EIGHTH EDITION

INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY

RESEARCH AND PRACTICE

PAUL E. SPECTOR



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RESEARCH AND PRACTICE

Eighth Edition

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To Gail who supported me through writing eight editions of this book.

PREFACE

Industrial-organizational or I-O psychology is an exciting field that has been enjoying continual growth in North America and throughout the industrialized world during its almost 100-year history. In 2019 U.S. News and World Report listed I-O Psychology as the second best science career. What began as a tiny subspecialty of psychology, known only to a few practitioners, human resources professionals, and professors, has grown to be one of the major specialties in psychology worldwide. This attention is due to two factors. First, I-O is concerned with the workplace, so its findings and principles are relevant to everyone who holds a job. Second, I-O has developed proven methods that organizations find of value. I-O psychologists are often called on to help organizations develop a more efficient and healthier workforce.

The field of I-O psychology has a dual nature. First, it is the science of people at work. This aspect ties it to other areas of psychology, such as cognitive and social psychology. Second, I-O psychology is the application of psychological principles of organizational and work settings. There is no other area of psychology in which a closer correspondence between application and science exists, making I-O a good example of how society can benefit from the study of psychology.

The field of I-O is a large and diverse one. Many topics are covered, ranging from methods of hiring employees to theories of how organizations work. It is concerned with helping organizations get the most from their employees or human resources, as well as helping organizations take care of employee health, safety, and well-being. For this reason, a single text can provide only an overview of the major findings and methods that I-O psychologists use. The goal of this book is to provide such an overview, as well as a comprehensive understanding of the field. Each of the major areas that comprise I-O psychology is covered.

Part 1 of this book provides an overview of the I-O field. Chapter 1 covers the nature of the field and its history. I-O psychology is discussed as both a practice and a science. The chapter describes what a career in I-O psychology involves and what it takes to become an I-O psychologist. Chapter 2 is an overview of the basic principles of I-O research methods.

The remainder of the book is divided into four parts. Part 2 focuses on assessment. Chapter 3 discusses the assessment of jobs—called job analysis; Chapter 4 focuses on the assessment of employee job performance, and Chapter 5 explores the way in which employee characteristics are measured. Part 3 contains two chapters. Chapter 6 deals with the methods that organizations use to hire new employees. Chapter 7 follows those new employees, as well as experienced ones, through their training programs.

The four chapters in Part 4 discuss the relationship between the individual and the organization. Chapter 8 covers theories of motivation. Chapter 9 focuses on how people feel about their jobs—their attitudes about the job and the emotions they experience at work. The topic of Chapter 10 is productive and counterproductive work behavior. Chapter 11 deals with occupational health psychology, a rapidly emerging field that is concerned with worker health, safety, and well-being.

The final part of the book, Part 5, is concerned with the social context of work. Chapter 12 explores small work groups and work teams and their effect on the individual. Chapter 13 discusses leadership and supervision in the workplace. Chapter 14, the last chapter, takes an organization perspective. It covers organizational climate and culture, organizational development, and organizational theory.

Special Features

The newest feature introduced in this eighth edition is links to the author's blog articles. Each chapter has two boxes that contain links to blog articles that are concerned with topics covered in the chapter. Discussion questions are provided for each blog special feature article that can be used in a variety of ways, including class discussion and written assignments. A separate guide to using the blog articles for teaching is provided as an ancillary resource. For each blog, there is a QR code that enables students to easily access them with a cell phone by activating the camera and pointing it at the code.

In each chapter of the book, there are "Learning by Doing" exercises that actively engage the student with the material in the chapter. All of the exercises ask the student to address an I-O issue or answer a particular question. Some involve interviewing working individuals about an aspect of their work experience. Others require observations of a public work setting, such as a retail store or restaurant. Still others are accomplished through the Web. These experiences are designed to enhance the student's knowledge of how information can be used to address a problem.

In all but the first two chapters, there are two additional special features. First, there is a detailed summary of a research study from one of the major I-O journals. Each "Research in Detail" summary was chosen to give added insight through a study that is relevant to topics covered in the chapter. The implications of each study for the practice of I-O psychology are also discussed. Second, a case study describes how a practicing I-O psychologist was able to help an organization with a problem. These "I-O Psychology in Practice" cases were chosen to represent the wide variety of settings and applied work that involve I-O psychologists.

At the end of each "I-O Psychology in Practice," case are discussion questions. The purpose of these questions is to encourage students to think about the principles discussed in the book. They require students to apply the chapter principles to a real situation. The questions can be used in a variety of ways. They can be assigned to groups of students or to individuals. They can be used for in-class debates, discussions, oral presentations, or written assignments. The cases themselves are provided to help show students the connections between practice and research in the I-O field. Students often have a difficult time seeing the relevance to their lives of much of what they study in college. I-O psychology is a field that is relevant to almost everyone.

Changes to the Eighth Edition

My goal with all eight editions is to provide a text that is as current as possible, covering both the traditional core material of the field and exciting, new emerging areas and findings. The first major task I had with the revision was to update the material and add important new developments. The science of I-O psychology is rapidly developing, with new findings and insights emerging almost daily. I added more than 160 new references with almost all of them from 2016 or later. The overall organization of the book retains the original 14 chapters.

Content Changes in the Eighth Edition. Although almost all of the topics covered in the first seven editions are still here, some have been expanded or modified, and new ones have been added. Of note are the following new or substantially updated topics:

Automated Web-based interview (Chapter 5)
Creativity and innovation (Chapter 10)
Crowdsourcing (Chapter 12)
Customer satisfaction (Chapter 9)
Cyber-bullying and cyber-incivility (Chapter 11)
Gamification in assessment (Chapter 5), training (Chapter 7), motivation (Chapter 8)
Genetics and job satisfaction (Chapter 9)
Micro-learning (Chapter 7)
Moral leadership—authentic, ethical, and servant (Chapter 13)

Obesity (Chapter 6)
Organizational climate and culture (Chapter 14)
People analytics (Chapter 2)
Performance appraisal interview (Chapter 4)
Safety climate (Chapter 11)
Self-determination theory (Chapter 8)
Situational interview (Chapter 5)
Situational judgment test (Chapter 5)
Social media for assessment (Chapter 5)
Workability (Chapter 10)

To make room for new material, some old material was deleted, and one major topic—two-factor theory was deleted from Chapter 8.

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I want to thank the many individuals over the years who provided feedback, ideas, and information that helped make this book what it is. First is my son Steven Eric Spector who sat with me for hours explaining blogging and showing me how to make a website using Wordpress. He had a lot of input into how the blog feature was incorporated; it would not have existed without him.

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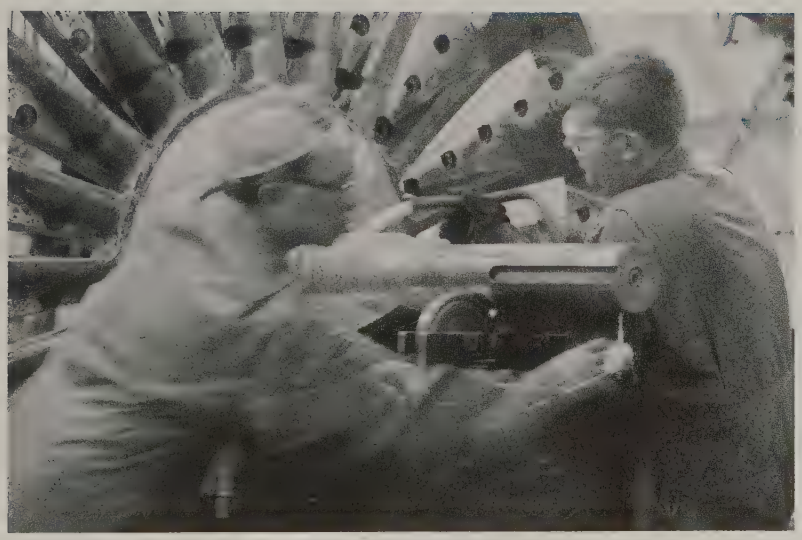
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PART 1

Introduction



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CHAPTER 1

Introduction

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If you want to buy a new tablet, perhaps to better read this book or watch funny cat videos, the choices are almost endless—including brick-and-mortar stores, such as BestBuy and Costco, and online retailers, such as Amazon, Newegg, and Tiger Direct. Each of these companies is an example of an organization that employs thousands of people in order to provide the goods and services that consumers demand. On any given day, you might have contact with several organizations, and not just when you buy a tablet or your groceries. Government agencies, nonprofit organizations (church, synagogue, or temple), and private companies are all organizations. In order to provide their goods, services, and other functions, they must coordinate the actions of many individuals, likely from across the globe. Needless to say, managing such a complex enterprise is extremely difficult, requiring highly skilled managers. Those managers enlist great many specialists to assist them. They often turn to industrial-organizational (I-O) psychologists for help with many of their employee-related issues. For example, I-O psychologists have helped

Amazon improve their hiring practices.
AT&T develop assessment centers to choose the best managers.
The U.S. Army use psychological tests to place recruits in the appropriate jobs.
The U.S. Postal Service develop procedures to reduce assaults by employees.

If you go to work for a large organization, there is a good chance that your work life will be affected by I-O psychology. An I-O psychologist may have designed the assessments you took to get the job, the salary and benefit package that you will be offered, the training that you will receive, and the structure of the tasks that will comprise your job. I-O psychologists are involved in issues related to employee health, job performance, motivation, safety, selection (hiring), and training. They can also deal with the design of equipment and job tasks. This book discusses all of these areas and more.

There are two equally important aspects of the I-O psychology field. First, I-O psychology involves the scientific study of the human side of organizations. Many I-O psychologists, particularly those who are professors at universities, conduct research about people at work. Second, I-O psychology includes the application of the principles and findings of I-O research. Most I-O psychologists are involved in practice, either

as consultants or as employees of organizations. What distinguishes the practice of I-O psychology from that of many other fields is that I-O psychology is an evidence-based field, meaning that the things practitioners do are based on scientific methods and principles. This book reviews the major findings from I-O science and explores how practicing I-O psychologists apply those findings in organizational settings.

I-O psychology is an eclectic field that has borrowed and expanded concepts, ideas, techniques, and theories from many other disciplines. Experimental psychology provided the historical foundation of the I-O field. Its principles and techniques, such as psychological testing, were applied by several early experimental psychologists to the problems of organizations. As we will discuss later in this chapter, one of the earliest American examples occurred when psychologist Robert Yerkes convinced the army to use psychological tests during World War I. Influences on the I-O field outside of psychology have come from ergonomics, industrial engineering, management, public health, and sociology. Although I-O psychology had most of its beginnings in the United States and the United Kingdom, it has become an international activity, especially in industrialized countries.

This chapter contains an overview of the I-O field, covering the major activities and employment settings for I-O psychologists, and it presents a brief history of the field. The chapter discusses what training is needed to become an I-O psychologist and where that training is offered, not only in the United States but also throughout the world. The research process will be discussed, and the major publication outlets for I-O research will be listed. I-O psychologists are very concerned with the ethical treatment of people, which is another topic that we will cover.

Chapter 2 contains a discussion of the research methods used in I-O psychology. Chapters 3 to 14 cover the major topics of the field, beginning with a focus on the assessment of jobs and people in Chapters 3 to 5. Covered in Chapters 6 and 7 are two major areas that are relevant to developing productive employees—selecting good people and training them to do their jobs well. Chapters 8 to 11 are concerned with the individual in the context of the organization and they cover motivation, how people feel about their jobs, employee behavior, and employee health and safety (i.e., occupational health psychology or OHP). Chapters 12 to 14 deal with the individual employee in the social context of the organization. Major topics discussed include groups and teams, leadership, techniques to change organizations, and theories of organizations.

What Is I-O Psychology?

Psychology is the science of human (and nonhuman) behavior, cognition, emotion, and motivation. It can be subdivided into many different specializations, some of which are concerned primarily with psychological science (experimental psychology) and others of which are concerned with both psychological science and the application of that science to real-world problems outside of the research setting. I-O psychology (along with clinical psychology and human factors) falls into the latter category of being concerned with both psychological science and its application.

As its two-part name implies, the field of I-O psychology contains two major divisions: the industrial (or personnel) and the organizational. Although the contents of the two major divisions overlap and

OBJECTIVES

The student who studies this chapter should be able to

1. Define I-O psychology.
2. Describe the major activities of I-O psychologists.
3. Summarize the history of the I-O field.
4. Explain the importance of research and how it relates to practice.

cannot be easily separated, each developed over time out of different traditions. Industrial psychology, which was the original name for the field, is the older branch and tends to take a management perspective of organizational efficiency through the appropriate use of human resources or people. It is concerned with issues of efficient job design, employee recruitment and selection, employee training, and performance appraisal. Organizational psychology developed from the human relations movement in organizations. It is concerned with understanding behavior and enhancing the well-being of employees in the workplace. Organizational topics include employee attitudes, employee behavior, job stress, and leadership. The major topics of the field, however, cannot easily be characterized as strictly industrial (I) or organizational (O). Motivation, for example, is relevant to the I-concerns of employee efficiency and performance, but it is also relevant to the O-concerns with the happiness and well-being of employees, as well as understanding human behavior in organizational settings. Even though the I-area and O-area cannot always be clearly distinguished, together they suggest the broad nature of the field.

The largest subarea of psychology concerned with the application of scientific findings is clinical psychology. Clinical psychologists deal with the study and treatment of psychological disorders, as well as people's health and well-being. **Industrial-organizational psychology** is a smaller, but more rapidly growing psychology subfield that is concerned with the development and application of scientific principles to the workplace. I-O psychologists do not deal directly with employees' emotional or personal problems. This activity falls into the domain of clinical psychology. An I-O psychologist, however, might recommend setting up an employee assistance program (EAP) that would hire a clinical psychologist to help with such problems as employee alcoholism or post-traumatic stress disorder (PTSD).

Activities and Settings of I-O Psychologists

I-O psychologists do many different jobs in a wide variety of settings. We often divide I-O settings into those that are concerned with practice and those that are concerned with scientific research (although there is overlap between them). The practice activities involve the use of psychological principles to solve real-world problems, such as excessive job stress or poor job performance in a particular organization. Research provides principles that can be applied in practice. Both practice and research are equally important within the I-O field. One major objective of I-O psychology is to help organizations function more effectively. In order to do so, the field must have research findings on which to base practice. Not all research is done with practice in mind, however. Some psychologists study work behavior just to learn why people do the things they do at work. As with all forms of basic research, sometimes the findings of such activities can be applied to important human problems, but in other cases the findings might not have direct applicability (see Blog 1-1 for further discussion of the divide between academic research and practice.)

BLOG 1-1 Bridging the Academic-Practice Divide

https://paulspector.com/bridging-the-academic-practice-divide

Discussion Questions

1. State one problem an organization can have that research might be able to solve.
2. Is solving the academic-practice divide more the responsibility of I-O professors or practitioners? State why you feel this way.
3. What can you do to help solve the academic-practice divide in your future career, whether you are an I-O psychologist or not?
4. Why do you think the academic-practice divide exists?

Although settings can be classified as either practice or research, there is considerable overlap in activities across the two. Many I-O psychologists in research settings get involved in practice, and psychologists in practice settings do research. Furthermore, some practice activities require research to determine the best approach to solve the problem at hand. Existing principles might not be available in all cases. In fact, I-O psychologists often do not have ready-made answers, but rather they have the means of finding answers.

Most research settings are the colleges and universities at which I-O psychologists are professors. Practice settings include consulting firms, government, the military, and private corporations. Consulting firms provide I-O services to organizations that hire them. Large consulting firms might have hundreds of employees providing services to organizations throughout the world. I-O psychologists often work for governments (city, county, state, or national), the military (usually as civilian specialists), and private corporations. I-O psychologists in each of these practice settings might be doing the same sorts of activities. Figure 1-1 shows the percentage of I-O psychologists found in each of the major settings.

Many I-O psychologists are college or university professors, most often in psychology departments or colleges of business administration. Although they spend much of their time doing research and teaching students, they do far more than that. Many are involved in practice as consultants to organizations, and some have started their own consulting firms to pursue this interest. The following list describes the major activities of professors:

Teach courses.
Do research.
Write research papers and present them at meetings.
Publish articles in scientific journals.
Provide consulting services to organizations.
Write textbooks.
Mentor graduate and undergraduate students.
Provide information to the public (such as by blogging).
Develop courses.
Keep up with their field.
Help administer the teaching function of their university.

The basic functions of a professor are to create and disseminate knowledge. Each activity in this list is concerned with one or both of these functions.

Practicing I-O psychologists do many of the same things as their academic colleagues, including conducting research and teaching college courses. The major focus of a practice job, however, is the application of the findings and principles of the field. The following list of activities shows what practicing I-O psychologists do:

Analyze the nature of a job (job analysis).
Conduct an analysis to determine the solution to an organizational problem.
Conduct a survey of employee feelings and opinions.

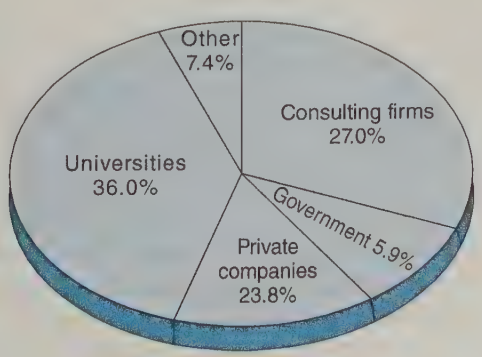


FIGURE 1-1 Percentage of I-O psychologists who work in various settings.
Source: Adapted from Poteet et al. (2017). *Income & Employment Report 2016.* Bowling Green, OH, Society for Industrial and Organizational Psychology.

Design an employee performance appraisal system.
Design an employee selection system.
Design a training program.
Develop psychological tests.
Evaluate the effectiveness of an activity or practice, such as a training program.

Implement an organizational change, such as a new reward system for employees who perform well.

Much of the effort of I-O psychologists is directed toward enhancing the effectiveness and functioning of organizations. They do so by focusing on several aspects, including selecting people who are better suited to a job, training people to do a job better, designing jobs that can be done better, and designing organizations to function better. I-O psychologists also attempt to change organizations so that they are healthier and safer places for people to work, even if the effectiveness of the organization is not improved.

I-O Psychology as a Profession

According to U.S. News and World Report (2020) I-O psychology is the second best science job in the United States, behind clinical psychology. (See Blog 1-2 for a discussion of why I-O is such a good career.) I-O is a profession that is in many ways like accounting or law. Some states in the United States require that I-O psychologists be licensed, but in other states, only clinical psychologists must be licensed. Likewise, some countries require licensure (e.g., the UK), whereas others do not. Many I-O psychologists work for consulting firms that provide services for a fee to client organizations. These services are provided in much the same way that an accounting firm or law firm provides them.

BLOG 1-2 I-O Psychology Is a Great Career

https://paulspector.com/i-o-psychology-is-a-great-career



Discussion Questions

1. What do you like best about an I-O career?
2. What setting would you most like to work in: government, military, private corporation, or university?
3. List three things that you are looking for in a future career.
4. Do you think you would like to be an I-O psychologist? Why or why not?

I-O psychologists belong to several professional/scientific societies. The Society for Industrial and Organizational Psychology (SIOP), which is a division of the American Psychological Association (APA), is the largest organization in the United States that is comprised entirely of I-O psychologists. As of this writing, it has 9,054 members, with about 40% of them being student affiliates. About 92% of SIOP members are from North America with the remaining coming from a wide range of countries throughout the world. The Academy of Management is a larger organization than SIOP, but the majority of its members are not psychologists. It is comprised of people who have interests in the broader field of management, mostly professors from colleges of business administration. Many I-O psychologists, primarily those who are college professors, are active members of this organization. In addition to the national associations that attract I-O psychologists, there are many regional (e.g., Southern Management Association) and metropolitan associations of I-O psychologists in many cities, such as New York City, Ottawa,

San Francisco, and Washington, DC. The newest American organization relevant to I-O psychology is the Society for Occupational Health Psychology (SOHP), which was established in 2006. More than half its members are I-O psychologists who are interested in issues concerning employee health, safety, and well-being.

There are also professional associations of I-O psychologists in many other countries throughout the world. The Australian Psychological Society has the College of Organisational Psychologists, Canada has its own Society for Industrial and Organizational Psychology, the British Psychological Society has its Division of Occupational Psychology, and many similar associations exist throughout Europe. Over a dozen of them have formed the European Association of Work and Organizational Psychology (EAWOP). Also relevant to I-O psychologists is the International Association of Applied Psychology, Division of Organizational Psychology, and the European Academy of Occupational Health Psychology, headquartered in the UK.

I-O Psychology as a Science

Research is one of the major activities of I-O psychologists. Research can develop new methods for such activities as selecting and training employees. Often research is conducted for a specific organization to solve a particular problem—for example, for a hospital that has a high nurse turnover (quitting) rate. Other research focuses on understanding some organizational phenomenon, such as the cause of employee theft in a grocery store, or the effect of teacher job attitudes on their students. Results of these sorts of research studies are presented at professional meetings and published in peer-reviewed scientific journals.

The national and international associations noted earlier all have conferences, usually annually, where results of research are presented. The annual meeting of SIOP, for example, attracts thousands of practitioners and researchers who learn from one another by discussing and sharing their research findings and ideas. Practitioners often find such meetings to be a good place to learn about new solutions to their organizational problems. Researchers can find out about the latest findings before they are published in the scientific journals, and they can find out about the issues that are of concern to practicing psychologists.

Peer-reviewed scientific journals represent the major outlet for research results. Some journals are produced by professional associations, whereas others are published by private companies. For example, the *Journal of Applied Psychology* is published by the APA, and the *Journal of Occupational and Organizational Psychology* is published by the British Psychological Society. The *Journal of Organizational Behavior* is published by Wiley, the company that publishes this textbook. Table 1-1 lists the major journals that publish research on I-O topics. Most are magazines that publish four to six issues per year.

I-O researchers, most of whom are college professors, submit articles for possible publication to these journals. Their work is then sent to experts in the field for peer-review and critique. Articles are revised based on the critiques, and often several rounds of revision and resubmission will be necessary before an article is accepted for publication. Only the 5% to 10% of submitted articles that survive a rigorous peer-review process will be published in the best journals. Peer review helps maintain high standards for published work so that the best research makes it into print.

Publication of research papers is a competitive and difficult endeavor. College professors, particularly those without tenure who are at research-oriented universities, are under tremendous pressure to be successful at publication. I-O programs at most universities have a "publish or perish" system that requires professors to be active researchers who contribute to the knowledge base of the field. This is true of all scientific disciplines in most research universities. A publication record in the best journals is a major determiner of career success for a professor, as reflected in the ability to find a job, earn tenure, get promoted, and receive raises. Keep in mind, however, that one of the major functions of a university is to create and disseminate new knowledge for the benefit of society, so there is a good reason to emphasize research.

TABLE 1-1

Journals That Publish I-O Research and Theory

Academy of Management Journal
Academy of Management Review
Administrative Science Quarterly
Applied Psychology: An International Review
Human Factors
Human Relations
Human Resources Management Review
International Journal of Selection and Assessment
International Review of Industrial and Organizational Psychology
Journal of Applied Psychology
Journal of Business and Psychology
Journal of Management
Journal of Occupational and Organizational Psychology
Journal of Occupational Health Psychology
Journal of Organizational Behavior
Journal of Vocational Behavior
Occupational Health Science
Organizational Behavior and Human Decision Processes
Organizational Research Methods
Personnel Psychology
Work & Stress

History of the Field of I-O Psychology[1]

I-O psychology is a twentieth-century invention, with roots in the late 1800s and early 1900s. It has existed almost from the beginning of the psychology field. The first psychologists to do I-O work were experimental psychologists who were interested in applying the new principles of psychology to problems in organizations. Early work in the United States focused on issues of job performance and organizational efficiency and in the United Kingdom on employee fatigue and health (Kreis, 1995). As the field matured during the first half of the century, it expanded into most of the areas that it covers today. Figure 1-2 shows the major events both inside and outside of the field that contributed to the development of American I-O psychology.

1990	Americans with Disabilities Act passes
1970	APA adopts the name, Division of Industrial and Organizational Psychology
1964	Civil Rights Act passes
1941	World War II war effort begins
1924	Hawthorne studies begin
1921	First I-O Ph.D. is awarded; Psychological Corporation is founded
1917	Mental tests for job placement are developed
1913	First I-O textbook is published

FIGURE 1-2 A time line of major events in the history of American I-O psychology.

[1]Unless otherwise noted, this section is based on Katzell and Austin's (1992) history of the I-O field.

Two psychologists are credited with being the main founders of the American I-O field. Hugo Münsterberg and Walter Dill Scott were both experimental psychologists and university professors who became involved in applying psychology to problems of organizations. Münsterberg, who immigrated to the United States from Germany, was particularly interested in the selection of employees and the use of the new psychological tests. Landy (1992) posits that Münsterberg's inability to gain the respect of colleagues at Harvard University was the motivation for his shift to the emerging field of industrial psychology. Scott was interested in many of the same things as Münsterberg, as well as the psychology of advertising. Scott wrote a pioneering textbook, *The Theory of Advertising* (1903), and Münsterberg wrote the first American I-O textbook, *Psychology and Industrial Efficiency* (1913).

A major influence on the I-O field was the work of Frederick Winslow Taylor, an engineer who studied employee productivity throughout his career during the late nineteenth and early twentieth centuries. Taylor developed what he called **Scientific Management** as an approach to handling production workers in factories. Scientific Management includes several principles to guide organizational practices. In his writings, Taylor (1911) suggested the following:

1. Each job should be carefully analyzed so that the optimal way of doing tasks can be specified.
2. Employees should be selected (hired) according to characteristics that are related to job performance. Managers should study existing employees to find out what personal characteristics are important.
3. Employees should be carefully trained to do their job tasks.
4. Employees should be rewarded for their productivity to encourage high levels of performance.

