Table A.2.2 Curriculum Options Considered in the Guidelines

1. **Formal coursework:** Classroom instruction common to university settings in which material pertinent to the domains is covered. This method itself can involve a variety of different means, to include lectures, discussion, presentations, and so forth. While taking courses, students also have the opportunity to work together with peers, taking advantage of the benefits of cooperative peer learning.
2. **Independent readings/study:** Nonclassroom instruction in which the student, in consultation with qualified personnel, assumes basic responsibility for and commitment to the accomplishment of domain objectives. This method includes all forms of nonclassroom instruction for which self-initiated effort is of central concern and for which such effort can successfully result in the achievement of relevant domain objectives. Examples would include self-initiated effort aimed at covering defined domains through reading; generating appropriate review manuscripts, proposals, or reports; designing and conducting a research investigation; and acquiring interactive computer skills.
3. **Supervised experience (and field research):** Nonclassroom instruction in which the student is actively engaged in projects under the direct supervision of qualified personnel (e.g., faculty, senior students, I/O practitioners). Such projects would be aimed at fulfilling specific training objectives with special emphasis given to the acquisition of skills. Participation would not be motivated primarily for compensation. This method might often be characterized by in vivo learning opportunities such that the student learns in settings similar to those to which transfer can be expected. Research experience should begin during the first year of graduate education with small projects and be expanded in later years as the student gains skill and knowledge in the field.

In all cases, however, there must be meaningful professional supervision of the training experience. Examples would include practicum and internship experiences, fieldwork teaching/training, thesis/dissertation research, and so forth. An extensive (even yearlong) supervised internship performing the work of an I/O psychologist in a business, consulting, or government organization is strongly recommended as an essential component of doctoral preparation, especially for those who intend to become practitioners.

4. **On-the-job training:** Nonclassroom instruction in which capabilities are learned through “hands-on” experience on applied tasks under the explicit guidance of a professionally qualified task expert. Such training is typically done in conjunction with one’s “job,” and participation involves compensation. In any event, on-the-job training provides firsthand knowledge of the problems associated with particular I/O domains and allows for the opportunity to focus on solutions which will have an impact on the setting in which the student is working.
5. **Modeling/observation:** Nonclassroom implicit instruction that is obtained as a result of working with and paying attention to professionally qualified personnel in the daily conduct of their jobs or projects. This method implies that learning of important skills might well be obtained without explicit instructional intent on the part of the model. On the other hand, modeling may also be done in a purposeful and self-conscious manner. Modeling/observation, because of its general nature, cuts across several of the training methods described earlier.

a level of mastery deemed appropriate by a program’s faculty. Finally, it would be consistent with the spirit of these guidelines for a program to develop skills or knowledge in several of the domains using a single particular educational experience (e.g., a seminar, a supervised field project, or an assigned reading list).

Though the guidelines are most specifically intended for curriculum development, they also serve as a guide for students in ensuring the adequacy of their education. It is our firm belief that students are every bit as responsible for their education as faculty are. In some cases this means students must take advantage of presented opportunities (e.g., taking a needed class, participating in a research project, attending conferences). It may also mean that students

need to be proactive in developing their own opportunities (e.g., independent study, finding an internship, developing a professional network, reading appropriate journals).

Furthermore, we encourage practitioners to continue to play an active role in the development of I/O psychologists. Giving students opportunities to work on applied projects, offering internships, and taking an active role in the education and training of doctoral students (e.g., serving on the E&T Committee, contributing to doctoral consortia, visiting and speaking at graduate programs). In some respects, no one is more aware of the most current knowledge, skills, and abilities required of I/O psychologists than those practicing the discipline in the field.

Table A.2.3 Means of Training the Recommended Capabilities

	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
1. Consulting and Business Skills	*		*	*	*
2. Ethical, Legal, and Professional Contexts of I/O Psychology	*		*	*	*
3. Fields of Psychology	*	*			
4. History and Systems of Psychology	*	*			
5. Research Methods	*	*	*		*
6. Statistical Methods/Data Analysis	*	*	*		*
7. Attitude Theory, Measurement, and Change	*	*		*	
8. Career Development	*	*	*	*	
9. Consumer Behavior	*	*	*		
10. Criterion Theory and Development	*	*	*	*	
11. Health and Stress in Organizations	*	*	*		
12. Human Performance/Human Factors	*	*	*	*	
13. Individual Assessment	*		*	*	*
14. Individual Differences	*	*	*		
15. Job Evaluation and Compensation	*	*	*	*	
16. Job/Task Analysis, Job Evaluation, and Compensation	*	*	*	*	
17. Judgment and Decision Making	*	*			
18. Leadership and Management	*	*	*		*
19. Organization Development	*	*	*	*	*
20. Organization Theory	*	*	*		
21. Performance Appraisal and Feedback	*	*	*	*	*
22. Personnel Recruitment, Selection, Placement, and Classification	*	*	*	*	
23. Small Group Theory and Team Processes	*	*	*		*
24. Training: Theory, Program Design, and Evaluation	*	*	*	*	*
25. Work Motivation	*	*	*	*	