Though refined over the years, these same ideas are still considered valuable today.

Another influence from the field of engineering can be seen in the work of Frank and Lillian Gilbreth, a husband-and-wife team who studied efficient ways of performing tasks. They combined the fields of engineering and psychology (Frank was an engineer and Lillian a psychologist) in studying how people perform tasks. Their best-known contribution was the **time and motion study**, which involved measuring and timing people's motions in doing tasks with the goal of developing more efficient ways of working. Although the basic ideas were Taylor's, the Gilbreths refined and used their new technique to help many organizations (Van De Water, 1997). Some historians claim that Lillian was the first to receive an American I-O Ph.D. (Koppes, 1997) in 1915, although most historians give this distinction to Bruce V. Moore in 1921. The Gilbreths' work served as the foundation of what would later become the field of human factors, which is the study of how best to design technology for people. In later years, Lillian turned her attention to designing consumer products and invented the foot-pedal trash can and refrigerator door shelves, among other things (Koppes, 1997). However, the Gilbreths themselves are best known as the subjects of the popular movie *Cheaper by the Dozen*, which chronicled their lives as working parents of 12 children.

World War I saw the beginning of the use of I-O psychology to assist in the war effort in both the United Kingdom and the United States. The beginning of I-O psychology in the United Kingdom is marked by the establishment of the Health of Munitions Workers Committee (HMWC) in 1915 in order to deal with issues of employee health, safety, and efficiency that were exacerbated by productivity demands due to the war (Kries, 1995). In the United States, on the other hand, entry into the war in 1917 encouraged several psychologists, led by Robert Yerkes, to offer their services to the army. The best-known accomplishment of the group was the development of the Army Alpha and Army Beta group tests for mental ability. One of the biggest problems for the army was placing new recruits in jobs for which they were best suited. The newly invented psychological tests seemed to the psychologists to be an efficient way to solve that problem. This was the first large-scale application of psychological testing to place individuals in jobs. It provided a foundation for mass testing that has been used ever since in educational settings (e.g., the Scholastic Aptitude Test, SAT) and employment settings.



Charles Myers
(*Charles Samuel Myers circa 1920, https://upload.wikimedia.org/wikipedia/commons/5/54/Charles_Samuel_Myers_circa_1920.jpg.*)



Hugo Münsterberg
(*Stock Montage/Contributor/Getty Images*)



Walter Dill Scott
(*Science Source Images*)



Frederick Winslow Taylor
(*Jacques Boyer/Roger-Viollet/The Image Works*)



Robert Yerkes
(*Bettmann/Getty Images, Inc.*)

During the decades between the two world wars, I-O psychology expanded into most of the areas that we see today. As organizations grew in size they began hiring I-O psychologists to address many of their increasing employee problems, particularly those that were relevant to productivity in the United States. At the same time, research on I-O topics began to accumulate. In 1921 in the United Kingdom, psychologist Charles Myers co-founded the National Institute of Industrial Psychology (NIIP), an organization devoted to improving efficiency and working conditions of British employees. Its focus on employee well-being follows the work of the earlier HMWC and characterizes not only British but also European I-O psychology from the early development of the field (Kwiatkowski, Duncan, & Shimmin, 2006). Myers (1926) wrote one of the early I-O textbooks, *Industrial Psychology in Great Britain*, that covered the core topics of employee selection, training, and motivation. He also discussed worker health and safety, topics that would not become mainstream in the U.S. for decades.



Frank and Lillian Gilbreth
(*Bettmann/Getty Images*)

During this period the training of I-O psychologists became established. In 1921 Penn State University awarded what many consider the first American Ph.D. in what was then called industrial psychology to Bruce V. Moore. I-O psychologists began organizing into consulting firms that would provide services to organizations for a fee. The most well-known of these was the American company Psychological Corporation, founded in

1921 by James McKeen Cattell, which today is called Harcourt Assessment. One of the most important events of this period was the Hawthorne studies, which continued for more than 10 years at the Western Electric Company in the United States.

Before the Hawthorne studies, American I-O psychologists focused almost exclusively on issues of employee productivity and organizational efficiency, including the assessment of employee abilities and the efficient design of jobs. Although the Hawthorne researchers set out to study these topics, they quickly discovered what their British colleagues had previously found (Kwiatkowski et al., 2006): It is difficult to separate employee productivity from social aspects of organizational life. Their study of supervision and work groups helped draw attention to the O or organizational side of the field.

The best known of the Hawthorne studies was the investigation of lighting-level effects (Roethlisberger & Dickson, 1939). The objective of this study was to determine the lighting level that would produce optimal performance on a factory task. The researchers conducted an experiment in which a group of employees was taken to a special room where lighting levels were changed. Lights were made brighter and dimmer from day to day to see the effects on productivity. The researchers were surprised to find that over the course of the experiment, productivity increased and seemed to have little to do with lighting levels. Many explanations of these results have been advanced and debated. The most frequently discussed is that knowledge of being in an experiment, or what has come to be called the **Hawthorne Effect**, caused increases in performance. Whatever the reason, it seems clear that social factors can be more important than physical factors in people's job performance.

World War II had a tremendous stimulating effect on the development of the I-O field for countries on both sides of the Atlantic, most notably the United States and the United Kingdom (Warr, 2007). Psychologists dealt with problems that spanned the entire scope of both I- and O-work, including the selection of recruits, placement of recruits in different jobs, training, morale, performance appraisal, team development, and equipment design. Prior to World War II, the APA limited its interests to experimental psychology and rejected attempts by I-O psychologists to make practice, which was considered nonscientific, part of its mission. As a result of the war, however, the APA opened its doors to applied psychology, and Division 14 of Industrial and Business Psychology was formed in 1944 (Benjamin, 1997). After the war, the two areas of industrial and organizational psychology continued to expand. For example, Arthur Kornhauser conducted research on how work conditions can have effects on both the mental health and the personal life of employees, thus producing some of the early American work on what is now called occupational health psychology (Zickar, 2003). In 1970, Division 14 of the APA changed its name to the Division of Industrial and Organizational Psychology and is today called the **Society for Industrial and Organizational Psychology (SIOP)**. The society's website (http://www.siop.org) is an important resource for information about the field, including information about graduate schools, job postings, and society business.

Another event in the United States that helped shape the field of I-O psychology was the passage of the Civil Rights Act of 1964. This act set into motion forces that have had a tremendous impact on how organizations hire and treat employees, and not only in the United States. When discrimination against minorities and women became illegal, organizations had to change many of their employment practices. I-O psychologists were called upon to help develop procedures that would eliminate discrimination in the workplace. The passage of the Americans with Disabilities Act (ADA) in 1990 extended protection against discrimination to persons with disabilities. Here again I-O psychologists have been called upon to find ways to eliminate unlawful discrimination.

The history of the field is full of examples of how I-O psychologists have helped improve organizations and work conditions for employees. The field has grown tremendously over the years to include more and more work issues over time. I-O psychology has much to contribute to the operation of organizations and the well-being of employees. Its future looks bright, as organizations continue to need help with employee issues, as discussed throughout this book.

I-O Psychology Beyond the United States and United Kingdom

Our discussion of the history of I-O has focused on the United States and the United Kingdom, where the field had its beginnings and most (but not all) of its early development. However, I-O psychology exists throughout the world, and many of its findings and principles have come from other countries. One indication of both the rapid spread of the field and its globalization can be seen in the nationalities of authors who publish in what are considered the leading journals in the field, the U.S.-based *Journal of Applied Psychology* and *Personnel Psychology*. Cascio and Aguinis (2008) showed that the percentage of non-U.S. authors of papers published in these two journals increased fivefold, from 5% in the mid-1960s to 25% in the mid-2000s. We are seeing increasing numbers of journal articles coming from Australia, Canada, Greater China, Germany, Israel, Korea, the Netherlands, New Zealand, Scandinavia, and Singapore, just to mention a few places. Another indication of the spread of I-O psychology beyond the United States and the United Kingdom is the increasing number of I-O master's and Ph.D. programs outside of these two countries (see Table 1-2). Through the eight editions of this textbook, the list has continued to grow as new programs are established throughout the world. Another trend is for researchers to partner across countries to conduct cross-cultural research. This work is important because not all principles used in the West will necessarily work in other countries or cultures. We will discuss some of these studies throughout the book.

An interesting aspect of the I-O field internationally is that cultural, historical, and political conditions helped shape the nature of the field and the sorts of things that are studied, giving each country its own I-O flavor (Warr, 2007). Zickar and Gibby (2007) noted that American I-O psychology has historically focused on employee productivity and the assessment of individual differences that can be used for employee selection (see Chapters 5 and 6). Warr (2007) contrasted the American perspective with that of the United Kingdom, noting that the latter had a much greater focus on employee health and well-being. In recent decades, the rapid globalization of the world economy and widespread electronic communication have meant cross-fertilization of the field across countries and a greater convergence of ideas and methods. Some of the large American I-O consulting firms, such as Development Dimensions International and PDI Ninth House, established offices around the world, which both introduced American I-O methods overseas and introduced the methods from overseas to the United States.

What It Takes to Become an I-O Psychologist

The most common route to becoming an I-O psychologist in North America (Canada and the U.S.) is to earn a graduate degree (master's or Ph.D.) in I-O psychology from one of the many I-O psychology graduate programs. Many people who do I-O work have other backgrounds, such as in other areas of psychology or in business administration. Some of these people consider themselves to be I-O psychologists and may hold jobs with that title. In the United States, practitioners might have an M.A. or Ph.D. degree, but opportunities and salaries are better with a Ph.D. To become a college professor, however, one must have a Ph.D.

In other places, as in much of Europe, the Ph.D. is not as common as the master's degree. Rather, the master's degree is considered a practice degree, whereas the Ph.D. is a research credential. An individual who wishes to be a practitioner will likely have only the master's degree. If one continues on to earn a Ph.D., he or she is most likely to be interested in research and will be found in a research institute or a university. It is possible for a practitioner to have a Ph.D., but it is not considered as important as in North America.

Table 1-3 lists master's and Ph.D. programs throughout North America, and Table 1-2 lists a sample of graduate programs (both master's and Ph.D.) from other countries.

TABLE 1-2

Universities in North America With Graduate Programs in I-O Psychology

State	M.A. program	Ph.D. program
Alabama	University of Alabama in Huntsville	Auburn University
California	California State University Long Beach Sacramento San Bernadino Chapman University San Diego State University San Francisco State University San Jose State University Sonoma State University	Alliant International University[B] Claremont Graduate University[B]
Canada	Saint Mary's University	University of Calgary University of Guelph University of Waterloo[B] University of Western Ontario
Colorado		Colorado State University University of the Rockies[B]
Connecticut	Fairfield University Sacred Heart University University of Hartford University of New Haven	University of Connecticut
District of Columbia		George Washington University
Florida	University of West Florida	Florida Institute of Technology[B] Florida International University[B] University of Central Florida[B] University of South Florida
Georgia	Valdosta State College	Georgia Institute of Technology University of Georgia
Illinois	Adler School of Professional Psychology Chicago School of Professional Psychology Elmhurst College Illinois State University Southern Illinois University at Edwardsville	DePaul University Illinois Institute of Technology[B] Northern Illinois University Roosevelt University[B] University of Illinois Urbana-Champaign Southern Illinois University Carbondale
Indiana	Ball State University	Indiana University–Purdue University at Indianapolis[B] Purdue University
Kansas	Emporia State University	Kansas State University
Kentucky	Northern Kentucky University Western Kentucky University	
Louisiana		Louisiana State University Louisiana Technological University[B]
Maryland	University of Maryland, Baltimore County	University of Maryland
Massachusetts	Anna Maria College Salem State University Springfield College William James College	
Michigan	University of Detroit–Mercy	Central Michigan University[B] Michigan State University University of Michigan Wayne State University[B] Western Michigan University[B]

(*continued*)

TABLE 1-2 *(continued)*

Universities in North America With Graduate Programs in I-O Psychology

State	M.A. program	Ph.D. program
Minnesota	Mankato State University Minnesota State University University of Minnesota, Duluth	University of Minnesota
Mississippi	William Carey University, Coastal	University of Southern Mississippi
Missouri	Missouri State University Missouri University of Science and Technology Southeast Missouri State University	St. Louis University
Nebraska	University of Nebraska at Omaha	University of Nebraska at Omaha
New Jersey	Fairleigh Dickinson University Kean University Montclair State University	
New York	Brooklyn College, CUNY Iona College New York University	Baruch College, CUNY[B] Columbia University, Teachers College[B] Hofstra University[B] University of Albany, SUNY
North Carolina	Appalachian State University Meredith College	East Carolina University[B] North Carolina State University University of North Carolina–Charlotte
Ohio	Cleveland State University University of Cincinnati Xavier University	Bowling Green State University Ohio University Union Institute and University University of Akron[B] Wright State University[B]
Oklahoma	University of Oklahoma, Tulsa	University of Oklahoma[B] University of Tulsa[B]
Oregon		Portland State University
Pennsylvania	La Salle University St. Joseph's University West Chester University	Penn State University Temple University
Puerto Rico		Carlos Albizu University[B]
South Carolina	Clemson University	Clemson University
Tennessee	Middle Tennessee State University University of Tennessee-Chattanooga	
Texas	Angelo State University Lamar University Saint Mary's University University of Houston Clear Lake City	Rice University Texas A & M University[B] University of Houston University of Texas Arlington[B]
Virginia	Radford University	George Mason University[B] Old Dominion University Virginia Technological University
Washington	Curtin University	Seattle Pacific University[B] Washington State University
Wisconsin	University of Wisconsin–Stout	

[B]Has both M.A. and Ph.D. programs

Note: Includes applied psychology, organizational psychology, and other similar psychology programs.

Source: Retrieved January 7, 2020, from Society for Industrial and Organizational Psychology website: https://www.siop.org/Events-Education/Graduate-Training-Program.

TABLE 1-3

A Sample of Universities Outside the United States That Offer Graduate Degrees in I-O Psychology

Country	University
Australia	Deakin University
	Griffith University
	Macquarie University
	Murdoch University
	University of Adelaide
	University of Newcastle
	University of New South Wales
	University of Queensland
	University of South Australia
	University of Western Australia
Belgium	Free University of Brussels
	University of Ghent
	University of Leuven
	University of Liege
	University of Louvain
Brazil	Federal University of Minas Gerais
	University of Sao Paulo
China	Beijing Normal University
	Beijing University
	China Eastern Normal University
	Institute of Psychology, Chinese Academy of Science
	South China University
	Southwest University
	Zhejiang University
Costa Rica	Latin University of Costa Rica
	University Autonoma Monterrey
England	Exeter University
	Liverpool John Moores University
	Queen's University of Belfast
	University of Gloucestershire
	University of Hull
	University of London Birkbeck College
	University of Manchester Institute of Science and Technology
	University of Nottingham
	University of Sheffield
	University of Surrey
France	University of Bordeaux
	University of Paul Valéry Montpellier
	University of Provence Aix-Marseille
Germany	Technical University of Dresden
	University of Frankfurt
	University of Giessen
	University of Konstanz
	University of Mainz
	University of Mannheim
	Ludwig Maximilans University of Munich
	University of Potsdam
Hong Kong	Chinese University of Hong Kong
	Lingnan University

(*continued*)

TABLE 1-3 *(continued)*

A Sample of Universities Outside the United States That Offer Graduate Degrees in I-O Psychology

Country	University
Ireland	University College Dublin
	University of Limerick
Israel	Bar-Ilan University
	Technion—Israel Institute of Technology
Italy	University of Bologna
	University of Padova
	University of Rome Sapienza
Korea	Hoseo University
	Kwangwoon University
	Sungkyunkwan University
	Yonsei University
Latvia	University of Latvia
Lithuania	Mykolas Romeris University
Netherlands	Free University of Amsterdam
	University of Amsterdam
	University of Groningen
	University of Nijmegan
	University of Tilburg
New Zealand	Massey University
	University of Auckland
	University of Canterbury
	University of Waikato
Philippines	Eulogio "Amang" Rodriguez Institute of Science and Technology
Portugal	ISCTE Lisbon University Institute
Puerto Rico	Carlos Albizu University
	Interamerican University of Puerto Rico
	Pontifical Catholic University
Romania	Alexandru Ioan Cruza University
	Babes-Bolyai University
	University of Bucharest
	West University
Russia	Moscow State University
Scotland	Heriot-Watt University/University of Strathclyde
	University of Aberdeen
Singapore	Singapore Management University
South Africa	University of Stellenbosch
	University of Witwatersrand
Spain	Complutense University
	University of Barcelona
	University of Santiago
	University of Valencia
Sweden	Stockholm University
	University of Lund
Switzerland	University of Bern
	University of Fribourg
	University of Neuchatel
	University of Zurich
Taiwan	National Chengchi University
	National Taiwan University
Turkey	Koc University
	Middle East Technical University

As the size of the lists may suggest, the United States is the world leader in terms of the number of programs, but there are many fine I-O programs throughout the rest of the world. I-O psychology has spread throughout the world—mainly, but not exclusively, in developed countries that have large organizations.

Admission to North American graduate programs is quite competitive, especially for the well-established Ph.D. programs. Most base admission largely, but not exclusively, on undergraduate grade point average (often just the junior and senior years) and Graduate Record Examination (GRE) scores. Prior applied and research experience can be important, especially for top Ph.D. programs. Letters of recommendation from faculty members are usually required. I-O graduate programs are challenging and require skills in both communication (verbal and written) and mathematics. Thus, to do well, a student should properly prepare as an undergraduate. A solid background in basic mathematics (i.e., algebra) and statistics is a good start. Good basic communication skills, especially writing, are also valuable. It is always wise to take a course in I-O psychology before making the choice to pursue this career. Finally, a good background in basic psychology will make things easier. Students who have other undergraduate majors and do not have this background find they have a lot of catching up to do, especially in the first year.

The training of I-O psychologists includes both the practice and the research sides of the field. An I-O psychologist is trained to be a scientist-practitioner, or someone who is able to conduct scientific research and apply principles to problems of organizations. Students are exposed to procedures for applying principles of the field, as well as to research methodology. The specific content and emphasis can differ among graduate programs, especially when comparing these programs across countries. There are many excellent programs offering terminal master's degrees to people who do not wish to spend the extra years it would take to earn the Ph.D. These programs offer training that is usually oriented more toward practice than science, in part because they do not have sufficient time to cover each side of the field in depth and in part because they are intended to train practitioners. The Ph.D. programs can offer a better balance between practice and science because they take over twice as long to complete. These programs train people to be both practitioners and researchers.

A master's degree can be completed in about two years, while a Ph.D. can be completed in about four to six years by a person who has a bachelor's degree. Programs vary, but a master's program will include coursework on research methodology and the various areas of the I-O field, which will be discussed in this book. A Ph.D. program covers the same areas, as well as general psychology and more extensive research methodologies. For this degree, the Society for Industrial and Organizational Psychology (1985) suggests a list of areas that should be covered that includes each of the chapters in this book. In addition, there is practicum experience working in an organizational setting with a practicing I-O psychologist and research experience (e.g., doctoral dissertation) done under the supervision of a committee of I-O faculty members.

The job market for I-O psychologists in the United States has been excellent, although it does fluctuate with general economic conditions. Surveys of I-O psychologists done by the APA over the years have generally found less than 1% unemployment among those who wish to work. According to the latest SIOP salary survey (Society for Industrial and Organizational Psychology, 2020) the median salary in 2018 for an I-O psychologist in the U.S. was $88,900 per year for individuals with a master's degree and $125,000 per year for those with a Ph.D. Salary varied by region of the country, type of employment, and industry, with consultants having the highest incomes. College professors working business schools earned about two-thirds more than those working in psychology departments, and college professors in departments that had doctoral programs earned more than professors in departments that did not. Women earned about 10% less than men on average, but it should be kept in mind that there are many factors that account for the gender difference. For example, female I-O psychologists are less likely to have a Ph.D. than males (81% versus 74%) and have fewer years of experience on average than men. Finally, it should be kept in mind that these are median salaries, meaning that half the people make more and half less than these numbers.

The gender distribution of I-O psychology has been becoming increasingly balanced in the numbers of men and women. In the 1960s, only about 8% of Ph.D.s in I-O psychology were awarded to women. Interestingly, prior to 1930, women comprised a much higher proportion of practicing I-O psychologists than they did in 1960. Although accurate estimates of numbers are impossible to make (Koppes, 1997), women may have comprised as much as 25% of the I-O psychologists in the 1920s. In the past few decades, women have entered the field in increasing numbers, and today they earn about half or more of the Ph.D.s awarded in the United States. The membership of SIOP in 2006 was 36.7% female, which represents a sizeable increase over the 1960s. This trend can also be found elsewhere in the world.

Ethics of the I-O Field

Psychology has had a long tradition of concern with ethical behavior and the welfare of people. I-O psychologists in the United States follow an ethical code that has been developed over the years by the APA. The code includes both ethical principles and statements of appropriate professional conduct. Although the association has little enforcement power other than to terminate a psychologist's membership, most I-O psychologists are guided by these principles in their professional work.

The basic philosophy of the ethical code is that psychologists should do their best to avoid harming other people through their professional work. This means that a psychologist should avoid committing any illegal or immoral act that might harm someone either physically or psychologically. On the other hand, psychologists have a social responsibility to use their talents to help other people. In other words, the goal of the profession is to improve the human condition through the application of psychology. For the I-O psychologist, this means helping to improve organizations so that they function better and helping to improve the well-being of employees.

The APA ethical code contains six principles, each of which is listed in Table 1-4. As you can see from the table, these principles are concerned with basic ethical standards of honesty, integrity, respect for others, and responsibility. The code also contains a detailed list of appropriate and inappropriate behaviors; too long to reprint here, they can be found on the APA website at http://www.apa.org/ethics.

Many psychologists follow the code of ethics of the Academy of Management. Although it is somewhat different from the APA code, the two codes are compatible. The Academy of Management code deals with standards of behavior for its members in three domains of organizational work—practice, research, and teaching. It, too, is based on the principles that one does not harm others and that one has the responsibility to use his or her talents to benefit society.

TABLE 1-4

Six Ethical Principles from the American Psychological Association Code

Competence: A psychologist only does work that he or she is competent to perform.
Integrity: Psychologists are fair and honest in their professional dealings with others.
Professional and Scientific Responsibility: Psychologists maintain high standards of professional behavior.
Respect for People's Rights and Dignity: Psychologists respect the rights of confidentiality and privacy of others.
Concern for Other's Welfare: Psychologists attempt to help others through their professional work.
Social Responsibility: Psychologists have a responsibility to use their skills to benefit society.

Source: Adapted from "Ethical Principles of Psychologists and Code of Conduct," by the American Psychological Association (1992), *American Psychologist, 47,* pp. 1597–1611.

Humanitarian Work Psychology

For the most part, I-O psychology is a field that developed in the Western developed world, where organizations have the resources to hire I-O psychologists as consultants. In much of the world, however, people live in poverty, work in unhealthy conditions, and have received little benefit from the accumulated knowledge from the I-O field or the expertise of practicing I-O psychologists. The **humanitarian work psychology** movement is an attempt to remedy this problem by mobilizing I-O psychologists to use their skills in efficiently running organizations to help reduce poverty and promote health and well-being in the workplace in countries where large numbers of people lack access to economic and workplace well-being (Thompson & Gloss, 2014). The Global Task Force for Humanitarian Work Psychology is a group of psychologists who are finding ways to link I-O psychology with development agencies like the United Nations and governments of developing countries so that their expertise can be brought to bear on these problems (Berry et al., 2011). Berry et al. (2011) explain that I-O psychologists have a great deal to offer the humanitarian effort with their expertise in assessing people's needs for specific programs and interventions, evaluating how well programs work, developing strategies for implementing programs, and determining how best to handle a variety of issues concerning people at work. Much of this work can involve helping humanitarian agencies to work more effectively. As Atkins and Foster Thompson (2012) point out, many I-O tools can be applied to assuring that volunteers sent to perform humanitarian work have the right talents through the use of scientific selection procedures (see Chapters 5 and 6), and properly designed training programs (see Chapter 7).

Chapter Summary

The field of industrial-organizational (I-O) psychology is one of the major areas of psychology. It is a diverse field concerned with the human side of organizations. The I-O field can be divided into two major areas. The industrial side is concerned with organizational efficiency through the appraisal, selection, and training of people and the design of jobs. The organizational side is concerned with understanding the behavior of people on the job and protecting their health, safety, and well-being.

I-O psychology is both a practice and a science. Most I-O psychologists can be found working for organizations to address issues and problems involving people. They are practitioners who work either as consultants to many organizations or as employees of a single organization. A little over a third of I-O psychologists are college professors (see Figure 1-1), most of whom conduct research to develop better methods and procedures to deal with employee problems at work or to understand employee behavior.

An I-O psychologist needs to earn a graduate degree from an I-O psychology program in a university. Many such programs may be found throughout North America and the rest of the industrialized world—for example, Australia, China, Europe, Israel, New Zealand, and South Africa—with new programs being added in other places. Although the field began largely in the United States and the United Kingdom, it has rapidly expanded throughout most of the world. Many of the findings discussed in this book have come from studies done with organizations and people throughout the world.

There are many associations of I-O psychologists (and others with similar interests) that allow for the dissemination of ideas and research findings of the field. This is done by holding conventions and by publishing scientific journals. These associations also have developed codes of ethical conduct for their members. For example, both the Academy of Management and the American Psychological Association have published ethical standards. The basic philosophy in these ethical codes is that I-O psychologists should take care not to harm anyone and that I-O psychologists have a social responsibility to use their skills to benefit others.