A = formal coursework; B = independent reading/study; C = supervised experience (and field research); D = On-the-job training; E = modeling/observation.

SUMMARY

The competency-based approach of these guidelines has much to recommend it. It maintains a focus on what is to be taught and learned, provides desirable flexibility to curriculum planners, and recognizes the multiple paths to developing most skills of importance. Nonetheless, it is also true that the recommendations based on such an approach might become dated or irrelevant to the field. Therefore, the present guidelines should be reevaluated on a regular basis. They must be kept up-to-date by continuous reference to the nature of work and conditions surrounding the I/O psychologist at work.

Doctoral education in I/O psychology must employ multiple methods of education and training. All of the foregoing approaches have value and should be integrated into a complete program of education and training. This program should ensure that the graduate will possess an appreciation of the roles of both

theory and practice; will be able to develop new ideas and also to apply relevant information to solve real-world problems; and will possess the research, methodological, statistical, and measurement knowledge and skills to enable conduct of appropriate research and problem solving.

FURTHER READING

- American Psychological Association. (1973, 1982). *Ethical principles in the conduct of research with human participants*. Washington, DC: Author.
- American Psychological Association. (1979). *Standards for providers of psychological service* (Rev. ed.). Washington, DC: Author.
- American Psychological Association. (1981, 1992). *Ethical principles of psychologists*. Washington, DC: Author.
- American Psychological Association Committee on Accreditation. (1996, January). *Guidelines for the review of doctoral and internship programs*. Washington, DC: Author.

- American Psychological Association Committee on Professional Standards and Committee on Psychological Tests and Assessment. (1986). *Guidelines for computer-based tests and interpretations*. Washington, DC: American Psychological Association.
- American Psychological Association, Division of Industrial and Organizational Psychology. (1987). *Principles for the validation and use of personnel selection procedures*. Washington, DC: Author.
- Dunnette, M. D. (1990). Blending the science and practice of industrial and organizational psychology: Where are we and where are we going? In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 1, pp. 1–27). Palo Alto, CA: Consulting Psychologists Press.
- Greguras, G. J., & Stanton, J. M. (1996). Three considerations for I/O graduate students seeking academic positions: Publish, publish, publish. *The Industrial-Organizational Psychologist*, 33(3), 92–98.
- Howard, A. (1990). *The multiple facets of industrial-organizational psychology: Membership survey results*. Washington, DC: Society for Industrial and Organizational Psychology.
- Maahs, C. J., & Major, D. A. (1995). Does your graduate program fully prepare you to enter the professional world? *The Industrial-Organizational Psychologist*, 32(4), 90–93.
- National Council on Measurement in Education. (1985). *Standards for educational and psychological testing*. Washington, DC: Authors.
- Schippmann, J. S., Hawthorne, S. L., & Schmitt, S. D. (1992). Work roles and training needs for the practice of industrial-organizational psychology at the master's and Ph.D. level. *Journal of Business and Psychology*, 6, 311–331.
- Schneider, B., Carlson, R., Lawler, E., & Pritchard, R. (1974). *Guidelines for education and training in industrial and organizational psychology*. Washington, DC: APA Division of Industrial and Organizational Psychology.
- Sebolsky, J. R., Brady, A. L., & Wagner, S. (1996). Want an applied job? Get experience! *The Industrial-Organizational Psychologist*, 33(4), 65–70.
- Society for Industrial and Organizational Psychology, Inc. (1985). *Guidelines for education and training at the doctoral level in industrial/organizational psychology*. College Park, MD: Author.
- Society for Industrial and Organizational Psychology, Inc. (1994). *Guidelines for education and training at the master's level in industrial/organizational psychology*. Arlington Heights, IL: Author.