Learning by Doing

Graduate Study in I-O Psychology

Go to the SIOP website, http://www.siop.org. Go to "Events & Education" and then to "Graduate Training Program". You will be able to search for graduate programs. Do a search, for example, by name or location, and choose one program. Review the information provided here, as well as on the program's own site. Answer the following questions.

1. What is the focus of the program (i.e., what does the description say the program is about)?
2. How many faculty are in the program?
3. How many students are there?
4. How many of the faculty are cited in this textbook (check the Author Index)?

Advantages of Association Membership

Go to the SIOP website, http://www.siop.org. From the material there, list the advantages to psychologists and students of being a member of the association.

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CHAPTER 2

Research Methods in I-O Psychology

OUTLINE

Research Questions
Important Research Design Concepts
- Variables
- Research Setting
- Generalizability
- Control
- Random Assignment and Random Selection
- Confounding

Research Designs
- Experiments
- Survey Designs
- Experience Sampling
- Observational Designs
- Qualitative Studies
- People Analytics

Measurement
- Classical Measurement Theory
- Reliability
- Validity

Statistics
- Descriptive Statistics
- Regression
- Inferential Statistics
- Meta-Analysis
- Mediator and Moderator Variables

Research Ethics and Integrity
- Research Ethics
- Research Integrity

Chapter Summary
Learning by Doing
References

Imagine that you are a practicing I-O psychologist working for a company. You are assigned the task of determining if a new training program is producing better performance in employees. Perhaps employees are being trained in the use of a new Web-based system that is supposed to increase employee productivity. How would you go about finding out if the training works? Would you review the program and see if it looks as if it should be effective, or would you conduct a research study and collect data on job performance?

The problem with the first approach is that a training program that looks as if it should be effective does not always produce the desired results. The only way to be certain that training accomplishes its purpose is to conduct a research study and collect data on performance to see if it improved. Conducting a study to determine training effectiveness requires knowledge of research methodology, a topic in which I-O psychologists today are extensively trained. Whether an I-O psychologist is in a job that involves primarily practice, or research, he or she needs to know the methods that are used for conducting studies.

I-O psychology is an evidence-based field, which means that research provides the foundation for much of what we do. I-O psychologists bring research skills to organizations, so that questions concerning whether programs work can be determined scientifically. This is important for evaluating the success of organizational practices, such as training programs. Research is also important for the development of new practices, such as procedures for hiring people.

I-O psychology is a science because the methods used to expand knowledge of organizational phenomena are scientific methods. This means that the I-O psychologist gathers data or information in a systematic way to address research questions of interest, such as these:

"Does the training program work?"
"Will the new absence policy result in better employee attendance?"

"Does changing the policy on the use of safety gear reduce accidents?"
"Will using a new test to select employees result in greater first year retention?"

Each scientific study begins with a research question, which defines the purpose of the study. An investigation is planned using a particular design or structure in which data are collected. For example, in a simple experiment to test a training program, you might divide a sample of employees into two groups, only one of which receives the training; the other is the control group. After the training has been completed, the two groups would be compared on their job performance. This basic experiment defines one of the simplest designs for an investigation. Data would be collected on performance and analyzed using a statistical test, which, in this case, would probably be a *t*-test. (See the discussion of inferential statistics later in this chapter.) Conclusions would be drawn concerning the effects of the training by considering statistical results in the context of the investigation's design. With the training program, it is hoped that the trained group will perform better than the nontrained group after the training has been completed. If this were the finding, one feasible conclusion would be that the training worked. In any given study, however, there can be many competing explanations for results, which must be addressed with further research. In the training study, perhaps the trained people performed better because they felt management was paying attention to them and not because the training itself was effective, which is similar to what happened in the Hawthorne studies that we discussed in Chapter 1. With organizational studies (as well as those in any science), one cannot be certain why results occurred, but with proper research design, competing explanations can be eliminated.

This chapter covers the four major components of a research study. First, it discusses the nature of research questions, and how they are refined into testable research hypotheses. Second, it reviews several types of research designs, and how they are used as the basis of organizational research studies. Third, it addresses the basic principles of measurement, which determine how observations of the phenomena of interest are collected. Fourth, it shows how statistics are used to draw conclusions from the data of an investigation. In addition, this chapter reviews the major principles of research ethics.

OBJECTIVES

The student who studies this chapter should be able to

1. Explain the major concepts of research design.
2. Describe the major types of research designs and list their advantages and limitations.
3. Discuss the types of reliability and validity.
4. Explain how inferential statistics can be used to draw conclusions about data.
5. State the major principles of research ethics.

Research Questions

Every study begins with a research question. This is true for studies done by practicing I-O psychologists, whose questions address the immediate issues for an organization, such as the effectiveness of a procedure or program. It is just as true for I-O researchers, whose questions address scientifically important issues, even if they are not of immediate concern to a particular organization.

Research questions can be general or specific. A general question would be

"What causes people to like or dislike their jobs?"

The problem with this sort of question is that it is not sufficiently specific to provide the basis of a study. Too many different factors could be studied as possible influences on liking or disliking a job. To be more useful, the question should specify exactly what is being studied. A better question that is more specific is

"Does level of pay affect how much people like their jobs?"

This question specifies the particular factor that might influence liking or disliking a job. It tells the researcher exactly what to study as a possible cause for liking or disliking a job. To address this question, the researcher needs to assess employee pay levels, and their feelings about their jobs.

As we will see in Chapter 9, pay itself is not as important as the fairness of pay policies. People tend to be satisfied when they believe that they have been treated fairly when it comes to pay. They will be dissatisfied if they believe they have been unfairly treated, even if their pay is very high. Thus, the amount of pay is not necessarily the most important factor.

Many of our investigations, especially for practicing I-O psychologists, are designed to find answers to practical problems and are exploratory in nature. That is, we have a research purpose and question in mind, but we do not have a preconceived hypothesis or theory to guide our investigation. Often such investigations involve examination of large amounts of data so we can uncover useful patterns, such as which background information might predict who will perform well on the job. We will return to this type of investigation when we talk later about people analytics.

Other investigations are designed to test theories and preconceived notions about how the work world works. Such investigations, especially those published in academic research journals, go beyond raising questions by stating specific theoretical hunches, or hypotheses, about the outcomes of a study. A **hypothesis** is the researcher's best guess about what the results of a study will be. Rather than merely raising the question, the hypothesis is a theoretical answer. Thus, one might hypothesize that

"People who are well paid will like their jobs better than people who are not."

or

"People who are fairly paid will like their jobs more than people who are not."

The hypothesis is a statement of the results that the researcher expects to find. Research studies are conducted to confirm hypotheses. In other words, do the results come out the way they were predicted?

Most hypotheses that we see in our academic research journals come from prior research and theory. Although occasionally a researcher will have a sudden inspirational research idea, most hypotheses upon which studies are based come from hard work in studying the research literature of an area. This is the way that all sciences advance and evolve, as individual studies become the foundations for later work. The best advice one can give a new researcher is to look to other people's research for new hypotheses and research questions.

The hypothesis and/or research question are the basis of a study, and in some ways are its most critical aspect. Without a specific and well-formulated question, it is difficult to design a study that will adequately provide new insights. The question defines the objective of the study, as well as the phenomena of interest. When both are known, the researcher can design the study and choose the measurement techniques much more easily than when he or she has an imprecise idea of what he or she is trying to accomplish.

Important Research Design Concepts

The design of an investigation specifies the structure of the study. A large number of common designs are used in organizational research. Each has its own strengths and weaknesses, so that no design is necessarily superior to the others. Before discussing the various types of designs, we will define several concepts that must be understood first.

Variables

Variables are the building blocks of a design. A **variable** is an attribute or characteristic of people or things that can vary (take on different values). People's abilities

(e.g., intelligence), attitudes (e.g., job satisfaction), behavior (e.g., absence from work), and job performance (e.g., weekly sales) are all common variables in organizational research. Every subject's standing on each variable is quantified (converted to numbers) so that statistical methods can be applied.

Variables can be classified into one of two types. In experiments, **independent variables** are those that are manipulated by the researcher, while **dependent variables** are those that are assessed in response to the independent variables. In other words, the independent variables are assumed to be the cause of the dependent variables. In the training program example, employees were assigned to either a group that was trained or a group that was not trained. Group assignment (trained or not trained) is the independent variable. It is manipulated because the researcher creates the training and decides who does and does not get trained. Subsequent job performance is the dependent variable because it is not manipulated by the researcher but is merely assessed after training. In other words, the dependent variable is *dependent on* the independent variable.

Research Setting

The research setting can be classified as either a field or a laboratory. A **field setting** is one in which the phenomenon of interest naturally occurs. Organizations are field settings in which to study employee behavior. **Laboratory settings** are artificial environments in which phenomena of interest do not normally occur. They occur only because the researcher created them in that setting. The same physical location can be the setting for either a field or a laboratory study, depending on what is studied. A university classroom is a field setting in which to study student learning, but a laboratory setting in which to study reactions to job conditions.

Most I-O research occurs in organizational field settings, but some of it takes place in the laboratory as well. Dipboye (1990) reported that 29% of I-O studies published in major I-O journals are laboratory studies, and Shen et al. (2011) found in their analysis of one leading I-O journal that 40% of studies used college students as subjects. Most likely, most of the college student samples were from laboratory studies. Laboratory studies can be used to address many aspects of work. For example, researchers sometimes create simulated job conditions to test people's reactions. Taken together, the results of both field and laboratory studies help enhance our understanding of organizational phenomena (Dipboye, 1990).

Generalizability

Generalizability of results means that the conclusions of a study can be extended to other groups of people, organizations, settings, or situations. Generalizability is often a concern with laboratory studies because we cannot be certain that the results will hold for organizational field settings. The more dissimilar the study is to the organizational setting, in terms of both conditions and subjects, the less confidence there can be in the generalizability of the results. The only sure way to be certain about generalizability is to replicate the study in the field setting. If the results in the laboratory are also found in the field, we can have confidence in the generalizability of the laboratory findings.

Generalizability can also be a concern in field studies, because studies done in one organization, or with one group of subjects, might not have the same results in other places or with other groups of subjects. For example, a study done with nurses in a hospital might have different results from the same study done with physicians. Furthermore, results found in a hospital might be different from results found in a factory. Of even greater concern is generalizability across countries and cultures. We cannot be certain that the findings from all of our American and Western research will generalize to countries with different cultures, such as China or India. Finally, even if we wish to generalize only within a single occupation in a single organization, conditions of the study might hold only for the setting in which the study is conducted. A training program

conducted as part of a pilot study might differ somewhat from a program that is implemented throughout an organization. Trainees and trainers can be affected by knowing they are participants in a research study, just as in the Hawthorne studies we discussed in Chapter 1. This knowledge can motivate the trainers to perform their training tasks in a more effective way than they would if the training was for other purposes. Thus, a training program might work well in the research phase but not in the implementation phase of a training development project.

Control

Every study offers several possible explanations for why the results occurred. **Control** refers to procedures that allow researchers to rule out explanations for results other than the hypotheses they wish to test. For example, suppose we wish to find out if salary affects how much people like their jobs. We could conduct a survey of employees in various organizations, asking them how much they are paid and how much they like their jobs. We might find that the higher the salary, the greater the liking. However, with this sort of design, there are many uncontrolled variables that might be the real cause of liking. For example, perhaps the higher-paid people are in different types of jobs than the lower-paid people. If the higher-paid people are all professional athletes, and the lower-paid people are all salesclerks, it would be difficult to conclude that the level of pay caused the liking differences. This is because the type of job was uncontrolled, and it is a possible alternative explanation for the results.

Control can be achieved by a several procedures. For the most part, they involve either holding constant, or systematically varying the level of one or more variables. With the pay survey example, one might hold constant the type of job by limiting the survey to people of only one occupation. If the subjects of the study all had the same job, job type could not have accounted for the results because it was controlled. One could also control for job type by systematically varying it. Subjects could be chosen so that there would be samples of people in different kinds of jobs. For example, one could include athletes, nurses, salesclerks, and teachers. Then statistical analyses could be conducted to tease apart the effects of pay from the effects of job type. Results might find, for example, that athletes have higher satisfaction than people in the other jobs, but that within each job, pay has little connection to satisfaction. For example, higher-paid athletes are not more satisfied than lower-paid athletes.

Control can be achieved in experiments by using a **control group**. A control group is a collection of people who receive a condition or manipulation different from the one of interest. In determining the effectiveness of a training program, the group that did not get trained, and is compared to the group that did get trained, is called the *control group*. A control group can sometimes be exposed to some manipulation that is used to control specific variables of concern. For example, with a training study it is possible that training has a nonspecific, or Hawthorne Effect. A person who knows he or she has been trained might perform better because of increased effort rather than increased skills. This is important to know because there is no need to send someone through expensive and time-consuming training if it does not have the intended effect. The control group can be given bogus or placebo training to control for the Hawthorne Effect. If individuals, who are told they are being trained but receive little actual training, perform as well as the trained group, the researcher will know that the training did not achieve its intended results.

Laboratory experiments are often conducted in I-O psychology because they provide the strongest control over many variables that might affect results. Even though a laboratory study may lack the generalizability of a field study, a researcher might choose this more controlled approach. It is common for research on new topics to begin in the laboratory so that a researcher can see if, under highly controlled conditions, a hypothesis might hold. If it does, field studies can follow to be sure the results generalize to the settings of ultimate interest—organizations.

Random Assignment and Random Selection

Random refers to a process that eliminates systematic influences on how subjects are treated in a study. The term *random* is used in two ways: random assignment and random selection.

Random assignment occurs when we assign people to various treatment conditions or levels of an independent variable in a nonsystematic way. This means that every subject of our study has an equal chance of being assigned to every condition. In a training study, each employee who participates would have an equal chance of being assigned to the trained group or to the control group. The random assignment process is a means of controlling for subject variables that are not of interest in the study. We expect that, on average, subjects in both groups will be more or less equivalent in their characteristics. For example, they should be of approximately the same ability, age, motivation, and tenure.

Random selection means that we choose the subjects of our investigation by a nonsystematic method. This means that every possible subject of our study has an equal chance of being chosen to participate. Random selection is important if we wish to draw accurate conclusions about the entire group of interest. If we wish to find out how the employees of a given organization feel about their jobs, unless we are going to study all of them, we want to be sure that the group we choose is a random sample. Otherwise, we run the risk of choosing employees who do not feel the same way about their jobs as the majority of employees. It would not be a good idea to conduct a survey of a large organization and only get the views of top management. Their feelings are not likely to reflect those of employees at the lower levels of the organization.

Random assignment is used as a means of control by which groups of subjects can be made more or less equivalent to one another on variables not being studied. This is a powerful means of control used in experimental studies, such as in our training study example. Random selection enhances generalizability by choosing subjects who represent the people of interest. This might mean choosing a **sample** from all employees of a given organization or from all working people in an entire country.

Confounding

Confounding occurs when two or more variables are intertwined in such a way that conclusions cannot be drawn about either one. For example, age is confounded with job tenure (how long people have been at their jobs). This is because one cannot be on the job a long time unless one is relatively old. A 25-year-old cannot have been on the job for 20 years. If you were to find that age was associated with job performance, you could not be certain that it was not job tenure that was the important variable. Age might relate to performance only because the older employees had longer job tenure on average.

With commission sales jobs, pay is determined by job performance. Employees who sell the most products have the highest pay. This confounds pay and performance. If you wished to relate either variable to another variable of interest, you could not easily know which was the more important factor. For example, if job satisfaction related to performance, you could not be certain if pay or performance was the reason for satisfaction.

Often control procedures can be used to unconfound variables. For example, one might study the age–performance connection in only a sample of newly hired employees. Control could be achieved over tenure by limiting the study to those people with approximately the same level of job tenure. You might study the performance–satisfaction connection by limiting the study to employees who were not on commission, or other pay-for-performance systems.

Statistical procedures can also be used to control for confounding. Although it is beyond our scope here, there are many complex statistics that allow for statistical control of unwanted confounding variables. Much of the research in the literature of

I-O psychology is concerned with testing for the confounding effects of variables. Often this helps us to understand why two variables, such as performance and satisfaction, are related.

Research Designs

A **research design** is the basic structure of a scientific study. Research designs can be classified along a continuum from those that involve active manipulation of conditions (experimental) to those that involve passive observation of people. These various designs have their strengths and weaknesses; and, rarely, will a particular design allow us to draw definitive conclusions about a research question. To do so requires the use of a variety of designs that produce similar results. Blog 2-1 discusses three types of designs that allow different kinds of conclusions.

BLOG 2-1 Three Forms of Analytics Evidence

https://paulspector.com/three-forms-of-analytics-evidence



Discussion Questions

1. Why should organizations rely on analytics to help make decisions?
2. What are some of the impediments to an organization doing an intervention study before implementing a change?
3. Of what value is determining association if it cannot tell us that X leads to Y?
4. How might you go about figuring out if your intervention is the real driver of an outcome, or if the outcome was due to something else?

Experiments

An **experiment** is a design in which there are one or more independent variables and one or more dependent variables, as well as a random assignment of subjects. An independent variable contains two or more levels, or conditions of interest. The following have been independent variables in organizational experiments:

Length of daily work shift (in hours)
Pay categories (in dollars)
Availability, or nonavailability, of training
Setting, or not setting, job goals

The dependent variable is measured, but not manipulated, by the researcher and is presumed to be caused by the independent variable. Examples of some frequently studied dependent variables in organizational research are

Frequency of absences from work
Satisfaction with the job
Job performance
Turnover (quitting the job)

The experiment can be distinguished from other designs by two particular features. First, in an experiment, subjects are assigned at random to two or more conditions that represent the levels of the independent variable or variables. Even though other research

designs may have levels of independent variables, to be a true experiment there must be random assignment. Second, the experiment usually involves the creation of the independent variable levels by the researcher. For example, a researcher might design experimental training programs. Sometimes, however, the independent variable levels may occur naturally, and the researcher merely assigns subjects to those levels. In an organization, for example, there might be ongoing training programs that the researcher assigns people to at random.

The minority of I-O studies are experiments, but when they conduct them, I-O researchers usually do so in the laboratory (Schaubroeck & Kuehn, 1992). However, experiments can be conducted in more naturalistic settings. The **field experiment** is conducted within an organization rather than the laboratory. The many field experiments that have been conducted are often only approximations of true experiments and are called *quasi-experiments* (Shadish, Cook, & Campbell, 2002). In a **quasi-experiment**, one or more of the features of a true experiment have been compromised. Often, there is no random assignment to the levels of the independent variable. In a training study, members of one work group might be given the training, while members of another serve as the control group. Observed differences between the trained and untrained employees might result from the work group itself rather than the training, due to the lack of random assignment. In other words, there is a confounding between training condition and work group membership.

The major advantage of the experiment is the ability to draw causal conclusions. If the experiment is done properly, one can be reasonably certain that the independent variable is the cause of the dependent variable. If the experiment is conducted in the laboratory, however, one cannot be certain that the results will generalize to the field. With field experiments, generalizability is more likely.

Even with the experiment, however, there can be alternative explanations for results. Often, the independent variable will be confounded with another variable. For example, suppose you are interested in determining whether the number of training sessions employees receive affects their job performance. One group might get five sessions and the other ten sessions. However, the total training time is confounded because the second group gets twice the time of training as the first. You could control total time by making the sessions for the five-session group twice as long as those for the ten-session group. Unfortunately, now the length of session is confounded with the number of sessions. Disentangling the effects of session length, session number, and total training time can be difficult. It could require several experiments to reach a definitive conclusion.

Survey Designs

A study using a survey design is one of the simplest and easiest to conduct out of all the major research designs. A **survey design** uses a series of questions chosen to study one or more variables of interest. These questions are then given to a sample of respondents at a single point in time, or they can be given repeatedly at two or more points in time. Surveys can be presented in a variety of formats, with the most efficient being a closed-ended **questionnaire** where respondents make ratings for each of a series of questions, for example, indicating degree of agreement or disagreement. These are generally, though not necessarily, done online. Researchers typically use survey hosting companies such as Qualtrics, SurveyGizmo, SurveyMonkey, and Zoomerang. Some assessment companies have developed their own customized assessment platforms. Other survey formats include open-ended questions, where respondents might describe their past experiences, and interviews conducted by telephone (voice only), video conferencing, or face-to-face.

The most common version of the survey involves collecting all data directly from the respondents, but some studies use other data sources as well. For example, one can survey employees about their jobs, and get additional information from coworkers or supervisors. Studies of job performance often include performance data from supervisors, rather than the employees who are being studied. It is also common to ask customers or peers

to provide assessments of job performance. For example, some restaurants ask customers to fill out a card indicating how good the service was. This can be used as a measure of performance if the server is identified.

Most surveys use a **cross-sectional design**, meaning that all data were collected at a single point in time. A **longitudinal design** collects data at more than one point in time. For example, one might collect data on people's feelings and performance at three points in time, a year apart. This design allows one to see if prior feelings predict later job performance. Many studies of employee turnover are longitudinal, with turnover assessed a year or more after an initial survey in order to assess variables believed to be related to turnover. This sort of study involves both a survey and one other type of data, which assesses turnover from organizational records.

Using a survey design to study organizational phenomena has two advantages. First, the survey is a quick and relatively inexpensive way to find out how people feel about a job. Second, the survey is usually conducted on employees who are asked about their own jobs. This means that generalizability is not as big a problem as it is with laboratory experiments.

Surveys have two major disadvantages. First, employees are not always good sources of information about the variables of interest. For example, self-appraisals of job performance are usually biased in favor of the employee (Harris & Schaubroeck, 1988). In other words, people overrate their own performance. Second, the cross-sectional nature of most surveys makes it difficult to draw conclusions about which variables were likely to be the cause of which other variables. For example, a survey of teachers might find that their reports of their job stress relate to their reports of their job performance. From this alone, it cannot be determined that stress caused performance, performance caused stress, or a third variable (e.g., personality) caused both. The use of longitudinal designs can be more helpful in drawing causal conclusions. Studies in which employee feelings about their jobs predict later turnover, for example, have provided convincing evidence that job attitudes are a causal factor in turnover (Gerhart, 1990).

Perhaps the biggest problem in conducting a survey is assuring a sufficiently high response rate. **Response rate** is the percentage of those surveyed who agree to participate. If the response rate is low, because only a small percentage of people were willing to provide data, the generalizability of the results could be questioned, especially if you wish to determine the average level of a variable, such as the mean level of motivation. The levels of the variables for those who participated might not be the same for the people who did not participate. Procedures have been developed to increase response rates, such as avoiding threatening questions and sending reminder letters (Fowler, 1988; Kalton, 1983).

Experience Sampling

Most surveys ask employees about relatively enduring characteristics and experiences. For example, a survey might ask about the nature of job tasks and how people feel about them. Longitudinal designs can introduce time by taking repeated assessments, but typically time frames are in months, and longitudinal studies rarely take more than four or five measurements. **Experience sampling** studies (also called **diary studies**), on the other hand, take repeated measurements over short time intervals. A typical study might ask a sample of employees to complete a questionnaire three or four times per day for 10 or more days. Measures might be taken before work, during lunch, at the end of work, and before bed. Rather than investigating differences between people, an experience sampling study allows the investigation of the same person over repeated days. For example, the typical survey might attempt to see if people who have heavier workloads might experience more headaches. An experience sampling study would enable the researcher to see if people are more likely to have headaches on days with heavy, rather than light, workloads. By linking headaches to daily events, and by showing that headaches follow, rather than precede, heavy workload days, one can provide stronger evidence that workload might lead to a headache.

One of the main advantages to the experience sampling method over more traditional survey designs is that it allows for assessment of cognitions and experiences before they are forgotten, and thus helps control for biases that are introduced by faulty memory (Fisher & To, 2012). Perhaps the biggest disadvantage is that it can be tough to gain employee cooperation in completing surveys multiple times per day without providing some sort of incentive. Typically, employees are paid for participation, but that generally requires the researcher to have funding, such as a research grant, to support the study.

Observational Designs

In an **observational design**, the researcher observes employees in their organizational settings. Observations can be done either with the employees' knowledge (obtrusive method) or without it (unobtrusive method). With **obtrusive methods**, the researcher might watch individual employees conducting their jobs for a period of time. Employees would know that the observer was conducting research about a particular aspect of their jobs. With **unobtrusive methods**, the subjects of study might be aware that the researcher was present, but they would not know that they were being studied.

In some obtrusive studies, observers assess specific behaviors or events of interest. For example, observers might record the number of times workers take breaks. In other obtrusive studies, the observer might rate the workers' job conditions or reactions to their jobs. For example, Glick, Jenkins, and Gupta (1986) asked observers to estimate how much employees liked their jobs after watching them for about 2 hours.

The unobtrusive observational study can be conducted in many ways. A well-designed study can be quite simple, but it requires creativity and ingenuity to think of a reasonable way to assess the variables of interest. Often, such studies are done by having a person pretend to be doing something other than recording peoples' behavior. The guard at the entrance of an office building can keep track of the arrival times of employees in a study of tardiness. Such data might also be gathered from a videotape of the entrance that has the time stamp recorded on the picture.

One disadvantage of the obtrusive study is that the researcher can affect the phenomenon being studied. Remember in the Hawthorne studies how job performance kept going up no matter what lighting levels were chosen (see Chapter 1)? Employee motivation was affected by the research process, making it seem that lighting had no effect on performance. This is why unobtrusive methods can be valuable, although it is not always possible to use them because of ethical and legal requirements to respect people's privacy. One should only use unobtrusive measures when people are observed in a public place where they have no expectation of privacy (e.g., on a public street), and they are not identified.