Appendix 3. Universities With Master's and/or Doctoral Graduate Programs in Industrial and Organizational Psychology (and Related Fields)

Information about these graduate programs can be found at <http://siop.org/GTP/>:

Alliant International University	Carlos Albizu University
Angelo State University	Carnegie Mellon University
Antioch University Los Angeles	Case Western Reserve University
Appalachian State University	Central Michigan University
Auburn University	Central Washington University
Austin Peay State University	Chapman University
Ball State University	Chicago School of Professional Psychology
Barry University	Christopher Newport University
Baruch College, City University of New York	Claremont Graduate University
Bowling Green State University	Clemson University
California State University, Long Beach	Cleveland State University
California State University, Sacramento	Colorado State University
California State University, San Bernardino	Concordia University
Capella University	Curtin University
	DePaul University
	East Carolina University

EDITOR'S NOTE: Information for this appendix was graciously provided by the Society of Industrial and Organizational Psychology.

Eastern Kentucky University	New York University
Elmhurst College	North Carolina State University
Emporia State University	Northern Illinois University
Exeter University	Northern Kentucky University
Fairfield University	Northwestern University
Fairleigh Dickinson University (Florham-Madison)	Ohio University
Florida Atlantic University	Old Dominion University
Florida Institute of Technology	Pennsylvania State University
Florida International University	Polytechnic University (Brooklyn, NY)
George Mason University	Portland State University
George Washington University	Purdue University
Georgia Institute of Technology	Radford University
Georgia State University	Rice University
Golden Gate University	Roosevelt University
Griffith University	Rutgers–The State University of New Jersey
Harvard Business School	Saint Cloud State University
Hofstra University	Saint Joseph’s University
Illinois Institute of Technology	Saint Louis University
Illinois State University	Saint Mary’s University
Indiana University–Purdue University Indianapolis	San Diego State University
Kansas State University	San Francisco State University
Kean University	San Jose State University
Lamar University	Saybrook Graduate School & Research Center
Louisiana State University	Seattle Pacific University
Louisiana Tech University	Sonoma State University
Macquarie University	Southern Illinois University at Edwardsville
Marshall University	Southern Oregon University
McMaster University	Southwest Missouri State University
Michigan State University	Springfield College
Middle Tennessee State University	Stanford University
Minnesota State University	State University of New York, Binghamton
Montana State University	State University of New York, Buffalo
Montclair State University	Stephen F. Austin State University
National University	Teachers College, Columbia University
New Mexico State University	Temple University

Texas A&M University
Texas Tech University
Tulane University
Union Institute and University
University at Albany, SUNY
University of Akron
University of Arizona
University of Arkansas
University of Baltimore
University of Calgary
University of California, Berkeley
University of California, Irvine
University of Central Florida
University of Connecticut
University of Detroit–Mercy
University of Georgia
University of Guelph
University of Hartford
University of Houston
University of Idaho
University of Illinois at Chicago
University of Illinois at Urbana-Champaign
University of London
University of Maryland
University of Memphis
University of Michigan
University of Minnesota
University of Mississippi
University of Missouri, Columbia
University of Missouri–St. Louis
University of Nebraska–Omaha
University of New Haven
University of North Carolina Chapel Hill
University of North Carolina Charlotte
University of North Texas
University of Northern Iowa
University of Nottingham–UK
University of Oklahoma
University of Oklahoma–Tulsa
University of Sheffield
University of South Carolina
University of Southern Mississippi
University of South Florida
University of Surrey
University of Tennessee at Chattanooga
University of Tennessee, Knoxville
University of Texas–Arlington
University of the Philippines
University of Toronto
University of Tulsa
University of Waikato
University of Waterloo
University of West Florida
University of Western Ontario
University of Wisconsin–Madison
University of Wisconsin–Oshkosh
University of Wisconsin–Stout
University of Witwatersrand–South Africa
Valdosta State University
Villanova University
Virginia Commonwealth University
Virginia Tech
Washington State University
Wayne State University
West Chester University
Western Kentucky University
Western Michigan University
William Carey College on the Coast
Wright State University
Xavier University

Appendix 4. Scientific Journals Publishing Research in Industrial/Organizational Psychology (and Related Fields)

Academy of Management Executive *
Academy of Management Journal **
Academy of Management Review **
Administration and Society
Administrative Science Quarterly **
American Psychologist
Applied Ergonomics
Applied H.R.M. Management
Applied Psychological Measurement *
Applied Psychology: An International Review *
*Australian Journal of Management and
Organisational Behaviour*
Basic and Applied Social Psychology *
British Journal of Management
British Journal of Personality
Business Ethics: A European Review
Career Development Quarterly
Conflict Resolution Quarterly
*Consulting Psychology Journal: Practice and
Research*
Creativity and Innovation Management
Cross Cultural Management

Educational and Psychological Measurement *
*Employee Assistance Quarterly (changing to Journal
of Workplace Behavioral Health)*
Employee Relations
Environment and Behavior
Ergonomics
*European Journal of Work and Organizational
Psychology*
European Review of Applied Psychology
Gender, Work, and Organization
Group Decision and Negotiation
Group Dynamics: Theory, Research, and Practice *
Group Organizational Management *
Group Processes and Intergroup Relations
Human Computer Interaction
Human Factors *
Human Performance *
Human Relations *
Human Resource Development Review
Human Resources Development International
Human Resources Development Quarterly
Human Resources Development Review

EDITOR'S NOTE:

* A journal that would generally be considered as a more common outlet for I/O psychology research in the United States.

** A journal ranked as one of the top 10 journals in I/O psychology: Zickar, M. J., & Highhouse, S. (2001). Measuring prestige of journals in industrial-organizational psychology. *The Industrial-Organizational Psychologist*, 38, 29–36.

Information for this appendix was gathered and organized by Andrew Smith, Grove City College.

- Human Resources Management* *
Human Resources Management: International Digest
Human Resources Management Journal *
Human Resources Management Review *
Human Resources Planning
Industrial and Corporate Change
Industrial and Labor Relations Review
Industrial Relations: A Journal of Economy and Society
Intelligence
International Journal of Cognitive Ergonomics
International Journal of Conflict Management
International Journal of Cross Cultural Management
International Journal of Human Resources Management
International Journal of Industrial Ergonomics
International Journal of Organization Theory and Behavior
International Journal of Organizational Analysis
International Journal of Productivity and Performance Management
International Journal of Selection and Assessment *
International Journal of Social Research Methodology
International Journal of Stress Management
International Journal of Testing
International Journal of Training and Development
International Organization
International Review of Industrial and Organizational Psychology
Journal for the Theory of Social Behavior
Journal of Applied Behavioral Science *
Journal of Applied Business Research
Journal of Applied Measurement
Journal of Applied Psychology **
Journal of Applied Social Psychology *
Journal of Behavioral Decision Making
Journal of Business and Psychology *
Journal of Business Research
Journal of Career Assessment
Journal of Career Development
Journal of Change Management
Journal of Communication
Journal of Communication Management
Journal of Community and Applied Social Psychology
Journal of Computer Mediated Communication
Journal of Conflict Resolution
Journal of Counseling Psychology
Journal of Economic Behavior and Organization
Journal of Economic Psychology
Journal of Employment Counseling
Journal of Environmental Psychology
Journal of Experimental Psychology: Applied *
Journal of Experimental Social Psychology
Journal of Human Resources: Education, Manpower, and Welfare Economy
Journal of Individual Differences
Journal of Leadership and Organization Studies
Journal of Management **
Journal of Management and Education
Journal of Management Development
Journal of Management Studies
Journal of Managerial Issues
Journal of Managerial Psychology
Journal of Occupational and Organizational Psychology *
Journal of Occupational Health Psychology *
Journal of Occupational Science
Journal of Organizational Behavior **
Journal of Organizational Behavior Management
Journal of Organizational Change Management
Journal of Organizational Excellence
Journal of Personality
Journal of Personality and Social Psychology
Journal of Psychology: Interdisciplinary and Applied
Journal of Social Psychology
Journal of Vocational Behavior **
Journal of Vocational Rehabilitation
Journal of Workplace Learning
Journal of World Business
Law and Human Behavior
Leadership
Leadership and Organizational Development Journal *
Leadership Quarterly *
Learning and Individual Differences
Learning and Motivation
Management and Organization Review
Management Learning
Management Science
Measurement: Interdisciplinary Research and Perspectives
Military Psychology
Motivation and Emotion
Negation Journal
Organization Science *
Organization: The Interdisciplinary Journal of Organization, Theory, and Society