Qualitative Studies

Thus far we have been discussing quantitative methods in which researchers define variables, take quantitative measurements of those variables, and use statistical analysis to draw inferences. An alternative approach to research relies on nonquantitative methods to study organizational phenomena. There are many types of **qualitative methods** (Strauss & Corbin, 1990), including case studies, participant observations (the researcher spends time in an organization observing employees), and interviews. In its pure form, the qualitative approach involves observing behavior in an organization, and then recording those observations in a narrative form. Conclusions and generalizations can be drawn from repeated observations of the same phenomenon without quantifying the results. The qualitative approach can be a good means of generating hypotheses and theories from observations of what happens in organizational settings, unconstrained by the researcher's *a priori* decisions about what variables to assess.

Other forms of qualitative methods involve content analysis of interviews, responses to open-ended questions, and written materials. In this sort of qualitative study, trained

judges are asked to sort materials into categories that are given descriptive names. The frequency of each category is then calculated. An example of this approach was a cross-national comparative study of job stress by C. Liu, Spector, and Shi (2007). Both American and Chinese employees were asked to describe a stressful incident at work. Judges read the incidents and placed them into categories. The frequencies with which types of stressful incidents were mentioned were compared across countries, showing that Americans are more likely than Chinese to mention lack of control, and less likely to mention making mistakes as being stressful.

People Analytics

People analytics (also called **HR analytics**) is the systematic use of scientific data about people to make informed decisions. This means applying a series of quantitative tools to employee data to determine how best to predict an important future outcome (Douthitt & Mondore, 2013), such as student test scores for math teachers or the turnover of police officers. The methods can combine statistics with advanced computer programming to come up with tools that can indicate who might be the best candidate to hire for a factory job, whether redesigning sales jobs might increase customer satisfaction, or whether training mining supervisors might increase compliance with safety standards. The use of analytics is spreading in large companies where executives value evidence-based approaches as opposed to making decisions based purely on intuition and past experience. Such methods have the potential to optimize decisions, resulting in greater efficiency for organizations and well-being for employees. The effective use of analytics means having people inside the organization that have expertise in how to use them (Levenson, 2005). Practicing I-O psychologists are among a new wave of professionals who are able to provide that expertise. (See Blog 2-2 for more discussion about the use of analytics.)

BLOG 2-2 Using People Analytics

https://paulspector.com/using-people-analytics

Discussion Questions

1. What organizational problems would be good candidates for people analytics?
2. Why do you think an organization would be resistant to using people analytics?
3. How might you convince a manager to try people analytics for a problem he is she is having?
4. How are analytics and big data different?

Measurement

Measurement is the process of assigning numbers to characteristics of people or things. Variables in every study (except for those that are qualitative) must be measured or quantified so that data analysis can be conducted to draw conclusions. One of the most critical steps in planning a research study is deciding how each variable will be measured. The nature of measurement determines, in part, the type of data analysis that can be done.

Measurement can be classified as either categorical or continuous. With **categorical measurement**, the values of the variable represent discrete categories and not the

amount of the characteristic of interest. Numbers are assigned arbitrarily to people or things so that low values do not represent less of the characteristic than high values. Player numbers on a sport team are categorical because they are arbitrary substitutes for the name of the person. In experiments, the levels of the independent variables are often categorically measured by numbering them arbitrarily when the levels do not represent an underlying characteristic that can be measured continuously. For example, the independent variable of the method of information presentation in a training program would not represent a continuously quantified dimension. There might be four levels of presentation—for example,

1 = Book
2 = Computer
3 = Lecture
4 = Videotape

These are four discrete items that are numbered arbitrarily.

Continuous measurement is used when the numbers represent the amount of the characteristic in question. Higher numbers represent more of the characteristic than lower numbers, so that inferences can be made based on the value of a variable. Dependent variables are usually continuous in large part because continuous measurement allows for a variety of sophisticated data analysis methods. Much of the work of both the I-O practitioner and the I-O researcher involves the assessment or measurement of jobs and people. The number of training sessions and total sales per month are continuous measures.

Classical Measurement Theory

According to **classical measurement theory**, every observation of a variable can be divided into two components: true score and error. The true score is assumed to represent the variable of interest. The **error** is comprised of random influences on the observed score that are independent of the true score. Because errors are random, they are as likely to deflate as inflate the observed values of the variable. Thus, if multiple observations of a variable are taken on the same person or thing, the errors will average out to approximately zero and disappear. Suppose you wish to weigh yourself on a bathroom scale with a needle that tends to stick a little bit, randomly indicating a too high or too low weight on successive attempts. If you weigh yourself several times and average the observations, the resulting mean is likely to be close to your true weight. For example, suppose you weigh 120 pounds and the observed scores are

116, 118, 122, 124

Each of these observed weights is inaccurate because of an error component. The magnitudes of the error components are

–4, –2, 2, 4, respectively.

The average of the four error components is zero. This means that if you average the four observations of weight, the errors will disappear and the resulting mean will be the correct weight of 120 pounds.

Psychological tests use multiple items to increase accuracy of measurement by averaging out error. Each item of the test contains both a true score and an error component. By combining the items with random errors, those errors should cancel each other out. This leaves a more accurate measurement of the true score.

Even the elimination of error with multiple measures, however, does not guarantee that what was assessed reflects what was intended to be assessed. Depending on the measurement process, many factors may affect the observed score beyond the intended

variable and error. For example, rating scales that ask people to indicate the characteristics of their jobs can be affected by the responder's cognitive processes, feelings about the job, mood, and personality (Spector, 1992). The multitude of influences on an observed score is one factor that makes it difficult to interpret the meaning of results from a single study.



Renee Lynn/Photo Researchers

Most I-O research is conducted in the workplace.

Reliability

Reliability is the consistency of measurement across repeated observations of a variable for the same subject. In classical measurement theory terms, it reflects the relative sizes of the error and true score components. When the error component is small, there will be little variation from observed score to observed score on the same subject, and so the measurement process is reliable. As the error component increases, observations will differ each time the subject is assessed, and so the measurement process is unreliable.

There are several types of reliability that can be classified as either internal consistency or test–retest. We often take multiple measurements of each subject on the variable of interest to increase the accuracy of measurement by averaging out the error components, as we discussed in the previous section. **Internal consistency reliability** refers to how well the multiple measures for the same subject agree. If each measure is presumed to assess the same true score, then differences in scores on each measure reflect error or unreliability.

The instrument that uses multiple measures most often is a psychological test that combines multiple items into a total score for the variable of interest. The items must be interrelated for the test to have internal consistency reliability. Usually the more items there are in a test, the better its internal consistency will be. Multiple-item measures are used to assess many of the variables discussed throughout this book, including abilities, job attitudes, perceptions of the job environment, and personality.

Multiple measures are also used when we ask people to rate variables of interest. For example, employee job performance can be assessed by asking supervisors to rate the

performance of subordinates. Supervisors are asked to indicate how well subordinates perform by using a rating scale, such as the following:

How would you rate the performance of your staff assistant?

_____ Excellent
_____ Good
_____ Fair
_____ Poor

Performance ratings are very much like grades given to students by teachers. For research purposes, two or more people might be asked to rate each employee's performance. The ratings can be combined in the same way that multiple items on a test are combined. **Inter-rater reliability** is the extent to which ratings by two or more raters are related to one another.

Test–retest reliability refers to the consistency of measurement when it is repeated over time. If you were to assess a person's job satisfaction several times in a row, a reliable scale would give you the same score each time. This assumes, of course, that the satisfaction remained constant. Similarly, a psychological test, or other measuring device, should give you the same value for a subject each time, unless the underlying score changes. The time span over which test–retest reliability is assessed is dependent on how stable the variable is assumed to be. With tests of some human attributes, such as intelligence, high levels of reliability have been found over time spans of decades.

Both internal consistency and test–retest reliability are necessary properties for a useful measuring device. If a measure contains too much error, it will not give a sufficiently accurate measurement to be useful. The first required property of a measure is reliability. Reliability is not enough, however. Just because a measuring device is consistent does not mean that it assesses the variable of interest. The interpretation of scores from any measuring device represents its validity, which we will discuss next.

Validity

Validity has to do with the inferences that are made about what an observed score measures or represents. In classical measurement theory, it refers to our interpretation of the true score component. Thus, validity is not a property of a measuring device, but rather is the inference made about a measuring device, and what its scores represent. For example, an intelligence test is considered valid if people who score high do better than people who score low on tasks that, in theory, require intelligence, such as doing well in college courses and solving logic problems. **Construct validity** means that we are able to give an interpretation to scores on a measure (see Table 2-1). To say that a measure has construct validity is to say that we have confidence in our interpretation of what that measure represents. We attribute construct validity to standard intelligence tests because we have decades of research showing that scores on these tests predict expected performance in school and on the job.

There are several different types of validity that can contribute to building a case for construct validity, all of which involve inferences that can be made about measures (also

TABLE 2-1

Four Types of Validity for a Measure and What Each One Means

Type	Meaning
Face	Measure looks like what it assesses
Content	Measure assesses entire variable
Criterion-related	Measure relates to what is expected
Construct	Interpretation of a measure's meaning

described in Table 2-1). **Face validity** means that a measure appears to assess what it was designed to assess. An item from a scale designed to assess how people feel about their jobs such as

"Do you like your job?"

might be considered to have face validity because it appears to assess what was intended. An issue of concern with face validity is the perspective of those judging it. Sometimes experts in a domain are asked to judge the face validity of a measure. I-O psychologists can be used as experts on measures of organizational variables.

Face validity does not provide particularly strong evidence in support of construct validity. Often, a measuring device might appear to have face validity, but it does not assess what was intended. The question

"Have you stolen from your employer?"

might appear to be a face-valid measure of honesty, but if dishonest employees lie in their answers, the question will not really be reflecting honesty. Although we sometimes rely on face validity to interpret our measures, it is far from sufficient for establishing construct validity.

Content validity means that a multiple item measure of a variable does an adequate job of covering the entire domain of the variable. This is best seen in determining whether or not the questions on a course examination do a good or poor job of adequately covering the entire body of material that the students were assigned. A single question would generally be inadequate to cover all the material in a single chapter of a textbook. The question

"What is content validity?"

would not represent an adequate, content-valid examination on this chapter. A content-valid exam would ask many questions, covering a good sampling of the topics in the chapter. As with face validity, experts are used to judge the content validity of a measure.

Criterion-related validity means that scores on a measure of interest relate to other measures that they should relate to in theory. As noted earlier, scores on an intelligence test that is considered valid should relate to performance on tasks that, in theory, require intelligence, such as taking examinations in college courses. Intelligence tests have been shown to relate to many variables, including job and school performance, lending confidence to the interpretation of what they represent. The ability of intelligence tests to predict performance makes them valuable tools for the practitioner who wishes to select employees for jobs (see Chapter 5). Although criterion-related validity is important for building a case for construct validity, it is not sufficient. Sometimes we can find support for our predictions for reasons other than what we assume.

The four types of validity are summarized in Table 2-1. The first three—face, content, and criterion-related—represent ways to assess validity. Combined they provide evidence for the fourth: the construct validity of a measure. Construct validity is inferred based on research evidence. It is our best guess about what a measure represents.

Statistics

Most studies carried out by I-O psychologists require statistical methods for data analysis. Two types of statistics are used. Descriptive statistics summarize the results of a study, and inferential statistics help interpret the results using a variety of statistical tests. In this section, we review descriptive statistics and the purpose of several inferential statistics tests.

Descriptive Statistics

The designs discussed in this chapter result in the collection of data on samples of several individuals or jobs. When such data are collected in a study, it is all but impossible

to make sense of them without some sort of summary analysis. **Descriptive statistics** provide ways of reducing large amounts of data to summary statistics, such as means or variances. These statistics can be interpreted much more easily than the original data.

Measures of Central Tendency and Dispersion. Several different statistics measure the center of a group of scores. The **arithmetic mean** is the sum of the observations divided by the number of observations. For example, suppose we have the following numbers of absences in a year for five employees:

2, 3, 4, 5, 6

The mean of these five numbers is four absences per year. It is computed by taking the sum of the five numbers (20) and dividing it by the number of employees (5). The **median** is the middle number when the observations are rank ordered from lowest to highest. In this case, 4 is also the median because there are two observations below and two above this value.

The measure of central tendency might indicate the middle score, but it does not give any indication about how much the observations differ from one another in value. For example, the observations of

48, 49, 50, 51, 52

have the same mean of 50 as

0, 1, 50, 99, 100

even though there is a larger difference among observations in the second case. Measures of dispersion indicate the degree to which the observations differ from one another.

The **variance** is a dispersion measure that is the arithmetic mean of the squared differences between each observation and the arithmetic mean of the same observations. For example, the arithmetic mean of the absence frequencies

2, 3, 4, 5, 6

is 4. The differences between each observation and the mean of 4 are

–2, –1, 0, 1, 2

Squaring each of these differences results in

4, 1, 0, 1, 4

The arithmetic mean of these numbers is 2 (10 divided by 5), which is the variance. The **standard deviation** is the square root of the variance, which is 1.4 in this example. It is frequently reported in research papers as the measure of dispersion rather than the variance because it is easier to interpret.

Correlation. Measures of central tendency and dispersion are useful for summarizing groups of observations from a single variable. **Correlation** is a statistic used to indicate the degree to which two continuous variables are related (magnitude) and the direction of the relation. This is important because many research questions concern the relations among variables. For example, a question such as

"Does level of pay relate to job performance?"

is likely to be answered by computing a correlation statistic between a measure of pay and a measure of job performance.



JDC/Getty Images

I-O researchers analyze their data by computer.

The descriptive statistic most commonly used to assess correlation is the **Pearson product–moment correlation coefficient**. This statistic can be computed when there are two observations, each representing a different variable, on every subject in a given sample. Table 2-2 contains hypothetical observations of pay and job performance for 12 employees of an organization. Each employee has an observation for each variable. The table contains three possible associations reflected in how the observations of the two variables are paired. Each of the three cases is plotted in Figure 2-1.

In the first case, a positive association or correlation exists between pay and job performance. Employees who have low pay also have low job performance, and employees who have high pay also have high job performance. In Figure 2-1a, the two variables are plotted with performance on the vertical axis and pay on the horizontal axis. The observations form a straight line from the lower left to the upper right of the graph. This means that pay and performance are positively correlated, with a value of 1.0.

Figure 2-1b illustrates negative association or correlation. Employees who have low pay have high job performance, and employees who have high pay have low job performance.

TABLE 2-2

Hypothetical Data Showing Three Possible Associations Between Pay and Job Performance

Positive association		Negative association		No association	
Job performance	Pay	Job performance	Pay	Job performance	Pay
1	1	1	12	1	1
2	2	2	11	2	12
3	3	3	10	3	3
4	4	4	9	4	10
5	5	5	8	5	5
6	6	6	7	6	8
7	7	7	6	7	7
8	8	8	5	8	6
9	9	9	4	9	9
10	10	10	3	10	4
11	11	11	2	11	11
12	12	12	1	12	2

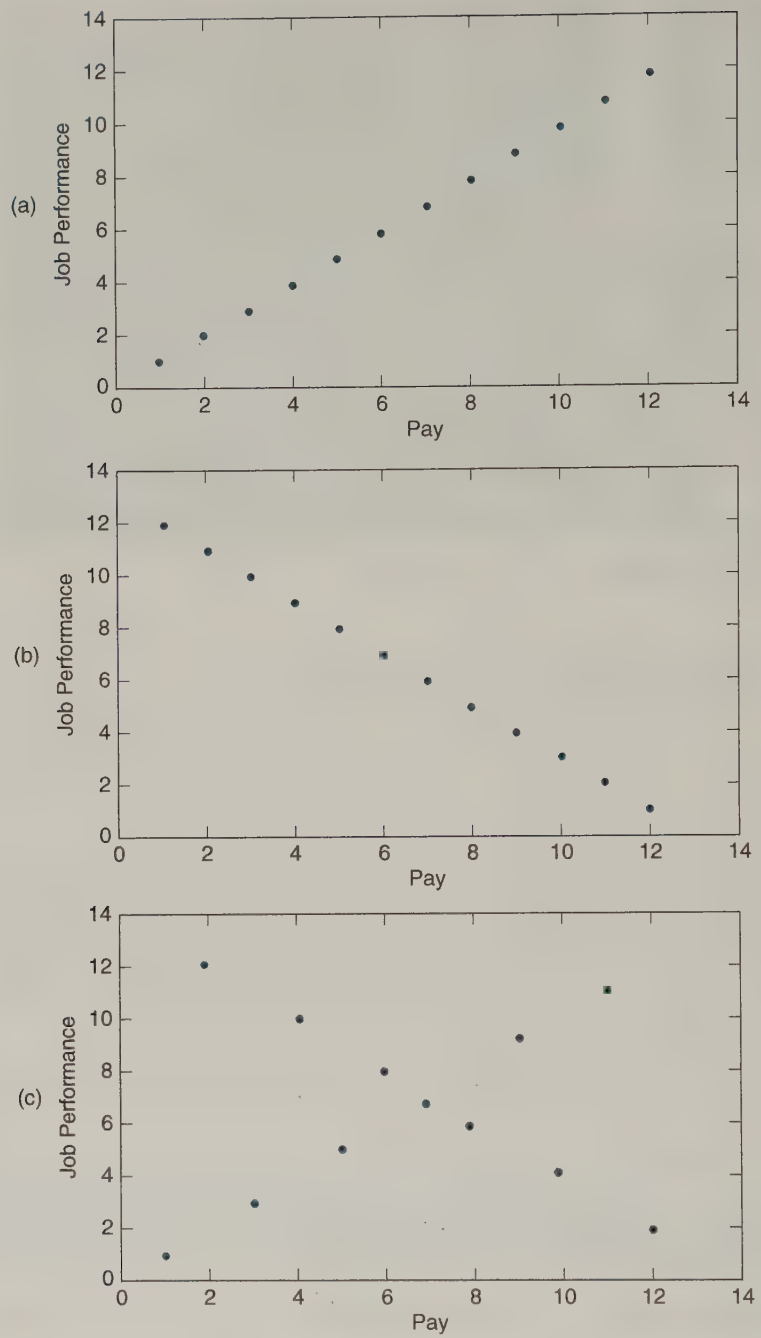


FIGURE 2-1 Three possible associations between income and job performance: (a) positive association; (b) negative association; (c) no association.

The observations form a straight line from the upper left to the lower right of the graph. This indicates negative correlation between pay and job performance. This time the value for the correlation coefficient is −1.0.

Figure 2-1c illustrates little association between pay and performance. Some employees with low pay have low job performance, and some have high job performance. Some employees with high pay have low performance, and some have high performance. The observations do not form a straight line but are scattered widely throughout the graph, meaning that the value for the correlation coefficient is approximately zero (0).

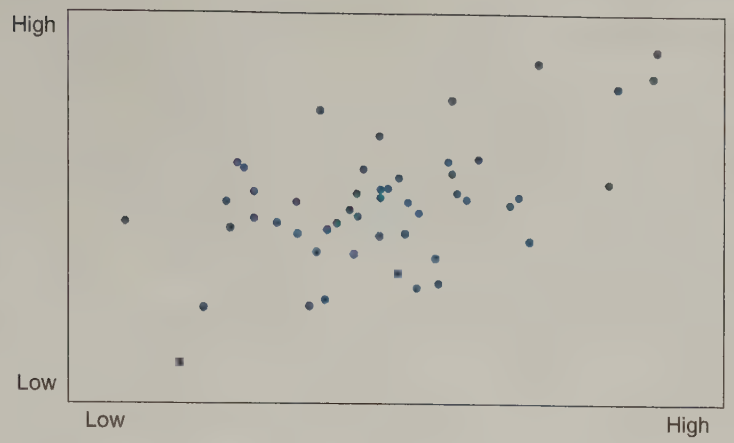


FIGURE 2-2 A plot showing 50 observations of two variables that are correlated at approximately .50.

Figures 2-1a and 2-1b illustrate perfect correlation because the observations form a straight line. In almost all studies, there is likely to be a much smaller association between variables, reflected in correlation coefficients that are closer to the lower limit of 0 than the upper limit of 1 in absolute value. In I-O research, correlation coefficients rarely exceed .50. In many domains, correlations can be considerably smaller. Figure 2-2 is a plot of 50 observations on two variables that have a correlation between them of approximately .50. The points form an elliptical shape from the lower left to the upper right. The direction of the plot indicates a positive association. If the observations had lined up from the upper left to the lower right, the magnitude of the correlation would have been the same, but it would have been negative in sign (−.50).

Regression

An important by-product of correlated variables is that you can use one to predict the other. With the case illustrated in Figure 2-1a, we can predict that employees with low pay will have low performance, and employees with high pay will have high performance. Precise predictions can be made when the numerical value for performance is predicted from the numerical value for pay. This calculation is done using a regression equation that is computed from a set of data.

The **regression equation** provides a mathematical formula that allows for the prediction of one variable from another. If you enter the value of one variable (called the **predictor**) into the equation, it will give you the value for the other variable (called the **criterion**). In almost all cases, the two variables will not be perfectly correlated, so prediction of the criterion from the predictor will not be completely accurate. However, even relatively imprecise predictions can be helpful in many situations in which predictions are made. For example, psychological tests (e.g., the Scholastic Aptitude Test or SAT) are used to select students for admission into colleges and universities because they have been shown to predict grade point average. Even though predictions are imperfect, use of the test to select students for a college can result in better average classroom performance and better retention of students.

It is also possible to combine data from two or more predictor variables in order to predict a criterion variable. **Multiple regression** is a technique that enables the researcher to combine the predictive power of several variables to improve prediction of a criterion variable. For example, both high school grades and scores on the SAT can be combined to predict college grades. An equation can be developed from a sample of students that can plug in values of the predictor variables (e.g., high school grades and SAT scores) to predict a criterion variable (e.g., college grades).

Inferential Statistics

The hypotheses and research questions of most studies cannot be adequately addressed by descriptive statistics alone because data from a limited sample of people must be generalized to a much larger group. In other words, the data from a small sample of employees who are studied are generalized to all employees of the organization or to all employees of all organizations. We are not satisfied in just noting the results with the subjects studied. We wish to draw conclusions about larger groups of people so that we can make general statements about the variables of interest.

Inferential statistics allow us to draw conclusions that generalize from the subjects we have studied to all the people of interest by allowing us to make inferences based on probabilities. The findings from a research study involving a small group of subjects are extended to other potential subjects by using **statistical tests** that are based on probability.

For example, suppose we conduct a training experiment and wish to extend the results to a larger population of employees. Twenty employees of an organization are randomly assigned to one of two groups of ten each. One group receives the training, and the other is a control group that does not. The dependent variable is performance on the job. Table 2-3 contains hypothetical data from the study. The performance scores of subjects within each group varied from one another, even though every subject in each of the two groups had the same treatment assigned to that group. This variability among subjects who receive the same treatment in an experiment is called **error variance**, which makes it difficult to draw conclusions just by looking at descriptive statistics. This is because the variability among subjects treated the same will produce differences in means between groups. If we were to place subjects into groups randomly, it is unlikely that those groups would have the same mean on the variable of interest, even if they were treated the same. If many different groups of subjects were taken at random from the same organization, it is unlikely that the mean performance of many of them would be the same. There will be variability from sample to sample. Interpreting the results of a study means deciding if observed differences between means are due to error variance or the treatment in question.

If we conduct a training experiment and the dependent variable scores in each group were equivalent and produced the same mean, it would be obvious that the training was ineffective. On the other hand, if the performance scores of the trained subjects were all higher than the performance scores of the control group subjects, it would be obvious that the training worked as expected. Neither case is likely to occur in an actual

TABLE 2-3

Hypothetical Data for an Experiment Comparing a Trained Group to a Control Group

Control-group performance	Trained-group performance
1	2
1	4
2	5
2	5
3	6
3	6
4	7
4	8
5	8
10	9
Mean 3.6	6.0

study, making the interpretation of results difficult based on inspection of means alone. The data illustrated in Table 2-3 are typical of the results usually found. Even though the trained-group mean is higher than the control-group mean, there is overlap in the scores of subjects across the two groups. Some control-group subjects performed better than some trained-group subjects, and the best performer was in the control group. To interpret these results, you must decide if there is enough difference between the groups to conclude that the training worked, or if the differences were due only to error variance.

Inferential statistics, or *statistical tests*, are procedures that help you decide if the results can be attributed to error variance or the experimental treatment. These tests allow you to calculate the probability that the observed results, the differences between means in this case, were not due to error variance. If the probability of finding the mean difference by chance is less than 1 in 20 (.05), the conclusion is reached that the difference was likely due to training, rather than error variance. This is called **statistical significance**, meaning that the probability of finding the observed results by chance alone is less than .05. If, on the other hand, our probability is greater than .05, we cannot claim to have evidence that our groups differed. Does that mean that there is no difference between the conditions of interest? Not necessarily. It might be that the differences were just too small to detect in this sample.

There are dozens of different statistical tests, each used for a different situation. Some are used for various experimental designs, whereas others are used for nonexperimental designs, and many can be used for both. Some are limited to two variables, such as the one independent and the one dependent variable in the present example. Others can be used with an unlimited number of variables. Table 2-4 lists several of the most commonly used statistical tests in I-O research. Although they may have different purposes, all are based on the same underlying principle of determining if the test statistic is statistically significant.

An independent group ***t*-test** is used in the present example to see if the two groups differ significantly on their scores on the dependent variable. If there are two or more groups, the **analysis of variance (ANOVA)** would be used. This would allow you to compare two different training methods in a control group. In most experiments, however, there are two or more independent variables. For example, suppose you wish to compare the trained group to the control group separately for men and women. You could randomly assign ten men to the control group and ten men to the trained group. Similarly, you could randomly assign ten women to the control group and ten women to the trained group. This would produce a factorial design consisting of the training variable and the gender variable, each of which have two levels. A **factorial design** has two or more independent variables. **Factorial ANOVA** is a statistical test that is used to analyze the data from a factorial design. It tells us if the subjects in the various groups differ significantly in their scores on the dependent variable.