Organizational Analysis
Organizational Behavior and Human Decision Processes **
Organizational Development Journal *
Organizational Dynamics *
Organizational Research Methods **
Organizational Studies
Personality and Individual Differences
Personality and Social Psychology Bulletin
Personality and Social Psychology Review
Personnel Psychology **
Personnel Review
Professional Psychology: Research and Practice
Psychological Assessment
Psychological Bulletin *
Psychological Methods *
Psychological Review *
Psychology and Marketing
Psychology, Public Policy and Law
Public Administration: An International Overview
Public Administration Review
Public Opinion Quarterly

Public Personnel Management
Quality and Quantity: International Journal of Methodology
Representative Research in Social Psychology
Risk, Decision, and Policy
Small Group Research *
Social Behavior and Personality
Social Psychology Quarterly
Strategic Change
Strategic Management Journal
Strategic Organization
Strategy and Leadership
Stress and Health: Journal of the International Society for the Investigation of Stress
Stress: The International Journal on the Biology of Stress
Work and Occupations
Work and Stress *
Work, Employment, and Society
Work: Journal of Prevention, Assessment, and Rehabilitation

Appendix 5. Job Titles of Industrial/Organizational Psychologists

**Corporate Vice President, Director, Manager, Staff
Member of**

Organizational Development, Management Development,
Human Resources Research, Employee Relations, Training
and Development, and Leadership Development

President, Vice President, Director of
Private research, consulting companies, and organizations

Full, Associate, Assistant Professor of
Psychology, Management, Organizational Behavior, and
Industrial Relations

EDITOR'S NOTE: Information for this appendix was graciously provided by the Society of Industrial and Organizational Psychology.

Appendix 6. Groups and Organizations That Have Industrial/Organizational Psychologists as Members

ASAP (Atlanta Society of Applied Psychology)

For more information, visit www.asapatlanta.org

ASTD (American Society of Training and Development)

The major, national training association. For more information, visit www.astd.org

BAAP (Bay Area Applied Psychologists)

For more information, visit <http://www.baaponline.net>

Brunswik Society

Informal association of researchers who are interested in understanding and improving human judgment and decision making. For more information, visit <http://brunswik.org/>

Central Florida I/O Interest Group

An informal I/O interest group. For more information, please contact Paul Spector spector@chuma.cas.usf.edu

CIOP (Chicago I/O Psychologists, formerly GCAIOP)

For more information, visit <http://www.ciop.net>

CODESP (Cooperative Organization for the Development of Employee Selection Procedures)

A consortium of classified personnel departments in Nevada and California public school districts. For more information, visit www.codesp.com/

Consortium for Research on Emotional Intelligence in Organizations

Founded in 1996 to aid advancement of research and practice related to emotional intelligence in organizations. For more information, visit www.eiconsortium.org

Competency Consortium

Consortium providing a forum for organizations to share competency models, applications, lessons learned, and benchmark best practices. For more information, please contact Mariangela Battista at 914-640-2686 or Mariangela.Battista@starwoodhotels.com

COP (College of Organizational Psychologists, Australia)

This group is affiliated with the Australian Psychological Society. For more information, visit

EDITOR'S NOTE: Information for this appendix was graciously provided by the Society of Industrial and Organizational Psychology.

www.aps.psychsociety.com.au/units/colleges/organisational/

CSIOP (I/O Division of the Canadian Psychology Association)

For more information, visit www.ssc.uwo.ca/psychology/csiop/

CWAIOP (Colorado-Wyoming Association of I/O Psychologists)

For information, visit <http://www.cwaiop.colostate.edu/>

DAIOP (Dallas Area I/O Psychologists)

For more information, visit www.daiop.org

EAWOP (European Association of Work and Organizational Psychologists)

A network linking together I/O groups from several European nations. For more information, visit www.eawop.org

GIOP (Gateway I/O Psychologists)

Members-only discussion list at groups.yahoo.com/group/gioptalk

HAIOP (Houston Area Industrial and Organizational Psychologists)

For more information, visit www.haiop.org or e-mail info@haiop.org

HFES (Human Factors and Ergonomics Society)

5,000 members and in existence since 1957. For more information, visit www.hfes.org

HRPS (Human Resource Planning Society)

National group for senior HR consultants, academics, and Fortune 500 practitioners. 3,000 members. For more information, visit www.hrps.org/home/index.shtml

IPMA (International Personnel Management Association)

For more information, visit www.ipma-hr.org/

IPMA–Assessment Council

A subset of IPMA. Focuses on recruitment, selection, and assessment issues primarily in the public sector. For more information, visit www.ipmaac.org/

ISIR (International Society for Intelligence Research)

A scientific society for researchers in human intelligence; sponsors an annual conference focused on all aspects of intelligence research. For more information, visit www.isironline.org

ISPI (International Society for Performance Improvement)

A 39-year-old group of “performance technology” individuals. 10,000 members. For more information, visit www.ispi.org

ITC (International Testing Commission)

Founded in 1978, an association of psychological associations, test commissions, and other organizations committed to promoting effective testing and assessment policies and to the proper development, evaluation, and uses of educational and psychological instruments. For more information, visit www.intestcom.org

ITSG (Information Technology Survey Group)

A consortium of about 15 companies (e.g., IBM, Intel, Sun, SAP, Microsoft) in the IT industry. For more information, visit www.itsg.org

MAIOP (Michigan Association of I/O Psychologists)

For more information, visit www.maiop.org

MAPAC (Mid-Atlantic Personnel Assessment Consortium, Inc.)

An association of mid-Atlantic public sector agencies interested in assessment. For more information, visit www.ipmaac.org/mapac/

Mayflower Group

Founded in 1971, consortium of blue-chip companies employing at least 10,000 U.S.-based employees. Dedicated to employee opinion surveys. For more information, visit www.mayflowergroup.org

METRO (Metropolitan New York Association for Applied Psychology)

For more information, visit <http://www.MetroAppPsych.com/>

MPPAW (Minnesota Professionals for Psychology Applied to Work)

For more information, visit www.mppaw.org

NCIOP (North Carolina Industrial and Organizational Psychologists)

For more information, visit <http://www.ncsu.edu/psychology/graduate/conc/iov/organizations/ncio/index.htm>

NESAP (New England Society for Applied Psychology)

For more information, visit www.NESAP.org

Northwest Conversations

An informal association of assessment professionals in the Pacific Northwest. For more information contact Leta Danielson at letad@dop.wa.gov

NYSPA IOP Division (New York State Psychological Association's Industrial, Organizational & Personnel)

For more information, visit www.NYSPA.org/specialty/pio.htm

ODI (Organization Development Institute)

For more information, visit <http://members.aol.com/odinst/membinfo.htm>

ODN (Organization Development Network)

3,200 members. For more information, visit www.ODNetwork.org/

OH-IO (Ohio I/O Psychologists)

For more information, please contact Jim Austin at 614-292-9897 or austin.38@osu.edu; or David Kriska at 614-645-8008 or dkriskal@csc.cmhmetro.net

PAI (People Assessment in Industry, South Africa)

Focuses on marketing and educating people about psychological assessment, validation studies, and ethics of use. For more information, visit www.pai.org.za

Performance America

Learning network devoted to assessing and improving government performance through organizational assessment and development. For more information, visit www.opm.gov/employ/html/perf_am.htm

PIOPA (Portland Industrial & Organizational Psychology Association)

For more information, visit www.piopa.org

PSAIOP (Puget Sound Association of I/O Psychologists)

For more information please contact Peter Scontrino at 425-392-5694 or mpscontrino@aol.com

PTC/A (Personnel Testing Council of Arizona)

For more information, visit www.ipmaac.org/ptca/index.html

PTC/MW (Personnel Testing Council of Metropolitan Washington, DC)

For more information, visit www.ptcmw.org

PTC/NC (Personnel Testing Council of Northern California)

For more information, visit www.ipmaac.org/ptcnc/

PTC/SC (Personnel Testing Council of Southern California)

For more information, visit www.ipmaac.org/ptcsc/

SCIP (Society for Computers in Psychology)

For more information, visit <http://141.225.14.239/scip/index.php>

SCPMA (Southern California Personnel Management Association)

For more information, please contact Bill Osness at 714-536-5586 or fax to 714-374-1571.

SHRM (Society for Human Resource Management)

National group focusing on the needs of HR generalists. For more information, visit www.shrm.org

SIOP (Society for Industrial and Organizational Psychology)

Over 6,000 members. Principal professional association for I/O psychologists in the United States. For more information, visit www.siop.org

SJDM (Society for Judgment & Decision Making)

For more information, visit www.sjdm.org

SPIM (Society of Psychologists in Management)

For more information, visit www.spim.org

TIOP (Texas I/O Psychologists)

For more information, please contact Clyde Mayo at 713-667-9251 or mpsmayo@aol.com

WRIPAC (Western Regional Intergovernmental Personnel Assessment Council)

A consortium of public sector agencies in California, Nevada, and Arizona with an interest in assessment. For more information, visit www.wripac.com/

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