TABLE 2-4

Five Commonly Used Inferential Statistics Tests and Their Usage

Independent Group *t*-test: Used to determine if two groups of subjects differ significantly on a dependent variable.

Analysis of Variance (ANOVA): Used to determine if two or more groups of subjects differ significantly on a dependent variable.

Factorial ANOVA: Used to determine the significance of effects of two or more independent variables on a dependent variable.

t-test for Correlation: Used to determine if the correlation between two variables is significantly greater than zero.

Multiple Regression: Used to determine if two or more predictor variables can significantly predict a criterion variable.

The correlation coefficient can be tested to see if it is significantly different from zero. This is done with a variation of the *t*-test. A significant correlation means that there is significant association between two variables and that you can predict one variable from the other better than by chance. When more than two variables are related to a third, multiple regression is used. There are significance tests that show whether two or more predictor variables in the regression analysis are related significantly to the criterion variable; for example if combined high school GPA and SAT scores significantly predict college grade point average. Again, significance means that the criterion can be predicted by the predictors better than by chance.

Meta-Analysis

A single study is never considered to offer a definitive answer to a research question. To achieve confidence in a conclusion about a phenomenon of interest, we need to conduct several studies to show that a particular finding can be replicated. It is not unusual, however, for different studies to yield somewhat different results. The same sampling error that produces differences among means taken from the same population will produce differences in the results of inferential statistical tests across studies. To make sense of conflicting results across studies requires the use of a special type of analysis called meta-analysis.

A **meta-analysis** is a quantitative way of combining the results of studies, much like how our statistics summarize the results across individual subjects (Hunter & Schmidt, 1990; Rosenthal, 1991). A meta-analysis can statistically summarize the results of different studies in the domains of interest to I-O psychologists. Such analyses can be simple descriptive summaries of results or involve complex mathematical and statistical procedures.

Perhaps the simplest form of meta-analysis summarizes the results of multiple studies by means of descriptive statistics. A meta-analysis might report that the mean correlation between two variables has been found to be a particular value, such as .40. For example, suppose you found five studies that reported the following correlations between job satisfaction and pay level:

.20, .22, .24, .26, .28

A simple meta-analysis of these five studies would conclude that the mean correlation between these two variables was .24. More complex analyses could also be conducted to explore other aspects of these studies. For example, if some studies were conducted on managers and others on nonmanagers, one could test to see if the correlations were different for the two types of employees.

In this book, the results of studies are often summarized by referring to meta-analyses. These analyses have become popular in the I-O research literature. It can be difficult to read several studies and make sense of the findings without the use of some sort of method, such as meta-analysis, to synthesize the often disparate findings. In most of the areas that have been frequently studied, meta-analyses can be found to help interpret and summarize what those individual studies have found.

Mediator and Moderator Variables

Regardless of the design, experimental or nonexperimental, research studies help us to determine the extent to which two or more variables are related to one another. Some studies, however, are intended to explore more complex relationships among variables. A mediator is a variable that is part of the intervening process between two other variables. In other words, it explains why two variables relate to one another. For example, we know that ability relates to performance, so if you score well on the quantitative portion

of the SAT, you will likely do well in statistics classes. This fact alone does not really tell us why these variables are related. One possibility is that ability enhances motivation, and motivation results in greater effort and, thereby, better performance. Thus students who score well on the SAT have more confidence in their abilities, and are motivated to work hard in quantitative courses. They work harder in their statistics classes, and that effort leads to better performance. In this example, motivation is a mediator.

A moderator is a variable that affects the relationship between two other variables. Participants at one level of the moderator variable will have a different relationship between two other variables than participants at another level of the moderator variable. Gender serves as a moderator if the relationship between two variables is different for men and women. For example, suppose the correlation between SAT scores and statistics grades are .50 for women but only .10 for men. Gender would be said to moderate the relationship between SAT scores and grades. Continuous variables can also be moderators. For example, it might be that the relationship between SAT scores and grades is stronger for older students rather than younger students. In this case, age has moderated that relationship.

Mediation and moderation are frequently confused, even in journal articles. Remember that a mediator is an intervening variable that explains the relationship between two other variables. It is concerned with the causal chain of events in which one variable causes the mediator, which in turn causes another variable. A moderator is a variable that changes the relationship between two other variables. That is, the relationship is different at one level of the moderator than another.

Research Ethics and Integrity

Research Ethics

The ethical principles of I-O psychologists hold for research as well as for practice. The overriding ethical consideration is that the researcher must protect the well-being of his or her subjects. This means that manipulations, such as an experimental training procedure, should not be used if they are known to cause harm. Even with nonexperimental studies, such as surveys, the researcher must take care to protect identities when appropriate. If respondents to a survey provide negative feedback about their supervisors, supervisors should not be able to find out who provided the feedback. This way there can be no retaliation against a subordinate for saying something that the supervisor did not like.

At times, however, conflicting demands can make it difficult to decide what is correct ethically. It would be considered unethical to violate confidentiality and disclose the identities of surveyed employees. On the other hand, a psychologist who works for an organization has an ethical responsibility to that organization as much as he or she would have to an individual. That responsibility might extend to identifying disgruntled employees who might cause trouble (steal from the employer) or need help. A psychologist might have to weigh the well-being of individuals against the well-being of the organization. This responsibility to two parties creates an ethical dilemma due to the two conflicting demands that are placed on the psychologist. It is difficult to always know the right thing to do in such situations. An I-O psychologist must carefully weigh the costs for all parties involved when taking different actions. An ethical psychologist will discuss the issue with other psychologists, and with superiors in the hope of reaching an ethical and satisfactory decision. In some cases, the psychologist might be forced to take the organization's side or risk being fired.

It is a good idea to try to foresee these situations and avoid them. If you suspect that supervisors might demand to know employee identities, conduct surveys anonymously. If you do not know the identities, you cannot disclose them. Even so, ethical dilemmas can arise in both practice and research. They can be difficult to resolve because someone

might be harmed no matter what action is taken. For example, a psychologist might become aware of company policy violations committed by an employee. If nothing is said, the company might suffer damage, but if the person is turned in, he or she might get fired.

Another ethical principle is that the subjects of studies should be informed about the nature and purpose of a study before they participate. All risks must be disclosed, and that subjects can withdraw from a study at any time. If there is even a slight possibility that participation puts subjects at risk for harm, physical or psychological, the subjects should be asked to sign an **informed consent form** that states the purpose and risks involved in the research. Although using these forms can be awkward in field settings, a signed informed consent provides evidence that the subjects were told the possible risks. This protects the researcher from legal action as a result of harm, either real or imagined, that someone claims occurred from his or her participation. Keep in mind that I-O practitioners also are concerned about ethics, but informed consent is not typically used when employees are asked to do things that are part of their jobs, or are required as part of their employment, rather than for research itself.

Research Integrity

A growing number of public cases of research misconduct have drawn increasing attention to the integrity of science. Within psychology, one of the best known is that of Dutch social psychologist Diederik Stapel, who was fired from his faculty position for making up data from over 55 published papers (Bhattacharjee, 2013). The investigation that followed underscored that research integrity is not limited to falsifying data, but can involve many practices that undermine the accuracy of published findings. Concerns about research integrity have motivated calls to action by journal editors focused on the publication process (e.g., Tsui & Galaskiewicz, 2011), and by research funding agencies, such as the United States' National Institutes of Health, which requires all students who are supported on a research grant to receive integrity training (National Institutes of Health, 2009).

Research integrity involves all aspects of the research enterprise, from the collection of data through the dissemination of results through publication. The National Institutes of Health (2009) lists nine areas of concern (see Table 2-5). Two values stand out as the foundation of an effective scientific enterprise: truthfulness and trust (Horner & Minifie, 2011). Truthfulness ranges from complete reporting of what was done to avoiding

TABLE 2-5

Research Integrity Areas of Concern

Conflict of interest
Safe human subjects practices
Mentor/mentee or faculty/student relationships
Collaborations among researchers and organizations
Peer review
Data issues: collection, management, ownership, and sharing
Research misconduct handling
Authorship and publication
Societal impact of research

Source: Adapted from Institutes of Health. (2009). *Update on the Requirement of Instruction in the Responsible Conduct of Research.* Retrieved May 24, 2013, from http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-10-019.html

the fabrication of data. One way that results can be distorted, for example, is through **p hacking** in which a researcher might try a number of different ways to analyze data until something becomes statistically significant; or a researcher might conduct a large number of statistical tests and only report the small percentages that are statistically significant. Such practices can result in the publication of erroneous results that cannot be replicated. Trust means that scientists are working in good faith, and do not have a vested interest in being sure results come out in a particular way (Horner & Minifie, 2011), whether it is due to a financial, political, or other personal interest.

Truthfulness also concerns the publication process. Researchers must avoid plagiarism and properly credit through citation ideas taken from others. They must act ethically with colleagues, for example, faculty should not exploit their students by taking credit for their work, such as an advisor publishing a student's thesis work without the student's name. Researchers must be careful all colleagues who deserve authorship on a published work are offered co-authorship, as to do otherwise is dishonest.

Chapter Summary

I-O psychology is a science because the methods used in I-O research are scientific methods. This means that I-O psychologists collect and analyze data to address organizational issues and questions. An I-O research study begins with a research question, which defines the purpose of the study. The question can lead to a research hypothesis, which is the researcher's best guess about how a study will turn out. A specific hypothesis will serve as the basis for the design of a study.

An I-O study can take place in either a field or a laboratory setting. In a field setting, the phenomenon in question occurs naturally; in a laboratory, the situation is created solely to conduct research. Generalizability means that the results of a given study can be extended to other settings and situations. Control is an important component of research studies in that it allows one to rule out alternative explanations for results. There are many different approaches to achieving control in studies. Random assignment refers to choosing subjects in a nonsystematic way, so that every individual has an equal chance of being assigned to different treatment conditions. Random selection means that every possible subject has an equal chance of being chosen to participate in the study. Confounding occurs when two or more variables are intertwined and related in a way that makes it difficult to draw conclusions about either one.

Research designs can be divided into experimental and nonexperimental forms. In experimental designs, the researcher randomly assigns subjects to conditions that are constructed for the study. Nonexperimental designs involve observation without assignment of subjects or construction of conditions.

Measurement is the process by which characteristics of people or things are quantified. Reliability refers to the consistency of measurement, whereas validity means that inferences can be drawn about the meaning of a measure. The data generated by a study are analyzed with statistical methods. Descriptive statistics summarize the data from a study, and inferential statistics allow for the interpretation of findings that goes beyond the current study.

Ethical principles of research apply to the studies that I-O psychologists conduct. As an overriding principle, researchers should ensure that their studies do not harm anyone. This is accomplished by taking care that procedures are not dangerous or harmful. Subjects should be informed about the nature of a study by having them read and sign an informed consent form. They should be allowed the opportunity to decline participation. Care should be taken to protect the identities of subjects when information they provide could be used against them in a detrimental way. Researchers should conduct their research with utmost integrity, respecting the principles of truthfulness and trust.

Learning by Doing

Methods Used in I-O Research

Find an article that describes a research study from one of the I-O journals listed in Table 1-1. Answer the following questions about that article.

1. What is the research question being addressed?
2. What is one hypothesis from the paper?
3. What kind of research design was used?
4. What do the authors tell us about the reliability of their measures?
5. What is one inferential statistic the authors report in their study?
6. What is the most important conclusion from the study?

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PART 2

Assessment of Jobs, Performance, and People



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CHAPTER 3

Job Analysis

OUTLINE

What Is Job Analysis?
- The Job-Oriented Approach
- The Person-Oriented Approach

Purposes of Job Analysis
- Career Development
- Legal Issues
- Performance Appraisal
- Selection
- Training
- Vocational Counseling
- Research

How Job Analysis Information Is Collected
- Who Provides the Information?
- Approaches to Collecting Job Analysis Information

Methods of Job Analysis
- Job Components Inventory
- Occupational Information Network, O*NET
- Position Analysis Questionnaire
- Task Inventories
- Choosing a Job Analysis Method
- Job Analysis Methods for Work Teams

Reliability and Validity of Job Analysis Information
- Reliability
- Validity

Job Evaluation
- Comparable Worth

Chapter Summary

I-O Psychology in Practice

Learning by Doing

References

How would you describe the job of a police officer? What are the different tasks that police officers do, and how much time do they spend doing each one? How difficult is it to learn the various tasks, and how long does it take? What personal characteristics does it take to do each task, as well as the entire job? These questions are addressed by a variety of techniques that I-O psychologists refer to as job analysis.

Even for the most familiar jobs, a job analysis is necessary to provide an accurate picture of all the details of the job and all the characteristics required of the people who will do it. For example, the general public is undoubtedly familiar with the job of a police officer, but for most people that knowledge is based to a large extent upon depictions in movies and television programs, such as *Blue Bloods* or *Chicago P.D.* Television programs focus on the more dramatic aspects of the job, which may be rarely performed. Most police officers spend more time carrying out routine patrol duties and completing paperwork than on apprehending criminals (Bernardin, 1988). The firing of a weapon is a common occurrence on television, but it is rarely done by most police officers on the job. A thorough job analysis would provide an accurate picture of what police officers do all day on the job. The police officer's job has been thoroughly studied with many different job analysis methods and procedures. We look at some of them throughout this chapter.

There are two different categories of job analyses: job oriented and person (or employee) oriented. The job-oriented job analysis focuses on the tasks that are done on the job, whereas the person-oriented job analysis is concerned with the personal characteristics needed for a job. In other words, the job-oriented procedures describe jobs, and the person-oriented procedures describe the characteristics people need to perform jobs. Both are important tools for describing jobs and their requirements.

In this chapter, we discuss the job-oriented and person-oriented approaches, as well as the particular methods that are used for each. In addition, we discuss the uses and

purposes of job analysis information, the sources of information that goes into a job analysis, and the reliability and validity of job analysis methods. Finally, we discuss job evaluation, which is a job analysis technique used to set salary levels.

What Is Job Analysis?

Job analysis is a method for describing jobs and/or the human attributes necessary to perform them. According to Brannick, Levine, and Morgeson (2007, p. 8), there are three elements that comprise a formal job analysis:

1. The procedure must be systematic. This means the analyst specifies a procedure in advance and follows it.
2. The aspects of a job are broken into individual units. We describe components of jobs rather than the overall job.
3. There must be a written report that can be electronic or on paper.

There is no one way to do a job analysis. Many methods provide different types of information about jobs and human attributes needed for jobs. As noted earlier, job analysis techniques can be used to collect information that is job oriented or person oriented, depending on the purpose of the job analysis.

OBJECTIVES

The student who studies this chapter should be able to

1. List the uses of job analysis information.
2. Describe the sources and ways of collecting job analysis information.
3. Discuss the different job analysis methods.
4. Describe the evidence for reliability and validity of job analysis methods.
5. Explain how job evaluation is used to set salary levels for jobs.

The Job-Oriented Approach

The **job-oriented job analysis** provides information about the nature of tasks done on the job. Some methods describe the tasks themselves. Other methods provide information about characteristics of tasks. For example, a task for a police officer would be



Richard Hutchings/Photo Researchers

A job analysis is needed to describe what a police officer does at work.

Completes report after arresting a suspect

This describes something a police office does. A characteristic of an officer's job would be

Uses pencils and pens

The characteristic isn't a specific task but describes common features that cut across tasks. A police officer performs many tasks involving writing, such as completing reports of many types and giving citations to motorists. The purposes of the job analysis determine which type of approach would be more useful. The task descriptions provide a picture of what people do on a job, whereas the characteristics of tasks can be used to compare the nature of tasks across different kinds of jobs. Police officers and teachers share the characteristic of using pencils and pens to do tasks, so there can be some similarities in types of tasks, even though the specific tasks themselves may vary.

Tasks can be divided into a hierarchy in which higher-level descriptions are broken down into smaller and smaller pieces of the job. For example, one of the major tasks performed by police officers is apprehending suspects. This police function can be further broken down into the specific actions that are involved, such as

Go to suspect's house to make arrest
Knock on door and identify self
Handcuff suspect
Inform suspect of legal rights
Put suspect in car
Drive suspect to police station

Brannick et al. (2007) discussed a hierarchy that contains five levels of specificity:

1. Position
2. Duty
3. Task
4. Activity
5. Element

A *position* is a collection of duties that can be performed by a single individual. Typically each employee has a single position, although it is possible that one individual holds more than one position. Furthermore, a number of similar positions might be given the same title; for example, several police officers within a department might have the title of "patrol officer," although each has a separate position and collection of tasks. One position might be assigned to patrol an area of the city by car, another to patrol on foot, and a third to work at a desk in the station.

A *duty* is a major component of a job. For a police officer, a duty would be

Enforce the law

Each duty is accomplished by performing one or more associated tasks.

A *task* is a complete piece of work that accomplishes some particular objective. One of the tasks involved in enforcing the law is

Arrest suspects who violate the law

Each task can be divided into *activities*, which are the individual parts that make up the task. In this case, activities that make the task of arresting suspects would include

Driving to a suspect's house to perform an arrest

To accomplish this activity, a number of very specific actions or *elements* are involved, such as

Place the key in the ignition to start the patrol car

For most jobs, there are several duties; each duty is associated with several tasks; each task is associated with several activities; and each activity can be broken down into several elements. This means that a job analysis can contain a great deal of very specific information about what happens on a particular job. A job analysis that goes to the level of job elements results in a long and detailed report.

The Person-Oriented Approach

A **person-oriented job analysis** provides a description of the characteristics or KSAOs necessary for a person to successfully perform a particular job. **KSAOs** are the employee's knowledge, skills, abilities, and other characteristics necessary for a job. The first three characteristics focus mainly on job performance itself; the "other" characteristics relate to job adjustment and satisfaction, as well as performance.

Knowledge is what a person needs to know to do a particular job. For example, a carpenter should have knowledge of local building codes and power tool safety.

Skill is what a person is able to do on the job. A carpenter should have skill in reading blueprints and in using power tools.

Ability is a person's aptitude or capability to do job tasks or learn to do job tasks. It is a person's potential to develop skills. Most skills require one or more abilities. The skill of using power tools requires several abilities, including hand–eye coordination. In order to build the roof on a house, a carpenter should have good balance and an ability to work quickly.

Finally, **other personal characteristics** include anything relevant to the job that is not covered by the other three characteristics. A carpenter should have a willingness to do manual tasks and to work outdoors.

Although they might seem to overlap, KSAOs and tasks are very distinct. A task is something a person does. A KSAO is an attribute or characteristic of the person required to do a particular task or groups of tasks. Tasks define what is done on a job, whereas KSAOs describe the sort of person needed. Table 3-1 provides some examples of tasks and associated KSAOs. Blog 3-1 has more on KSAOs and why matching KSAOs of jobs to people is important.

BLOG 3-1 Job Relevance Is Important

https://paulspector.com/job-relevance-is-important

Discussion Questions

1. Why shouldn't managers be able to hire whoever they wish?
2. How would you go about conducting a job analysis?
3. Why is it important to increase diversity of an organization's workforce?
4. Pick a job that you are familiar with and list an example of a K, S, A, and O.

TABLE 3-1

Examples of KSAOs and Associated Tasks

KSAO	Task
Knowledge of legal arrest procedures	Arrest suspects
Skill in using a firearm	Practice shooting firearm on firing range
Ability to communicate with others	Mediate a dispute between two people to prevent violent incident
Courage (as other personal characteristic)	Enter dark alley to apprehend suspect

Many job analysis methods have been developed to do both job- and person-oriented analyses. Some are specific to one of the two major types of analyses, whereas others can be used for either one or both. The appropriateness of a particular method is determined by its purpose, the next topic we discuss.

Purposes of Job Analysis

Job analysis information has many purposes. It can serve as the foundation on which many other activities and functions are built. Ash and Levine (1980) outlined 11 common uses of job analysis information, 5 of which we discuss in this section of the chapter, along with 2 not on their list. A sixth use of job analysis information for setting salary levels will be discussed later under the heading "Job Evaluation." The 11 uses are listed in Table 3-2.

Career Development

Many organizations have systems that allow employees to move up through the ranks to higher and higher positions. This is referred to as a **career ladder**: A progression of positions is established for individuals who acquire the necessary experiences, skills and maintain good job performance. Perhaps the best-known career ladder system is in the military. Personnel move up through the ranks from lieutenant to captain, to major, to colonel, and then to general. Not everyone can climb to the top of the ladder due to limited opportunities for promotion, and inability to achieve the necessary KSAOs.

In recent years, **competency systems** have become popular in organizations to reward employees for acquiring the knowledge and skills needed to both improve performance and be promoted (Levenson, Van der Stede, & Cohen, 2006). Such systems require the identification of critical competencies, the availability of the means of developing competencies, and a procedure for evaluating progress.

Job analysis contributes to career development by providing a picture of the KSAO requirements for jobs at each level of the career ladder and by identifying the key competencies. Knowledge of KSAO requirements can be incorporated into employee development and training programs that can focus on skills necessary for career advancement. This benefits employees because they are told exactly what they need to be eligible

TABLE 3-2

Eleven Uses of Job analysis Information

Use	Description
Career development	Define KSAOs necessary for advancement
Legal issues	Show job relevance of KSAOs
Performance appraisal	Set criteria to evaluate performance
Recruitment and selection of employees	Delineate applicant characteristics to be used as the basis for hiring
Training	Suggest areas for training
Setting salaries	Determine salary levels for jobs
Efficiency/safety	Design jobs for efficiency and safety
Job classification	Place similar jobs into groupings
Job description	Write brief descriptions of jobs
Job design	Design content of jobs
Planning	Forecast future need for employees with specific KSAOs

Source: Based on "A Framework for Evaluating Job Analysis Methods," by R. A. Ash and E. L. Levine (1980), *Personnel Psychology, 57*, 53–59.

for promotion. It benefits organizations because they develop a readily available supply of talent for upper-level positions.

Legal Issues

Most industrialized countries have laws prohibiting discriminatory employment practices, especially in the hiring of employees. In Canada and the United States, for example, it is illegal to discriminate on the basis of age, color, disability, gender, race, or religion. Although the specific groups that are protected against discrimination vary from country to country, the basic idea that decisions affecting people should be fair is almost universal. Fairness in employment means that decisions should be based on job performance or job potential rather than irrelevant personal characteristics. Job analysis provides a list of relevant KSAOs as the basis for hiring rather than irrelevant personal characteristics.

An important legal concept in U.S. employment is that of **essential functions**, which are actions that must be done on a job. A receptionist must greet visitors, for example. A nonessential function might be done occasionally but is not necessary for a person in that position to do. A custodian might receive an occasional phone call, but answering the phone is not an important part of the job.

The concept of essential function is important in deciding whether or not to hire a person with a disability. In the United States, an organization might be able to legally deny employment to a person with a disability who cannot perform essential functions under certain conditions (see Chapter 6). It is illegal to refuse to hire individuals with disabilities because they cannot perform nonessential functions, because these functions can easily be done by someone else or do not need to be done at all. With nonessential functions, and at times with essential functions, an organization is required to make reasonable accommodations so that the person is able to do the job (Cleveland, Barnes-Ferrell, & Ratz, 1997), as we will discuss at greater length in Chapter 6.

Job analysis is used to identify essential functions and KSAOs (Mitchell, Alliger, & Morfopoulos, 1997). This can help ensure that decisions about actions that affect people are based on personal factors that are job relevant. For example, a legally defensible system to hire people should be based on KSAOs that have been shown to be relevant to the job in question. Promotion decisions should be based at least in part on the KSAOs of the possible candidates for the position. Only those individuals who possess the established characteristics that are necessary for the job should be considered. When KSAOs are derived from a properly conducted job analysis, employee actions based on those KSAOs are likely to be legal. Furthermore, employees and job applicants will probably believe that they were fairly treated and will be unlikely to file a lawsuit claiming discrimination (Blog 3-1 discusses the concept of job relevance).

Performance Appraisal

A well-designed performance appraisal system will be based on a job analysis. Criterion development, determining the major components of job performance to be evaluated, is one of the major uses of job analysis information. A job-oriented analysis provides a list of the major components of a job, which can be used as dimensions for performance evaluation.

The behavior-focused performance appraisal methods to be discussed in Chapter 4 are based on a job analysis. The specific behaviors contained in such instruments are collected with **critical incidents** from a job analysis (Flanagan, 1954). These critical incidents are instances of behavior that represent different levels of job performance from poor to outstanding, and they become an important part of the assessment of performance. A poor incident would describe how a person did something that was ineffective, such as a police officer getting into an argument with a citizen that resulted in violence. A good incident would describe how a person did something that worked well, such as a police officer defusing a potentially violent encounter by patiently allowing a person to explain his or her side of the story.

Selection

The first step in deciding who to hire for a job is determining the human attributes or KSAOs necessary for success on that job. This means that a person-oriented job analysis should be the first step in the design of an employee selection system. Once the KSAOs for a job are identified, procedures can be chosen to determine how well job applicants fit the requirements for the job. This is done by using methods such as interviews and psychological tests to assess individual characteristics (see Chapter 5).

A person-oriented job analysis produces a list of the KSAOs for a particular job. These KSAOs include both the characteristics that a job applicant is expected to have at the time of hiring and the characteristics that will be developed on the job through experience and training. Most accountant positions in large organizations, for example, require a college degree in accounting. This ensures that most applicants will have a reasonable level of knowledge about accounting principles and procedures. Specific knowledge about the organization's own policies and practices is gained on the job. This leads us to the next use of job analysis information—training.

Training

The KSAOs for a job suggest the areas in which training efforts should be directed. The KSAOs that applicants do not have when they apply for a position are areas for training after they are hired. An effective training program in an organization should be based on a thorough analysis of the KSAO requirements for a job. The KSAO requirements can be compared to the KSAOs of applicants or employees. Deficiencies on the part of applicants or employees are the areas toward which training efforts might be directed, assuming the characteristics can be acquired through training. For example, one cannot train a person to be taller if there is a height requirement for a job.

Vocational Counseling

A major function of schooling, including at the university level, is to assist students in making vocational choices about their future careers. A number of vocational counseling tools exist to help individuals match their KSAOs to the KSAO requirements of jobs. Some of these tools attempt to match individual preferences and personalities to occupations that they would enjoy. Other approaches match individual capabilities to job requirements. Job analysis is particularly useful for matching KSAOs of people with those of occupations.

Converse et al. (2004) provided an example of how job analysis can be used for vocational counseling. They used job analysis to determine KSAO requirements for specific occupations. A battery of ability tests were administered to a sample of individuals, and their ability profiles were matched to the requirements for each of the available jobs. Scores indicating how well the individual KSAOs matched job requirements were computed in order to demonstrate the best- and worst-fitting occupations for each person. For example, one person's abilities were a good match for occupations involving driving, such as a truck driver or subway operator but were a poor match for health-related occupations such as a physician's assistant or physician. Another person was a good match for factory machine operator but was a poor match for biologist.

Research

An additional use of job analysis information is in research. Many researchers are interested in determining the role of job requirements or task characteristics in many

organizational phenomena that we will discuss in this book, ranging from employee motivation and performance to health and safety. For example, Elovainio and Kivimäki (1999) used job analysis data in their study of individual differences in job stress. In this Finnish study, it was shown that people who have an aversion to change and uncertainty are likely to experience high levels of emotional strain (anxiety and tension) at work—but only if their jobs are complex, as determined by job analysis. If their jobs are simple, these individuals are no more likely to experience strain than are people who enjoy change and uncertainty.

How Job Analysis Information Is Collected

Job analysis information is collected in several ways. All of them use people who are trained in quantifying job characteristics and the KSAOs necessary to accomplish the different aspects of jobs. These people either survey the employees who do the job in question or experience the job firsthand by doing it themselves or observing it being done.

Who Provides the Information?

Most job analysis information comes from one of four different sources:

- Job analysts
- Supervisors
- Job incumbents
- Trained observers

Job analysts and trained observers actually do the job or spend time observing employees doing the job and translate those experiences into a job analysis. Incumbents and supervisors are considered to be **subject matter experts** or SMEs, people with detailed knowledge about the content and requirements of their own jobs or the jobs they supervise. They are asked to provide information about jobs either in interviews or by completing job analysis questionnaires.

Approaches to Collecting Job Analysis Information

People can provide job analysis information in many ways. The four most commonly used are as follows:

- Perform the job.
- Observe employees on the job.
- Interview SMEs.
- Administer questionnaires to SMEs.

Perform the Job. One way to collect job analysis information is for the job analyst to actually do some of the job tasks or the whole job. The job can be performed as an employee would, or the tasks can be performed under simulated conditions. By doing the job, the analyst gains insight into the nature of the job tasks and how the job tasks interrelate. It also provides an appreciation for the context in which employees do their jobs. Both an insurance salesperson and a police officer, for example, operate an automobile, but the conditions under which they do so can be very different.

Although this method can provide good information, it is not often used. Experiencing the job by doing it can be costly and time consuming. The analyst can require extensive training before he or she can do the job. Some jobs are dangerous, particularly for an inexperienced person. Finally, this approach does not clearly indicate that tasks can differ among employees with the same job title.

Observe. Another way to collect information about a job is to observe people doing it. Observers can be job analysts or people trained to observe others. Observers are often given forms to complete about the jobs they observe. The form could contain a list of activities, and the observer would indicate how often the observed employee does each one. As with the prior technique, observing employees can give insights into the context in which job tasks are performed. It can also be expensive and time consuming. Furthermore, employees might not behave in the same manner when they know they are being observed.

Interview. One of the most popular ways to collect information about jobs is by interviewing SMEs who are familiar with them. The experts are usually job incumbents and their supervisors. Interviews are carried out by job analysts or trained interviewers. Interviews are often used to generate lists of all tasks and activities done by everyone who has the same job title. Some tasks might be performed by few employees. Other tasks might be performed by every employee but only on rare occasions.

Administer a Questionnaire. The questionnaire is the most efficient means of collecting job analysis information. It can contain hundreds of questions about the job and can be administered easily to thousands of employees. No other technique can provide as much information about jobs with as little effort on the part of the job analyst. The same questionnaire can be given to every employee with the same job title. Comparisons can be made among groups that have the same job title but may differ on some characteristics, such as location.

Multiple Approaches. Each of the four ways of collecting job analysis information has its own set of advantages and limitations in providing a picture of what a job is like. Table 3-3

TABLE 3-3

Advantages and Limitations of Four Techniques Used by the Job Analyst to Collect Job Analysis Information

Perform the Job	
Advantages:	Provides the context in which the job is done
	Provides extensive detail about the job
Limitations:	Fails to show differences among jobs with the same title
	Is expensive and time-consuming
	Can take extensive training of analyst
	Can be dangerous to analyst
Interview Employees Who Perform the Job	
Advantages:	Provides multiple perspectives on a job
	Can show differences among incumbents with the same job
Limitations:	Is time-consuming compared to questionnaires
	Fails to show context in which the tasks are done
Observe Employees Performing the Job	
Advantages:	Provides relatively objective view of the job
	Provides the context in which the job is done
Limitations:	Is time-consuming
	Might cause employees to change their behavior because they know they are being observed
Administer Questionnaires to Employees Who Perform the Job	
Advantages:	Is efficient and inexpensive
	Shows differences among incumbents in the same job
	Is easy to quantify and analyze statistically
	Is easy to compare different jobs on common job dimensions
Limitations:	Ignores the context in which the job is done
	Limits respondents to the questions asked
	Requires knowledge of the job to design the questionnaire
	Allows job incumbents to easily distort answers to make their jobs seem more important than they are

lists the advantages and limitations of each method. In practice, multiple ways are often used so that the limitations of one are offset by the strengths of another. For example, a job analyst might do the job to get a feel for the context of the job and then administer questionnaires to get detailed information from a wide cross section of employees with the same job title.

Methods of Job Analysis

Many methods have been developed to conduct job analysis. These methods use the different sources of information and the different ways of collecting information. Some of the methods focus on either the job or the person, whereas others focus on both. The methods vary in their use of the four sources of job analysis information and the four ways of collecting information. Many of these methods use more than one source and more than one way of collecting information. One reason that so many methods exist is that they are not all suited to the same purposes. Levine, Ash, Hall, and Sistrunk (1983) found that job analysts rated different methods as being best suited to different purposes.

In this section, we discuss four of the many job analysis methods: The Job Components Inventory, O*NET, and Position Analysis Questionnaire are general methods that can be used to compare different jobs; the task inventory is used to provide a description of the specific components and tasks of an individual job. Each method has its own particular strengths and was developed to address a particular purpose.

Job Components Inventory

The **Job Components Inventory (JCI)** was developed in Great Britain to address the need to match job requirements to worker characteristics (Banks, Jackson, Stafford, & Warr, 1983). This method allows for the simultaneous assessment of the job requirements and a person's KSAOs. In other words, the KSAOs for a job and for an individual are listed. The degree of correspondence of the lists is used to determine if an individual is suited to a particular job or if the person needs additional training in order to perform a particular job adequately. The JCI has been used in school settings for both curriculum development and vocational guidance.

The JCI covers over 400 features of jobs that can be translated into skill requirements. Five components of job features are represented in the JCI:

1. Use of tools and equipment
2. Perceptual and physical requirements
3. Mathematics
4. Communication
5. Decision making and responsibility

Examples of the skill requirements for each of the five components for clerical jobs in Great Britain can be found in Table 3-4. Just about any job can be analyzed with the JCI so that its skill requirements can be matched to those of potential employees. An existing database of job requirements for many jobs can be used with people who wish to know how well their own skills match those of a possible career.

Occupational Information Network, O*NET

Enlisting the help of many I-O psychologists from both research firms and universities, the U.S. Department of Labor launched the **Occupational Information Network (O*NET)** in the 1990s, and its development and refinement are an ongoing process. This information system is a computer-based resource for job-related information on approximately 1,100 groups of jobs sharing common characteristics (Peterson et al., 2001). It is available online at https://www.onetonline.org. The idea is to make this database widely available to individuals and organizations. Blog 3-2 discusses why someone would use the O*NET for job analysis.

TABLE 3-4

Examples of Frequently Needed Skills for British Clerical Occupations Grouped by the Five Components of the Job Components Inventory

Component	Skill
Use of tools and equipment	Use of pens
	Use of telephone
Perceptual and physical requirements	Selective attention
	Wrist/finger/hand speed
Mathematics	Use of decimals
	Use of whole numbers
Communication	Provision of advice or help to people
	Receipt of written information
Decision making and responsibility	Ability to decide on sequencing of work
	Ability to decide on standards of work

Source: Adapted from "Skills Training for Clerical Work: Action Research Within the Youth Opportunities Programme," by M. H. Banks and E. M. Stafford (1982), *BACIE Journal, 37*, 57–66.

BLOG 3-2 O*NET Is a Valuable Tool for Job Analysis

https://paulspector.com/onet-is-a-valuable-tool

Discussion Questions

1. Why would an organization use O*NET to conduct job analysis?
2. What are the advantages of using O*NET rather than other methods of job analysis?
3. Pick a job of your choice, look it up in O*NET and list one task and examples of KSAOs.
4. What can O*NET be used for other than job analysis?

O*NET began with much of the raw material that went into its predecessor, the **Dictionary of Occupational Titles or DOT**, but the contents of the O*NET are far more extensive than anything previously attempted. It provides a tremendous amount of information about the content of jobs and the KSAOs needed by individuals in those jobs. The *O*NET98 Data Dictionary* (U.S. Department of Labor, 1998) lists over 450 separate dimensions along which jobs are described and rated. Table 3-5 (column 1) shows the six domains of the O*NET content model. Half of the domains (Experience Requirements, Worker Requirements, and Worker Characteristics) list KSAOs. Occupation Requirements and Occupation Specific Information are concerned with characteristics of job tasks. Occupation Characteristics deals with other kinds of information concerning the labor market and wages for a job.

With O*NET, it is possible to look up a particular job and get a description and detailed information about the six domains. Table 3-5 shows a sample of the information provided for a police officer, organized by the six domains. The officer information overlaps with that provided by the Position Analysis Questionnaire that we cover in the next section (compare the third column of Table 3-5 with Table 3-7), which isn't surprising, as Jeanneret and Strong (2003) showed that corresponding O*NET and Position Analysis Questionnaire dimension scores are strongly related.

TABLE 3-5

Sample of Information Provided by O*NET for a Police Patrol Officer Job

Domain	Contents of domain	Examples of patrol officer information
Experience Requirements	Training, learning, licensing	Training in vocational schools, related on-the-job experience, or an associate's degree. May require a bachelor's degree
Worker Requirements	Basic skills, cross-functional skills, general knowledge, education	Skill in problem identification and speaking. Knowledge of public safety and law
Worker Characteristics	Abilities, interests, work styles	Quick reaction time and far vision. Interested in work activities that assist others. Achievement oriented
Occupation Requirements	Generalized work activities, work context, organizational context	Working with the public, operating vehicles or equipment
Occupation-Specific Information	Occupational knowledge, occupation skills, tasks, machines, tools and equipment	Patrol-specific area, maintains order, arrests perpetrators, monitors traffic
Occupation Characteristics	Labor market information, occupation outlook, wages	Employment projections suggest an increase of 17.8% from 1996 to 2006. National median wages are $34,632

Source: Adapted from O*NET98 Database files accessed with O*NET98 Viewer Version 1.0, U.S. Department of Labor.

Position Analysis Questionnaire

The **Position Analysis Questionnaire (PAQ)** (McCormick, Jeanneret, & Mecham, 1972) is an instrument that can be used to analyze any job. The questionnaire itself contains 189 items dealing with the task requirements or elements of jobs. A KSAO profile for a job can be developed from the elements. The elements of the PAQ are general and allow comparisons of different jobs on a common set of dimensions or KSAOs.

The elements of the PAQ are organized into six major categories, each of which is further divided into several minor categories (Table 3-6). The elements cover a wide variety of task requirements, including the inputting and processing of information, the use of equipment and tools, general body movements, interpersonal interaction, and work context. The elements can be translated into KSAOs for any job. A job that involves using mathematics, for example, requires skill in this area. Because the PAQ generates a standard list of KSAOs, jobs can be compared on their KSAO requirements.

TABLE 3-6

Major Categories of the PAQ

Category	Example
Information input	Collecting or observing information
Mediation processes	Decision making and information processing
Work output	Manipulating objects
Interpersonal activities	Communicating with other people
Work situation and job context	Physical and psychological working conditions
Miscellaneous aspects	Work schedule

Source: Adapted from "A Study of Job Characteristics and Job Dimensions as Based on the Position Analysis Questionnaire (PAQ)," by E. J. McCormick, P. R. Jeanneret, and R. C. Mecham (1972), *Journal of Applied Psychology, 56*, 347–368.

TABLE 3-7

PAQ KSAOs and Task Elements for a Police Officer

KSAOs	Task elements
Far visual acuity	Interpreting what is sensed
Simple reaction time	Being aware of environmental conditions
Movement detection	Controlling machines and/or processes
Rate control	Engaging in general personal contact
Auditory acuity	Wearing specified versus optional apparel

Source: Adapted from Job Profile, PAQ Number 003127, PAQ Services.

The PAQ produces a profile of the task elements and KSAOs for a job. The profile compares a given job to the hundreds of jobs in the PAQ database. It indicates the percentile score for each element and KSAO in comparison to all jobs. A low score means that the element or KSAO is a less important part of the target job than it is for jobs in general. A high score means that the element or KSAO is a more important part of the target job than it is for jobs in general. A percentile of 50 means that the job is average on the element or dimension in question.

Table 3-7 contains a sample of the most important elements and KSAOs for a police officer job. As the table shows, a police officer job involves engaging in general personal contact and wearing specified versus optional apparel. Table 3-7 also contains several sample KSAOs for a police officer. The two most important are far visual acuity and simple reaction time. Note that both of these were identified by O*NET as well.

Task Inventories

A **task inventory** is a questionnaire that contains a list of specific tasks that might be done on a job that is being analyzed. The inventory also contains one or more rating scales for each task. Ratings might be made on dimensions such as

Amount of time spent doing the task
Criticality of the task for doing a good job
Difficulty of learning the task
Importance of the task

Job incumbents usually are asked to complete the inventory for their own job. Results are compiled across incumbents to give a picture of the average importance or time spent for each task in a particular job.

When several people complete a task inventory, they are certain to give somewhat different ratings on the same dimensions for each task. This can reflect differences in how individuals make judgments about their jobs. In other words, if two people spend the same amount of time on a task, one might give it a higher time-spent rating than the other. An alternative possibility is that differences in ratings across people reflect real differences in tasks (Harvey & Wilson, 2000; Sanchez & Levine, 2000). There can be large differences in the content of jobs with the same title in the same organization. For example, Lindell, Clause, Brandt, and Landis (1998) found among emergency preparedness departments that the number of employees in the work unit affected ratings made concerning the amount of time spent in various tasks. It seems likely that the smaller the work group, the larger the number of tasks each person must perform.

Most task inventories are used for purposes in which differences among people with the same job are of no particular interest, but there are two notable exceptions. Conte, Dean, Ringenbach, Moran, and Landy (2005) showed that feelings about the job related to job analysis ratings. Individuals who were satisfied with their jobs reported spending more time on some tasks than people who were dissatisfied. Similarly, in a

study of stockbrokers, ratings of time spent in several tasks predicted the individual's sales performance (Borman, Dorsey, & Ackerman, 1992). For example, stockbrokers who spent more time with clients away from the office sold more than their counterparts who spent less time (see the Research in Detail box). Whether the time spent is the cause or the result of good performance and satisfaction with the job is not totally clear in these studies. Further study is needed to determine why task inventory ratings vary among people.

Research in Detail

Lack of agreement among raters of a task inventory is usually interpreted as lack of reliability. In this study, the authors viewed disagreement from a different perspective. They believed that people in the same job would differ in the amount of time they spent in various tasks. Furthermore, the researchers believed that the time-spent differences might relate to sales performance of stockbrokers. In other words, people who are high performers might spend their time differently on the job than people who are low performers.

To test this idea, the authors conducted a job analysis with 580 stockbrokers as subject matter experts. Each one completed a task inventory with 160 tasks. Ratings of amount of time spent were made for each task. In addition, data were collected for each stockbroker's sales performance (dollars sold) for the prior year.

The amount of time spent in some of the tasks correlated significantly with sales performance. For example, the following tasks were associated with high sales:

Dealing with corporate clients and clients in nonbusiness settings, and
Advising and helping other stockbrokers.

The authors noted that it might be tempting to conclude that their results suggest effective strategies for stockbrokers to adopt for good sales performance. They believed, however, that the strategies might be the effect rather than the cause of good performance. A stockbroker with many clients is likely to have many opportunities to spend time with them away from the office setting. He or she is also likely to have high sales volume because of the number of clients. A stockbroker with few clients has fewer opportunities for client contact outside the office setting, or for sales. Thus, the activity of spending time with clients away from the office may not be the cause of high sales volume but just the by-product of having many clients. The major contribution of this study is that it shows that there can be important differences among people in the same job. It might prove useful if job analysts provided information to organizations about employee differences in time spent doing tasks.

Source: Adapted from "Time-Spent Responses as Time Allocation Strategies: Relations With Sales Performance in a Stockbroker Sample," by W. C. Borman, D. Dorsey, and L. Ackerman (1992), *Personnel Psychology, 45,* 763–777.

A task inventory for even a fairly simple job can contain hundreds of tasks. To make interpretation easier, tasks are often placed into dimensions that represent the major components of a job. The dimensions for a police officer job that came from a task inventory are shown in Table 3-8. Each of these dimensions was associated with several specific tasks, and each task was rated by SMEs on a variety of different scales. A better understanding of this job can be gained by considering the individual tasks in the context of the major dimensions.

A task inventory often is a major component of an extensive job analysis project that collects several different types of information about jobs and people. Edward Levine's ***Combination Job Analysis Method* (C-JAM)** (Brannick, et al., 2007) is one such approach. C-JAM uses both interviews and questionnaires to collect information about KSAOs and tasks. It produces a detailed picture of the KSAOs for a job and the tasks performed. Table 3-9 contains an example of several KSAOs for a police officer job analyzed with C-JAM.

TABLE 3-8

Major Dimensions of a Police Officer Job From a Task Analysis

Driving a car or other police vehicle	Investigating accidents and related problems
Making arrests	Issuing tickets and citations, such as those for traffic violations
Interviewing witnesses and other people	Responding to disturbances, such as family quarrels
Maintaining vigilance during routine patrol	Providing service to citizens
Writing reports	

Source: Adapted from *Selection of Police Officers, Report Supplement No. 1: Job Analysis*, by R. M. Guion and K. M. Alvares (1980), Bowling Green, OH: Bowling Green State University.

TABLE 3-9

Examples of KSAOs for a Police Officer Job Analyzed With C-JAM

Knowledge of laws, statutes, ordinances (including types of crimes)	Skill in handling/maintaining handgun/shotgun
Knowledge of where/when to conduct interview/interrogation	Ability to enforce laws, statutes, ordinances
Skill in operating special equipment (helicopter, boat, MDT, voice radio, etc.)	Ability to take charge of a situation
	Integrity (moral/ethical/honesty)
	Courage

Source: Adapted from *Job Analysis of Deputy Sheriff in the Pinellas County Sheriff's Office*, by E. L. Levine and D. P. Baker (1987), unpublished paper, University of South Florida, Tampa.

Choosing a Job Analysis Method

We have discussed only a few of the many available job analysis methods. With such a wide variety of methods, how can one choose? Each method has its own advantages and limitations, and not every method is appropriate for every application. Levine et al. (1983) asked job analysis experts to rate the effectiveness of seven job-analysis methods for 11 purposes. Each method was better suited for some purposes than others. In general, the more broadly applicable the method, the more time-consuming (meaning more costly) it was to complete. Choice of method requires consideration of several factors, including cost and purpose.

Job Analysis Methods for Work Teams

So far we have discussed job analysis methods that are designed for jobs that are done individually. However, more and more work in organizations is being done by teams rather than individuals, requiring the use of special job analysis methods. As pointed out by Brannick et al. (2007), team job analysis is similar to the other methods we have already discussed in that the same sources and data collection approaches can be adapted. However, there are specific KSAOs and tasks necessary for communication and coordination among team members. For example, Stevens and Campion (1999) noted that teamwork requires special KSAs (they did not include Os) related to communication, conflict resolution, goal setting, problem solving, and task coordination among team members.

Reliability and Validity of Job Analysis Information

Job analysis information depends on the judgment of people who either perform or observe others perform a job. People's judgments are imperfect, so it is important to

determine how reliable and valid each job analysis method is. Studies have addressed this issue for some of the methods. In general, results suggest that different people's ratings of jobs are often reasonably reliable. In other words, there will be a relatively high correlation among different people's ratings of the same job for at least some job analysis methods. Validity is a more difficult question, and some researchers have begun to study the question of what job analysis ratings actually represent. In other words, are they accurate representations of task characteristics and KSAO requirements, or do they reflect something else?

Reliability

Dierdorff and Wilson (2003) used meta-analysis (see Chapter 2), which allowed them to summarize the results of 46 studies that reported reliabilities for various job analysis methods. They found a mean test–retest reliability of .83, suggesting that people are quite consistent over time in making their job analysis ratings. DuVernet, Dierdorff, and Wilson (2015) meta-analyzed studies of inter-rater reliability (correlations of ratings across different raters). They found that the mean inter-rater reliability was .73, but the level of reliability was affected by a number of factors. For example, reliability was higher for ratings of ability versus personality characteristics, when analysts rated how often tasks were done versus how important they were, when the purpose of the job analysis was training versus selection, and when the raters were supervisors versus job incumbents.

Several studies have examined the reliability of task inventory ratings. Wilson, Harvey, and Macy (1990) found that test–retest reliabilities varied considerably for different rating scales, such as the amount of time spent doing the task or the importance of the task. Although some reliabilities were very high, others were unacceptably low. Sanchez and Fraser (1992) also found that inter-rater reliabilities among job incumbents varied across different rating scales and across different jobs as well.

Taken together, the studies suggest that job analysis ratings can be reasonably reliable. As noted here, there are exceptions with task inventory ratings. Care should be taken in deciding which scales to use for rating tasks when job incumbents are the SMEs. The next question is whether or not job analysis ratings are valid.

Validity

The best evidence for the validity of job analysis ratings comes from studies that compared different methods or sources of information, such as incumbents versus supervisors. Spector, Brannick, and Coovert (1989) summarized the results of nine studies that reported correlations among methods or sources that ranged from .47 to .94. These results are suggestive of validity for job analysis ratings, but an intriguing study raises some doubts about the interpretation of source agreement. J. E. Smith and Hakel (1979) compared the PAQ ratings of trained job analysts with the ratings of college students who were given only job titles. The students' ratings correlated very well with the ratings of the analysts. This seemed strange because the analysts conducted in-depth interviews with incumbents, whereas the students were given limited information about the job. Smith and Hakel wondered if the analyst ratings reflected preconceived notions about the job rather than the information gathered with the job analysis procedures. If this is the case, then job analysis ratings might be less valid than I-O psychologists usually assume.

Other researchers who have studied the correspondence in ratings of students and trained job analysts have reached different conclusions. Cornelius, DeNisi, and Blencoe (1984) believed that students have accurate knowledge about many jobs; therefore, both job analysts and students can provide valid indicators of job information. Although students have accurate knowledge, more extensive information can be gathered in a thorough job analysis conducted by trained analysts (Cornelius et al., 1984).

Green and Stutzman (1986) conducted a job analysis in which they had job incumbents complete a task inventory. The task inventory included "fake tasks" that no one did on the job the researchers were analyzing. Over half of the incumbents indicated that they did

at least one fake task. This finding suggests that many people are either careless or not completely honest when they complete task inventories. Whether or not this reduces the accuracy of the task inventory was not determined by this study. Hacker (1996), however, followed up on this research by conducting a similar study and comparing incumbents who endorsed fake tasks with those who did not. He found that both groups of people did not differ in their ratings of all other tasks or in the reliability of their ratings of all other tasks. In other words, individuals who endorse fake tasks are not less accurate in rating tasks they actually do.

The research on the validity of job analysis ratings suggests that they can provide useful information, but they are not perfect and are potentially subject to some biases because they are based on human judgment (Morgeson & Campion, 1997; Morgeson, Delaney-Klinger, Mayfield, Ferrara, & Campion, 2004). Green and Stutzman's (1986) results emphasize that incumbents are not necessarily accurate in making their ratings. However, that accuracy is not constant across different kinds of job analysis ratings. Dierdorff and Morgeson (2009) showed that people are more accurate when rating specific tasks (e.g., recording medical information on patients) than when rating traits people need to do the job (e.g., dependability). They argued that the more specific the task or trait is and the easier it is to observe, the more reliable and accurate ratings will be. Sanchez and Levine (1994) attempted to improve job analysis results by training incumbents in how to rate their jobs. Although their results were only partially successful, such training might prove useful in the future. Even though there is a need to improve job analysis procedures, the various methods are important tools used by I-O psychologists.

Job Evaluation

Job evaluation refers to a family of quantitative techniques that are used to scientifically determine the salary levels of jobs (Morgeson, Campion, & Maertz, 2001). These techniques are very much like the job analysis methods we have already discussed. In fact, the job analysis methods sometimes are used to conduct job evaluation. For example, Robinson, Wahlstrom, and Mecham (1974) used the PAQ to conduct a job evaluation. The major difference between job analysis and job evaluation is that job evaluation has the specific purpose of determining the relative salaries for different jobs by mathematically combining job information.

Perhaps the most popular job evaluation method is the point method (Treiman, 1979). There are four steps involved in conducting a point-method job evaluation. First, a panel, often managers or other organization members, determines the compensable factors for the job. **Compensable factors** are characteristics that will serve as the basis for the evaluation. They include

Consequences of error on the job
Responsibility
Education required
Skill required

Second, a panel who might or might not be the same people as in the first step judges the degree to which each job has each compensable factor. This is done on a quantitative scale so that each job gets points for each factor. A particular job, for example, might get 2 points out of a possible 20 for consequences of errors made and 20 points out of a possible 20 for education. This would mean that the job would be low on consequences for error and high on education level required.

Third, the points for the factors are summed for each job to provide a total score. In this example, the job would get a total of 22 points (2 + 20) for the two factors. These numbers are not in dollar units, and so they do not indicate the actual salary level. Rather, the numbers are relative, so that the higher the number, the higher the salary the job should have.

The fourth and final step is to plot the actual salaries for each job in an organization against the point totals for each job. If the salary system is fair according to the

compensable factors, the plot should be a straight line. This means that the more points a job has, the higher the salary for that job. If the point for a particular job is not on the straight line, the job is either overpaid (point is above the line) or underpaid (point is below the line). Steps can then be taken to bring the job into line with the other jobs with similar totals. Jobs that are paid too much according to the system can have salaries frozen. Jobs that are paid too little can be given salary increases.

Although the job evaluation can indicate the relative value of a job, other factors enter into salary levels. One of the biggest influences is the market wage for a job. A hospital might find, for example, that physicians are overpaid in relation to nurses. However, it would not be feasible for a hospital to set salaries completely according to compensable factors. The cost of paying nurses much higher salaries would be prohibitive. Paying physicians much lower wages would result in not being able to hire or retain them. Thus, the wages paid throughout the area or country must be considered. A salary survey can be conducted to find out what other organizations pay each position. To conduct such a survey, all hospitals in the area could be contacted to determine their salary levels for nurses and physicians.

The point system is just one of many different job evaluation methods. There are also several varieties of point systems. They are all used to determine the pay levels of jobs by estimating their worth relative to one another. Research on the various methods suggests that they may be interchangeable. Studies have shown that the results of different methods are often quite similar (e.g., Gomez-Mejia, Page, & Tornow, 1982).

Comparable Worth

It is well known that in the United States and other countries women's salaries are lower on average than men's. Some of the differences are attributable to the fact that jobs held primarily by women, such as secretaries, are paid less than jobs held primarily by men, such as electricians (Allen & Sanders, 2002). Although the Equal Pay Act of 1963 made it illegal in the United States to pay women less than men for the same job, there is no law preventing an organization from paying women less than men in a different job.

The concept of **comparable worth** means that different but comparable jobs should be paid the same. If jobs that are held predominantly by women contribute as much to the organization as jobs held primarily by men, the jobs should be paid the same. The difficulty is finding a common measure by which to gauge the comparable worth of jobs. Job evaluation provides a means of doing so.

To do a comparable worth study with job evaluation, one would first apply one of the job evaluation methods to the jobs of an organization. Those jobs that are held primarily by men would be compared to those held primarily by women. It is likely that at least some of the jobs held mainly by women would be underpaid according to the compensable factors. Using mathematical procedures, it would be possible to calculate how much adjustment each of the underpaid jobs should receive. If made, those adjustments could accomplish comparable worth between the predominantly female and predominantly male jobs.

The use of job evaluation to establish comparable worth has not been without critics (e.g., Eyde, 1983). Part of the difficulty is that the judgments used in a job evaluation can be biased in ways that perpetuate the lower salaries of women. For example, Schwab and Grams (1985) found that people who assign points to jobs in organizations are influenced by knowledge of current salaries. As a result, lower-paid jobs are given fewer points than they deserve, and higher-paid jobs are given more points than they deserve. Job evaluations might undervalue the lower-paid predominantly female jobs and overvalue the higher-paid predominantly male jobs.

Perhaps the biggest impediment to achieving comparable worth is not bias in job evaluation but the cost involved in substantially raising salaries in predominantly female occupations, such as clerks and elementary school teachers. The adjustments of these salaries would be extremely expensive unless they were accompanied by reductions in

the salaries of other jobs. In addition, there is the issue of market wages, which is a major influence on the salary levels set by organizations. Comparable worth is an issue that has received considerable attention for decades, but the complexity and cost have made it difficult to achieve.

Chapter Summary

Job analysis is a method for describing jobs and the personal attributes necessary to do a job. The job-oriented approach provides information about the nature of and the tasks involved in a job. The person-oriented approach describes the KSAOs (knowledge, skills, abilities, and other personal characteristics) a person must have for a job. There are dozens of job analysis methods that provide information about the job, the person, or both.

Job analysis information has many purposes. It can be used for
Career development of employees
Legal issues, such as ensuring fairness in employee actions
Performance appraisal
Selection
Training
Vocational counseling
Research

Most job analysis information comes from one of four different sources:

Job analysts
Supervisors
Job incumbents
Trained observers

They provide their information with one of the following ways:

Performing the job themselves
Interviewing people who do the job
Observing people doing the job
Giving questionnaires to people who do the job

Many different methods can be used to conduct a job analysis; no one method stands out as being superior to the others. Each has its particular advantages and limitations. The job analyst's purpose should determine which method is chosen. Four popular methods are

Job Components Inventory
Occupational Information Network (O*NET)
Position Analysis Questionnaire
Task inventory

Most job analysis methods have been found to be reasonably reliable. Existing research has supported their validity, but there is evidence that people are not always accurate in their job analysis ratings. More attention should be directed to studying ways to increase the accuracy of job analysis information.

Job evaluation is a quantitative technique to set relative salary levels. Job evaluation procedures are much like job analysis, and often job analysis methods are used to conduct job evaluation. Research suggests that many of the different job evaluation techniques give similar results when applied to the same jobs. Job evaluation has been used in an attempt to reduce the salary inequities between men and women. The concept of comparable worth means that jobs that make equivalent contributions to an organization should be paid the same.

I-O Psychology in Practice

This case deals with a job analysis conducted by Dr. Joan Brannick as part of a collaborative effort to validate a selection test for supermarket warehouse employees. Dr. Brannick received her Ph.D. in I-O psychology in 1987 from Bowling Green State University. She is currently President of Brannick HR Connections, a human resources consulting company based in Tampa, Florida. The company helps organizations improve employee retention by working with organizations to create, implement, and evaluate selection and promotion processes that assess job fit and culture fit. Prior to starting Brannick HR Connections in 1995, Dr. Brannick worked for Eckerd Corporation, which at the time was one of the largest drugstore chains in the United States. It is a common career path for an I-O psychologist to work for several years for a private corporation and then start his or her own consulting business.

A national supermarket chain hired Dr. Brannick to be part of a team that developed and validated a selection test for warehouse workers. A testing company that specializes in physical agility testing actually designed the test. The client wanted an independent consultant to do the initial job analysis that would indicate what sort of test was needed and then to do the validation to show the test worked. The client was concerned about the potential conflict of interest if the testing company were to do the entire project, especially the validation. Dr. Brannick was hired to provide the objective expert point of view. It is quite common for I-O consultants from different companies to work together, each doing a separate piece of a complete job.

The job in question involved the filling of orders received from individual stores. Each day supermarkets submitted orders for various products. Warehouse employees filled these orders by loading products into large plastic tote boxes at the warehouse and shipping these totes by truck to the stores. The job required physical agility, as various items had to be taken from shelves and put into totes by hand. Dr. Brannick used an observational method of job analysis. She took a tour of the warehouse and then spent many hours watching employees and recording the specific physical motions required. There were three in particular that were important: grasping (picking up an item with all fingers and the thumb of one hand), lifting (picking up an item with both hands), and pinching (picking up an item with the index finger and thumb only). Once the specific motions were determined, the testing company designed the actual psychomotor test (see Chapter 5) to determine how well applicants were able to perform the required motions.

Once the test was developed, it was administered to 350 employees. Dr. Brannick trained supervisors to rate the quality of their employees' job performance. Objective performance data were also collected on absenteeism and the number of totes/day each employee filled. She then conducted statistical data analysis to see if the test could predict how well employees perform their jobs. This study was successful in showing that the test was valid; in other words, test performance significantly predicted job performance. The test is being used today to help select warehouse workers.

Discussion Questions

1. Why was it important to conduct a job analysis before developing the test?
2. Would a questionnaire job analysis method of asking employees or supervisors what motions were needed have been as effective?
3. How would this job analysis help a company if it was sued for discriminating against a person with a disability?
4. Why was it important to conduct a validation study?

Learning by Doing

Conducting a Job Analysis Interview

One way to conduct a job analysis is to interview employees who hold the job in question. Choose a person you know (acquaintance, family member, or friend) who is currently employed in a job you have never held yourself. Interview that person about the job, taking careful notes of what he or she tells you. You should ask about the following:

1. Job title
2. Brief description of the job
3. The most important tasks involved in the job
4. The most important KSAOs needed for the job

Write a brief report that provides an overview of what you learned about the job.

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CHAPTER 4

Performance Appraisal

OUTLINE

Why Do We Appraise Employees?
- Administrative Decisions
- Employee Development and Feedback
- Criteria for Research

Performance Criteria
- Characteristics of Criteria
- Criterion Complexity
- Dynamic Criteria
- Contextual Performance

Methods for Assessing Job Performance
- Objective Measures of Job Performance
- Subjective Measures of Job Performance
- 360-Degree Feedback

The Impact of Technology on Performance Appraisal

Legal Issues in Performance Appraisal

Chapter Summary

I-O Psychology in Practice

Learning by Doing

References

Imagine that you are a manager for a large organization who has been assigned the task of determining how well your subordinates are doing their jobs. How would you go about appraising their job performance to see who is and who is not doing a good job? Would you watch each person perform his or her job? If you did watch people, how would you know what to look for? Some people might appear to work very hard but in fact accomplish little that contributes to the organization's objectives. For many jobs, it might not be readily apparent how well a person is doing just by observing him or her unless you have a good idea of what constitutes good job performance. Performance is best appraised by measuring a person's work against a criterion or standard of comparison.

In this chapter, we are concerned with issues involved in the appraisal of employee job performance, and how organizations develop systems that appraise and document that performance. First, there is the issue of the criterion or standard of comparison by which performance is judged and measured. Before we can appraise performance, we must have a clear idea of what good performance is. This is true not only for employee job performance but also for evaluating the performance or quality of anyone (movie actors) or anything (automobile brands). Once we know the standard, we can address the second issue of developing a procedure to assess it. Performance appraisal is a two-step process of first defining what is meant by good performance (criterion development) followed by the implementation of procedures to appraise employees by determining how well they meet the criteria. Before we discuss the criteria and procedures for appraising performance, we look at the major reasons for engaging in this potentially time-consuming activity.

Why Do We Appraise Employees?

OBJECTIVES

The student who studies this chapter should be able to

1. List the uses of job performance information.
2. Discuss the importance of criteria for performance appraisal.
3. Describe the various methods of performance appraisal, as well as their advantages and limitations.
4. Discuss how to conduct a legally defensible performance appraisal system.

The first question that we address is the rationale for organizations to develop systems to appraise the performance of their employees. With the typical system, supervisors prepare a written performance report and hold a performance review meeting with each subordinate. These activities can consume a considerable amount of time and effort. As Peretz and Fried (2012) showed, in the United States and many northern European countries like Germany, Netherlands, and Switzerland almost all large organizations have these systems (although in other countries such as Greece and Portugal the use of such systems is rare). Why then do so many organizations have **performance appraisal** systems? As we will see, assessing job performance can provide benefits to both employees and organizations. Performance data can be used for administrative decisions, employee development and feedback, and research to determine the effectiveness of organizational practices and procedures.

Administrative Decisions

Many administrative decisions that affect employees are based, at least in part, on their job performance. In the United States and many other countries, large organizations use job performance as the basis for many negative and positive employee actions. Negative actions toward an employee include both demotion and termination (firing), and some organizations have policies that require the firing of unsatisfactorily performing employees. Positive actions include promotion and pay raises, and many organizations have **merit pay** systems that tie raises to the level of job performance.

The basis for using job performance data for administrative decisions can be found in both contract and law. A union contract will often specify how and even if performance appraisals will be done, and whether job performance is the basis for administrative decisions, such as pay raises. Civil service (government) employees in the United States can be fired only for unsatisfactory job performance or violation of work rules. Rule violations include assaulting a coworker, being convicted of a felony, falling asleep on the job, and not showing up for work when scheduled. Even so, many fired U.S. government employees have been reinstated because of long records of satisfactory performance on the job. The United States is not the only country that has laws requiring administrative decisions to be based on job performance. In Canada, for example, the legal requirement that employee firing must be based on job performance has been extended to private companies, as well as the government.

Employee Development and Feedback

For employees to improve and maintain their job performance and job skills, they need job performance feedback from their supervisors. One of the major roles of supervisors is to provide information to their subordinates about what is expected on the job and how well they are meeting those expectations. Employees need to know when they are performing well so that they will continue to do so, as well as when they are not doing well so that they can change their behavior. Even employees who are performing well on the job can benefit from feedback about how to perform even better. Feedback can also be helpful in telling employees how to enhance their skills to move up to higher positions. Blog 4-1 talks about why feedback is important for employees.

BLOG 4-1 Employees Need Feedback

https://paulspector.com/employees-need-feedback

Discussion Questions

1. How often should supervisors provide feedback to employees?
2. Can you think of a job where supervisor feedback is not very important?
3. For your current or a previous job, do you like receiving feedback from your boss? Why or why not?
4. What is the best way for a supervisor to provide negative feedback?

Many organizations require that supervisors provide annual performance reviews of their subordinates. This means completing a performance rating form and providing written comments that are shared with subordinates. It is typical for supervisors to conduct an appraisal interview with subordinates to discuss the evaluation and to allow subordinates to comment. Meinecke, Lehmann-Willenbrock, and Kauffeld (2017) conducted an in-depth analysis of what is discussed in appraisal interviews. Several general categories of discussion included the following.

- Evaluating the performance of the subordinate
- Planning developmental activities for the subordinate
- Sharing knowledge about the evaluation process
- Solving performance problems
- Planning future actions

Many companies go beyond the once-per-year evaluation in designing an ongoing performance management system that aligns employee performance with organizational goals (Schleicher et al., 2018). In addition to the annual appraisal, such systems can include goal setting and periodic coaching and feedback sessions between the employee and supervisor. While the annual review might be used for administrative purposes, the interim reviews would be used only for feedback, thus reducing some of the anxiety and defensiveness employees often experience when being evaluated for raises and promotions. Research has shown that performance management systems can be effective in improving employee job performance and job satisfaction (Schleicher, Baumann, Sullivan, & Yim, 2019). The performance management system at Wachovia Bank is described in the I-O Psychology in Practice case in this chapter.

Criteria for Research

Many of the activities of practicing I-O psychologists concern the improvement of employee job performance. The efforts of I-O psychologists can be directed toward designing better equipment, hiring better people, motivating employees, and training employees. Job performance data can serve as the criterion against which such activities are evaluated. To do so, one can conduct a research study. A common design for such a study involves comparing employee performance before and after the implementation of a new program designed to enhance it. A better design would be an experiment in which one group of employees receives a new procedure, while a control group of employees does not. The two groups could be compared to see if the group that received the new procedure had better job performance than the control group that did not. Better job performance by the trained group would serve as good evidence for the effectiveness of the training program.

Performance Criteria

A criterion is a standard against which you can judge the performance of anything, including a person. It allows you to distinguish good from bad performance. Trying to assess performance without criteria is like helping a friend find a lost object when the friend will not tell you what it is. You cannot be of much help until you know what it is you are looking for. In a similar way, you cannot adequately evaluate someone's job performance until you know what the performance should be. The development of criteria for a job can be a difficult undertaking. A good way to start is with a job analysis that helps define what it is that a job is supposed to accomplish. Once that is determined, the specific methods to assess the various aspects of performance can be chosen. Blog 4-2 discusses why criteria are important.

BLOG 4-2 Start With Criteria

https://paulspector.com/start-with-criteria

Discussion Questions

1. Pick a job and list three criteria for good performance.
2. Have you ever experienced an impasse like Kathy and Tom that might have been avoided had you first chosen criteria?
3. What should people do when they cannot agree on criteria to use?
4. What are the advantages of evidence-based decision making?

Characteristics of Criteria

Actual Versus Theoretical Criterion. Criteria can be classified as either actual or theoretical. The **theoretical criterion** is the definition of what good performance is rather than how it is measured. In research terminology, the theoretical criterion is a theoretical construct. It is the idea of what good performance is. The **actual criterion** is the way in which the theoretical criterion is assessed or operationalized. It is the performance appraisal technique that is used, such as counting a salesperson's sales.

Table 4-1 contains theoretical and corresponding actual criteria for five different jobs. As can be seen, both criteria can be quite different for some jobs. For others, the correspondence between the theoretical and actual criteria is quite close. For example, for

TABLE 4-1

Examples of Theoretical and Actual Criteria for Five Jobs

Job	Theoretical criterion	Actual criterion
Artist	Create great works of art	Judgments of art experts
Insurance salesperson	Sell insurance	Monthly sales
Store clerk	Provide good service to customers	Survey of customer satisfaction with service
Teacher	Impart knowledge to students	Student achievement test scores
Weather forecaster	Accurately predict the weather	Compare predictions to actual weather

an insurance salesperson, the theoretical criterion is to sell, and the actual criterion is a count of the sales the person made. For an artist, the correspondence is not as close. The theoretical criterion of producing great works of art is matched to the actual criterion of asking art experts for an opinion about the person's work. In this case, there is room for subjectivity about who is deemed an art expert and about the expert judgments of what is and is not good art. As these cases illustrate, the criteria for different jobs may require quite different assessment approaches.

Contamination, Deficiency, and Relevance. Our actual criteria are intended to assess the underlying theoretical criteria of interest. In practice, however, our actual criteria are imperfect indicators of their intended theoretical performance criteria. Even though an actual criterion might assess a piece of the intended theoretical criterion, there is likely some part of the theoretical criterion that is left out. On the other hand, the actual criterion can be biased and can assess something other than the theoretical criterion. Thus, the actual criterion often provides only a rough estimate of the theoretical criterion it is supposed to assess.

Three concepts help explain this situation: criterion contamination, criterion deficiency, and criterion relevance. **Criterion contamination** refers to that part of the actual criterion that reflects something other than what it was designed to measure. Contamination can arise from biases in the criterion and from unreliability. Biases are common when people's judgments and opinions are used as the actual criterion. For example, using the judgments of art experts as the actual criterion for the quality of someone's artwork can reveal as much about the biases of the judges as it does about the work itself. Because there are no objective standards for the quality of art, experts will likely disagree with one another when their judgments are the actual criterion for performance.

Unreliability in the actual criterion refers to errors in measurement that occur any time we try to assess something. As discussed in Chapter 2, measurement error is part of the measurement process and is comprised of random errors that make our measurement inaccurate. It is reflected in the inconsistency in measurement over time. If we were to assess the job performance of someone repeatedly over time, the measure of performance would vary from testing to testing even if the performance (theoretical criterion) remained constant. This means that our actual performance criterion measures will have less than perfect reliabilities.

Criterion deficiency means that the actual criterion does not adequately cover the entire theoretical criterion. In other words, the actual criterion is an incomplete representation of what we are trying to assess. This concept was referred to in Chapter 2 as content validity. For example, student achievement test scores in mathematics could be used as an actual performance criterion for elementary school teachers. It would be a deficient criterion, however, because elementary school teachers teach more than just mathematics. A less deficient criterion would be student scores on a comprehensive achievement test battery, including mathematics, reading, science, and writing.

Criterion relevance is the extent to which the actual criterion assesses the theoretical criterion it is designed to measure, or its construct validity (see Chapter 2). The closer the correspondence between the actual and theoretical criteria, the greater the relevance of the actual criterion is. All of the actual criteria in Table 4-1 would seem to have some degree of relevance for assessing their intended theoretical criteria. Theoretical criteria can be quite abstract, such as producing great works of art; therefore, it can be difficult to determine the relevance of a criterion. As with the validity of any assessment device, relevance concerns the inferences and interpretations made about the meaning of our measurements of performance.

Criterion contamination, deficiency, and relevance are illustrated in Figure 4-1. The actual criterion is represented in the figure by the lower circle, and the theoretical criterion is represented by the upper circle. The overlap between the two circles (shaded area) represents the extent to which the actual criterion is assessing the theoretical, which is criterion relevance. The part of the lower circle that does not overlap the theoretical criterion (nonshaded area) is contamination because the actual criterion is assessing

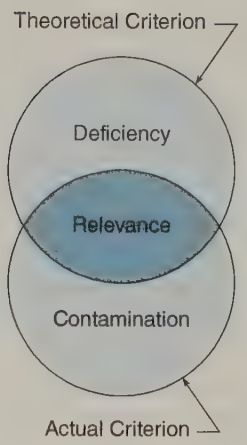


FIGURE 4-1 Criterion contamination, relevance, and deficiency. The lower circle represents the actual criterion, and the upper circle represents the theoretical criterion. Contamination is the part of the actual criterion (nonshaded area) that does not overlap the theoretical criterion. Deficiency is the part of the theoretical criterion that is not overlapped by the actual criterion (nonshaded area). Relevance is represented by the overlap between the actual and theoretical criteria (darker shaded area).

something else, that is, it reflects bias and measurement error. The part of the upper circle that does not overlap the lower (nonshaded area) is criterion deficiency because part of the theoretical criterion is not assessed.



Arvind Garg/Photo Researchers

It takes close observation to see how well an employee is doing the job.

Level of Specificity. Most jobs are complex and involve many different functions and tasks. Job-performance criteria can be developed for individual tasks or for entire jobs. For some purposes, it may be better to assess performance on an individual task, such as making arrests for a police officer or selling products for a salesperson, whereas for other purposes the entire person's job performance is of interest. For developing an employee's skills, it is better to focus at the individual task level so that feedback can be specific. The person might be told that he or she types too slowly or makes too many errors. This sort of

specific feedback can be helpful for an employee who wishes to improve performance. For administrative purposes, overall job performance might be of more concern. The person who gets promoted might be the one whose overall performance has been the best. The methods used to assess performance should be based on the purposes of the assessment information.

Criterion Complexity

Because most jobs involve multiple tasks and most tasks can be evaluated from several perspectives, criteria can become quite complex. Job performance even on a single task can usually be assessed along a quality dimension (how well the person does the task) and a quantity dimension (how much or how quickly the person does the task). The complexity of job performance means that multiple criterion measures are necessary to assess performance adequately. These might involve only quality, only quantity, or both. It can be at the level of specificity of a single task or at the level of the person's entire job. The nature of the job and the purposes of the assessment information determine the nature of the criteria that are used, as well as the level of specificity.

The nature of some jobs requires that quality be the major focus, whereas for others quantity may take priority. In athletics, sometimes one or the other serves as the criterion for winning a competition. In gymnastics, quality is the criterion used. Judges score each gymnast's performance along a quality dimension, and the person with the highest score wins. In track and field events, the criterion is concerned with quantity, such as jumping highest or farthest or running fastest. The quality of jumping form or running style is not relevant, and so there are no judges to rate performance in these events. With jobs, there can be an emphasis on quality or quantity, often depending on the nature of the tasks involved. For a sales job, the emphasis is usually on the quantity of sales, whereas for a teacher it is on the quality of instruction.

There are many other possible criteria beyond work quality and quantity. Table 4-2 contains a performance appraisal form that has eight rather general criteria that are relevant to many jobs. For example, maintaining a professional appearance on the job is relevant when public image is important. Many organizations expect employees who meet the public to display a certain image. This might involve a dress code that specifies the sort of clothing that is appropriate for work, such as a business suit. Factories can have dress codes that are concerned not with public image but with safety. Ties are often forbidden because they could get caught in machinery, resulting in a serious accident and injury.

There are two ways to deal with the complex nature of criteria. The *composite criterion approach* involves combining individual criteria into a single score. If employees receive a number to represent performance on each of four dimensions, a composite would be

TABLE 4-2

Example of a Performance Appraisal Form With Eight Criterion Dimensions

	Rating categories				
Dimension	Poor	Fair	Adequate	Good	Outstanding
Attendance	____	____	____	____	____
Communicating with others	____	____	____	____	____
Following directions	____	____	____	____	____
Instructing others	____	____	____	____	____
Motivating others	____	____	____	____	____
Professional appearance	____	____	____	____	____
Work quality	____	____	____	____	____
Work quantity	____	____	____	____	____

the average of the four dimension scores for each employee. If a person received the following performance scores on a 1-to-5 scale:

Attendance = 5
Professional appearance = 4
Work quality = 4
Work quantity = 5

his or her composite performance score would be the average of the dimension scores, or 4.5, computed as (5 + 4 + 4 + 5)/4. A grade point average would be a composite score for school performance. The *multidimensional approach* does not combine the individual criterion measures. In the previous example, there would be four scores per employee.

The composite approach is preferred for comparing the performance of individual employees. It is easier to compare employees when each has a single performance score. The multidimensional approach is preferred when feedback is given to employees. It gives specific information about the various dimensions of performance rather than general feedback about overall performance.

Dynamic Criteria

Criteria are usually considered as constant or static standards by which employee performance can be judged. Some I-O psychologists believe, however, that job performance itself is variable over time. This means that the best performer on the job at one point in time will not be best at another point in time. Performance variability makes assessment difficult because performance will not be the same throughout the time period for which it is measured. If someone performs well for part of the year and not well for the other part, how should his or her performance be assessed?

Variability of performance over time is referred to as the **dynamic criterion**, although it is the performance and not the standard that changes. The dynamic criterion idea has generated some controversy among I-O psychologists, with some believing performance is stable and others suggesting it is not (Schmitt & Chan, 1998). On the one hand, Deadrick and Madigan (1990) provided data for sewing machine operators in a clothing factory that indicated performance was stable over short periods of time (weeks) but was not very consistent over long periods of time (months). On the other hand, Vinchur, Schippmann, Smalley, and Rothe (1991) found that the job performance of manufacturing employees was reasonably stable over a 5-year time span. Deadrick, Bennett, and Russell (1997) pointed out that employee performance tends to improve over time, at least early in an employee's tenure, and that factors that determine the performance of new employees are not necessarily the same as those that determine later performance improvement. Thus, looking at people's performance over time will show that it is variable and that the best performers at one point in time do not necessarily remain the best performers in the long run.

Contextual Performance

Criteria for most jobs concern tasks that are specifically required and would be listed in a job analysis of that job. However, it has been recognized that employees do a great deal more for organizations than what is required, and these extra behaviors are essential for organizations to function smoothly. **Contextual performance** consists of extra voluntary things employees do to benefit their coworkers and organizations, such as volunteering to carry out extra tasks or helping coworkers (Borman et al., 2001). Although not specifically required, contextual performance is noticed and appreciated by managers, and their ratings of subordinate performance will be affected by it (Johnson, 2001). This all suggests that contextual performance should be considered in developing criteria for jobs. We will return to the issue of contextual performance in Chapter 10 when we discuss organizational citizenship behavior.

Methods for Assessing Job Performance

The job performance of individuals can be assessed in many ways. The most common procedures can be divided into two categories—objective performance measures and subjective judgments. *Objective measures* are counts of various behaviors (e.g., number of days absent from work) or of the results of job behaviors (e.g., total monthly sales). *Subjective measures* are ratings by people who should be knowledgeable about the person's job performance. Usually supervisors provide job performance ratings of their subordinates. Both types of measures can be useful, but studies have shown that when both are used for the same employees, they don't always agree on the level of performance (Sundvik & Lindeman, 1998), suggesting they likely reflect different aspects of job performance. Both objective and subjective measures will be presented in the following discussion.

Objective Measures of Job Performance

Organizations keep track of many employee behaviors and results of behaviors. Human resource departments record the number of absences, accidents, incidents, and latenesses for each employee. Some organizations keep track of the productivity of each employee, as well. Productivity data must be collected if an organization has an **incentive system** that pays employees for what they produce, such as a commission or piece rate.

Five common objective measures of job performance are listed in Table 4-3. Each is an objective count of the number of behaviors or amount of work produced. Such data are usually found in organization records, but they can be collected specifically to assess performance. Two of the measures are concerned with attendance—number of times absent and number of times late for work. Accidents include moving vehicle (automobile) and others, such as being injured by a machine in a factory. Incidents are the number of times the individual is involved in a work incident that is considered important for the particular job. For example, in a psychiatric inpatient facility incident reports record the number of times a staff person is assaulted by a patient. For a police officer, shooting incident reports become part of the employee's record. Productivity is the amount of work produced by an individual.

The attendance measures are applicable to the majority of jobs because most have scheduled work hours. For jobs that are unstructured in terms of work schedule (e.g., college professor), attendance is not a criterion for job performance except perhaps missing or being late for class. The other three objective measures are specific to a particular job. For example, the type of incidents recorded is a function of the nature of the job and job environment. Records of incidents of assaults by students might be kept for urban public school teachers, but they are not likely to be kept for college professors. Teachers are assaulted relatively frequently in large American cities, but college professors are rarely the targets of violence. The productivity measure chosen must match the nature of the work done. Specific productivity measures for some common jobs are listed in Table 4-4.

TABLE 4-3

Examples of Objective Measures of Job Performance

Performance	Measure
Absences	Days absent per year
Accidents	Number of accidents per year
Incidents at work (e.g., assaults)	Number of incidents per year
Latenesses	Days late per year
Productivity (e.g., sales)	Dollar amount of sales

TABLE 4-4

Examples of Objective Productivity Measures for Several Jobs

Job	Measure
Assembly-line worker	Number of units produced
College professor	Number of publications
Lawyer	Number of cases won
Salesperson	Amount of sales
Surgeon	Number of operations performed

As you can see, the nature of productivity can be very different from job to job. This makes it difficult to compare the performances of people who hold different jobs.

Using objective measures to assess job performance has several advantages.

- It can be easy to interpret the meaning of objective measures in relation to job performance criteria. For example, it is obvious that no absences in the past year is a good indicator of satisfactory attendance and that four work-related traffic accidents in the prior 6 months are an indicator of unsatisfactory driving performance.
- The quantitative nature of objective measures makes it easy to compare the job performance of different individuals in the same job. For attendance measures, comparisons can be made of individuals across different jobs as long as they all require that the person work on a particular schedule.
- Objective measures can be tied directly to organizational objectives, such as making a product or providing a service.
- Objective measures can often be found in organizational records, so that special performance appraisal systems do not have to be initiated. These data often are collected and stored for reasons other than employee performance appraisal, making performance appraisal a relatively easy task to accomplish.

Unfortunately, objective performance measures also have several limitations that must be kept in mind when using them.

- Many of the objective measures are not appropriate for all jobs. When jobs do not involve countable output, productivity is not a feasible measure of performance.
- It is not always obvious what number is considered satisfactory performance. For example, how many absences per year should be considered good performance?
- Data taken from records can be contaminated and inaccurate. Sometimes behaviors and productivity are attributed to the wrong person or are never recorded. People can also distort records by omitting bad incidents for individuals who are being favored, and employees might fail to report accidents and injuries.
- Objective measures are often deficient as indicators of job performance criteria. They tend to focus on specific behaviors, which may be only part of the criterion, and they may ignore equally important parts (Borman, Bryant, & Dorio, 2010). Measures of productivity focus on work quantity rather than quality. Although quantity might be more important in some jobs, it is difficult to imagine a job in which quality is not also important.
- What is reflected in an objective measure is not necessarily under the control of the individual being assessed (Borman et al., 2010). Differences in the productivity of factory workers can be caused by differences in the machinery they use, and differences in the sales performance of salespeople can be caused by differences in sales territories. A person who is assaulted at work may have done nothing wrong and may have been unable to avoid the incident. A police officer who uses his or her weapon might have been forced into it by circumstances rather than poor job performance.

Subjective Measures of Job Performance

Subjective measures are the most frequently used means of assessing the job performance of employees. Most organizations require that supervisors complete performance appraisal rating forms on each of their subordinates annually. There are many types of rating forms that different organizations use to assess the performance of their employees. In this section, we discuss several different types.

Graphic Rating Forms. The most popular type of subjective measure is the **graphic rating form**, which is used to assess individuals on several dimensions of performance. The graphic rating form focuses on characteristics or traits of the person or the person's performance. For example, most forms ask for ratings of work quality and quantity. Many include personal traits such as appearance, attitude, dependability, and motivation.

A graphic rating form, illustrated in Table 4-2, consists of a multipoint scale and several dimensions. The scale represents a continuum of performance from low to high and usually contains from four to seven values. The scale in the table contains five scale points, ranging from "poor" to "outstanding," with "adequate" in the middle. The form also contains several dimensions of job performance along which the employee is to be rated. This form includes attendance and work quality. To use the form, a supervisor checks off his or her rating for each of the dimensions.

Behavior-Focused Rating Forms. The graphic rating forms just discussed focus on dimensions that are trait-oriented, such as dependability, or on general aspects of performance, such as attendance. The behavior-focused forms concentrate on behaviors that the person has done or could be expected to do. Behaviors are chosen to represent different levels of performance. For attendance, an example of a good behavior would be "can be counted on to be at work every day on time," whereas a poor behavior would be "comes to work late several times per week." The rater's job is to indicate which behaviors are characteristic of the person being rated. The way in which the form is scored is dependent on the particular type of form.

There are several different types of behavior-focused rating forms. We will discuss three of them:

Behaviorally Anchored Rating Scale (Smith & Kendall, 1963)
Mixed Standard Scale (Blanz & Ghiselli, 1972)
Behavior Observation Scale (Latham & Wexley, 1977)

All three of these scales provide descriptions of behavior or performance rather than traits, but they differ in the way they present the descriptions and/or the responses required by the rater.

The **Behaviorally Anchored Rating Scale (BARS)** is a rating scale in which the response choices are defined in behavioral terms. An example for the job of a restaurant host or hostess is shown in Figure 4–2. This scale is designed to assess performance on the dimension of Customer Service. The rater chooses the behavior that comes closest to describing the performance of the person in question. The behaviors are ordered from bottom to top on the scale along the continuum of performance effectiveness.

A BARS performance evaluation form contains several individual scales, each designed to assess an important dimension of job performance. A BARS can be used to assess the same dimensions as a graphic rating form. The major difference is that the BARS uses response choices that represent behaviors, while the graphic rating form asks for a rating of how well the person performs along the dimension in question. Thus, both types of rating forms can be used to assess the same dimensions of performance for the same jobs.

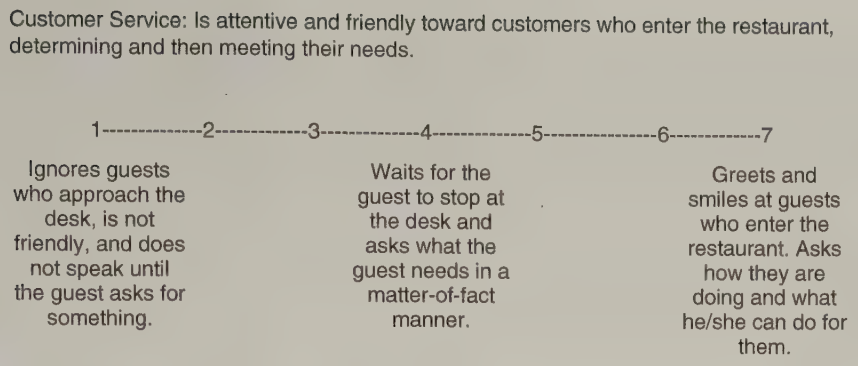


FIGURE 4-2 An example of a BARS for a restaurant host/hostess.

The **Mixed Standard Scale (MSS)** provides the rater with a list of behaviors that vary in their effectiveness. For each statement, the rater is asked to indicate if

1. The ratee is better than the statement
2. The statement fits the ratee
3. The ratee is worse than the statement

There are several dimensions of performance in an MSS, and each dimension has several behaviors associated with it. An example of three statements that reflect performance for the dimension of Relations with Other People is shown in Table 4-5. The three statements represent good, satisfactory, and poor job performance along the dimension.

In an MSS, the statements for the various dimensions are presented in a random order. The rater is not told the specific dimensions associated with each behavior, although the nature of the behaviors is certainly clear. The original idea of Blanz and Ghiselli (1972) was that the mixed order of presentation of the statements would make it more difficult for the raters to bias their ratings than is true of the other types of rating forms. When Dickinson and Glebocki (1990) compared responses to both the mixed and the sorted (by dimension) orders, they found that subjects responded similarly in their ratings with both orders. Thus, it does not seem to matter if the dimensions are identified or if the statements are mixed up.

TABLE 4-5

Three Items for an MSS to Assess the Dimension of Relations With Other People

Good performance
Is on good terms with everyone. Can get along with people even when he or she doesn't agree with them.

Satisfactory performance
Gets along with most people. Only very occasionally does he or she have conflicts with others on the job, and these are likely to be minor.

Poor performance
Has the tendency to get into unnecessary conflicts with other people.

Note: Each item is rated on the following scale:
For each item on the scale, indicate if the employee is
Better than the item
As good as the item
Worse than the item

Source: Adapted from "The Mixed Standard Scale: A New Rating System," by F. Blanz and E. E. Ghiselli (1972), *Personnel Psychology, 25*, 185–199.

The **Behavior Observation Scale (BOS)** contains items that are based on critical incidents, making it somewhat like an MSS. A **critical incident** (Flanagan, 1954) is an event reflecting either effective or ineffective behavior by an employee. An example of a poor incident for a teacher would be "slapping a child who made a disrespectful comment." With the BOS, raters are asked to indicate for each item the amount of time the employee engaged in that behavior. The developers of the scale recommend having raters indicate the percentage of time the employee does each behavior by using the following percentage options:

0% to 64%
65% to 74%
75% to 84%
85% to 94%
95% to 100%

This scale is different from the MSS in that the raters indicate frequency rather than comparing employee behavior with the item. In theory, it should indicate how often employees engage in performance-relevant behavior.

The use of the frequency ratings has been criticized by Kane and Bernardin (1982). They point out that frequency of a behavior is not a good indicator of performance because a given frequency might reflect good performance for one behavior and poor performance for another. They give as examples two behaviors for police officers. An 85% to 94% frequency of occurrence would be outstanding for obtaining arrest warrants but abysmal for being vindicated in the use of lethal force. Thus, considerable judgment can be required in interpreting the meaning of frequency ratings with the BOS. Of course, judgment is required in interpreting many measures of job performance.

Development of Behavior-Focused Rating Forms. Development of behavior-focused forms takes considerable effort from several people in an organization. Because such a form focuses on specific behaviors, it must be developed for a specific job or family of jobs. The process involves four steps and can take a long time to complete. Each of the four steps is listed in Table 4-6.

Step 1. Conduct a job analysis that identifies the specific dimensions of performance, such as making arrests and writing reports for a police officer.
Step 2. Write the descriptions of behaviors that vary in their effectiveness or ineffectiveness on the job. This can be done by collecting critical incidents from people who are knowledgeable about the job in question, such as employees who do the job or their supervisors. Critical incidents can provide examples that vary from extremely effective to extremely ineffective performance.
Step 3. Have judges (knowledgeable people) sort the descriptions of behavior into dimensions to verify that the descriptions reflect the intended dimensions.
Step 4. Have judges rate the descriptions of behavior along a continuum of effectiveness. With a BARS, these ratings allow for the placement of the descriptions along the scale for each dimension, as in Figure 4-2. With an MSS, the ratings are used to place statements into the three categories of good, satisfactory, and poor.

TABLE 4-6

Four Steps in Developing a Behavior-Focused Rating Form to Assess Job Performance

Step 1: Perform job analysis to define the job dimensions.
Step 2: Develop descriptions of effective and ineffective job performance from critical incidents.
Step 3: Have knowledgeable judges place the descriptions into job dimensions.
Step 4: Have knowledgeable judges rate the effectiveness of the descriptions.

Cognitive Processes Underlying Ratings. The development of sound performance appraisal methods requires that we understand the cognitive processes that affect rating behavior. I-O psychologists have studied these processes and have devised several models to explain ratings. Some of these models focus on how people utilize information to make judgments. Others are concerned with how people's views of job performance influence their evaluation of an employee.

Models of the Rating Process. There have been several competing models of the cognitive processes that influence ratings of performance (e.g., DeNisi, Cafferty, & Meglino, 1984; Feldman, 1981). These models suggest that the rating process involves several steps (see Ilgen, Barnes-Farrell, & McKellin, 1993), including

Step 1. Observing performance
Step 2. Storing information about performance
Step 3. Retrieving information about performance from memory
Step 4. Translating retrieved information into ratings

The process begins with observation of the employee by the supervisor. To do a good job rating performance, a supervisor has to have the opportunity to observe it. Next, observations of performance are stored in the supervisor's memory. This suggests that the supervisor pays attention to how well subordinates do their job so they have relevant incidents in memory. Thus, when asked to rate performance, the supervisor can retrieve information about the employee from his or her memory. The recalled information is then used in some manner to decide what performance rating to give for each dimension of job performance.

The various models describe how humans process information at each step. One idea is that people use **schemata** (categories or frames of reference) to help interpret and organize their experiences (Borman, 1987). Perhaps the best-known type of schema is the *stereotype*—a belief about characteristics of the members of a group. The characteristics can be favorable or unfavorable. For example, one stereotype might be that private-sector managers are hardworking.

Another type of schema is a *prototype*, which is a model of some characteristic or type of person. One might think of a particular fictional or real person as the prototype of a good manager. Some people might consider Bill Gates, the founder of Microsoft, to be a prototype of a good corporate manager. A person who has the salient characteristics of the prototype might be thought of as a good manager. If the salient characteristics of the prototype are blond hair (or looking like Gates), managers who are blond (or look like Gates) might be seen as better in performance than their counterparts who have brown hair (or do not resemble Gates). The prototype is the standard used to assign people to the good manager category.

Schemata might influence all four steps in the evaluation process. They might affect what behaviors a supervisor chooses to observe, how the behaviors are organized and stored in memory, how they are retrieved, and how they are used to decide on ratings. The use of schemata, however, does not necessarily imply that they lead to inaccurate ratings. In many ways, the use of schemata can simplify experience so that it can be more easily interpreted. It is possible that this leads to accurate judgments about employee performance (Lord & Maher, 1989).

In theory, it should be possible to make use of these cognitive models to help raters do a more accurate job of evaluating job performance. Jelley and Goffin (2001) attempted this with an experiment in which college students were asked to rate the performance of a videotaped college instructor using a BOS. Although results were somewhat inconsistent, the authors were able to find some accuracy increases after priming the raters' memory. This was done by having them do some preliminary global ratings designed to stimulate recall of the performance observed. This approach shows some promise in helping improve ratings, but more research will be needed to determine whether these models will ultimately prove useful.

Content of Subordinate Effectiveness. If schemata affect job performance ratings, it is important that we understand the schemata of people who appraise performance. In other words, appraisal techniques might be improved if they were designed to effectively utilize the schemata of supervisors. If the dimensions on an appraisal form match the dimensions in supervisors' schemata about performance, it will be easier for supervisors to do their ratings. There has been some research that is relevant to this issue.

Borman (1987) studied the content of U.S. Army officers' schemata of subordinate job performance. When asked to describe the differences in characteristics between effective and ineffective soldiers, these officers generated 189 descriptive items. Borman then used complex statistical analysis to reduce the 189 items to six meaningful dimensions. Effective soldiers were seen as having the following characteristics:

Working hard
Being responsible
Being organized
Knowing the technical parts of the job
Being in control of subordinates
Displaying concern for subordinates

Borman concluded that these dimensions represent the characteristics that officers use to judge soldiers' performance. He also noted that in his sample of experienced officers, there was good agreement about what constituted good job performance. These results suggest that experienced supervisors might have schemata that accurately represent effective performance. These six dimensions could be used as the basis for any of the rating forms we discussed earlier.

Werner (1994) conducted a study in which he asked experienced supervisors to rate the performance of secretaries as described in a series of incidents. One of the variables of interest in this study was the sort of information that the supervisors used in making their ratings. Werner found that the following dimensions were seen as most important:

Attendance
Work accuracy
Job knowledge
Work quantity

Werner suggested that these four dimensions might represent the characteristics that define the schemata of his supervisors. He also suggested that supervisors should let subordinates know the content of their schemata. Subordinates are likely to attempt to perform well in those areas that the supervisor believes are important for good performance.

Rater Bias and Error. It is the nature of human judgment to be imperfect. When supervisors or other people make performance ratings, they are likely to exhibit rating biases and rating errors. These biases and errors can be seen in the pattern of ratings, both within the rating forms for individuals and across rating forms for different people. These within-form and across-form patterns are called halo and distributional errors, respectively.

Halo Errors. **Halo error** occurs when a rater gives an individual the same rating across all rating dimensions, despite differences in performance across dimensions. In other words, if the person is rated as being outstanding in one area, he or she is rated outstanding in all areas, even though he or she may be only average or even poor in some areas. For example, a police officer might be outstanding in completing many arrests (high quantity) but might do a poor job in paperwork. A supervisor might rate this officer high on all dimensions, even though it is not uniformly deserved. Similarly, if a person is rated as poor in one area, the ratings are poor for all areas, even though he or she may be satisfactory on some performance dimensions. This rating error occurs within the rating forms of individuals as opposed to occurring across the forms of different individuals.

Table 4-7 shows a pattern of responses that reflects a halo error. The table shows the ratings of four individuals across five dimensions of performance. Ratings ranged from

TABLE 4-7

Job Performance Ratings for Four Employees on Five Dimensions Illustrating a Halo Error Pattern

Dimension	Employee 1	Employee 2	Employee 3	Employee 4
Attendance	5	3	1	4
Communication	5	3	1	4
Following directions	5	3	1	4
Work quality	5	3	1	4
Work quantity	5	3	1	4

1 (poorest performance) to 5 (best performance). This is a halo pattern because the ratings for each individual employee are the same across the different dimensions, even though each person received different ratings. Such a pattern suggests that raters are unable to distinguish among dimensions. The person is seen as uniform in performance across dimensions.

Although a pattern of similar ratings might indicate a rating error, it is possible that employee performance is consistent across dimensions. This means that halo patterns might accurately indicate that dimensions of actual performance are related. This possibility has led to considerable discussion in the I-O literature about the meaning of halo (e.g., Solomonson & Lance, 1997; Viswesvaran, Schmidt, & Ones, 2005). Part of this discussion concerns how to separate the error from "true" halo. **True halo** means that an employee really performs at the same level on all dimensions.

Another concern with halo has been explaining cognitive processes that would lead a rater to exhibit halo error. Several researchers have theorized that raters rely on a general impression of the employee when making dimension ratings (Lance, LaPointe, & Fisicaro, 1994; Nathan & Lord, 1983). According to this view, salient pieces of information are used to form a general impression of an employee. The impression forms the basis of performance ratings. This suggests that raters may be better able to provide information about global performance than dimensions of performance.

Distributional Errors. *Distributional errors* occur when a rater tends to rate everyone the same. **Leniency errors** occur when the rater rates everyone at the favorable end of the performance scale. **Severity errors** occur when the rater rates everyone at the unfavorable end of the performance scale. **Central tendency** errors occur when a rater rates everyone in the middle of the performance scale. These patterns can be seen across ratings of different people. Table 4-8 shows a leniency pattern in that all four people were given ratings at the favorable end of the performance scale. Each person received ratings of 4 and 5 on a five-point scale. It is possible, however, that a distributional error pattern does

TABLE 4-8

Job Performance Ratings for Four Employees on Five Dimensions Illustrating a Leniency Error Pattern

Dimension	Employee 1	Employee 2	Employee 3	Employee 4
Attendance	4	5	5	5
Communication	4	5	5	5
Following directions	5	4	4	4
Work quality	4	5	4	5
Work quantity	5	4	5	5

not always reflect errors. All employees rated in a particular department might have performed the same, leading to similar ratings.

Control of Rater Bias and Error. Two approaches have been developed to control and eliminate rater bias and error. One approach is to design better performance appraisal forms that will be resistant to these problems. The other is to train raters to avoid rating errors. Although both approaches make sense, research studies have yielded conflicting results about their ability to reduce errors (Bernardin & Beatty, 1984).

Error-Resistant Forms to Assess Performance. The behavior-focused rating scales, such as the BARS and the MSS, were originally developed in part to eliminate rating errors. The idea is that raters will be able to make more accurate ratings if they focus on specific behaviors rather than traits. These behaviors are more concrete and require less idiosyncratic judgment about what they represent. For example, it should be easier to rate accurately how often a person is absent from work than the somewhat abstract trait of dependability.

Many studies have compared the various behavior-focused rating forms with graphic rating forms, as well as with one another. These comparisons have found that sometimes the behavior-focused forms yield fewer errors (such as halo and leniency) than the graphic rating scales and sometimes they do not (Bernardin & Beatty, 1984; Latham, Skarlicki, Irvine, & Siegel, 1993). Furthermore, scales that merely ask raters to check whether or not individuals have engaged in specific behaviors may result in less leniency than graphic rating scales (Yun, Donahue, Dudley, & McFarland, 2005). After reviewing the literature on rating forms, Borman et al. (2010) concluded that there is little advantage to using behavior-based scales over graphic rating scales. It seems that efforts to improve rater accuracy should focus on things other than the design of the rating forms.

Rater Training to Reduce Errors. Rater training is widely used in organizations to improve the quality of performance appraisal. Speer, Prewett, and Siver (2020) surveyed more than 200 U.S. managers about their companies' training practices. The vast majority (90%) noted that their company provides some form of rater training, with half of that training being conducted online. With all this training, it is important to know if it is effective in reducing rating errors, but unfortunately studies of training have had mixed results (Hedge & Kavanagh, 1988; Latham, 1986). At least some of the discrepancy in research findings may be the result of differences in the types of training that have been studied. Perhaps the most popular training is **rater error training** or **RET**. The objective of RET is to familiarize raters with rater errors and to teach them to avoid these rating patterns. Although most studies have found that this sort of training reduces rating errors, it is often at the cost of rating accuracy (e.g., Bernardin & Pence, 1980; Hedge & Kavanagh, 1988). In other words, the raters might reduce the number of halo and leniency patterns in their ratings by forcing ratings to vary, whether or not they accurately reflect how well the person has done, but those ratings are less accurate in reflecting the true level of performance.

How could it be possible that the reduction of errors also results in a reduction in accuracy? One possible explanation lies in the nature of the rating errors. As noted earlier in this discussion, rater errors are inferred from the pattern of ratings. It is possible that the performance of individuals is similar across different performance dimensions (true halo) or that all individuals in a supervisor's department perform their jobs equally well. Training raters to avoid the same ratings across either dimensions or people will result in their concentrating on avoiding certain patterns rather than on accurately assessing job performance. Bernardin and Pence (1980) suggested that RET might be substituting one series of rating errors for another.

Nathan and Tippins (1990) offered a different explanation of why halo errors are associated with greater accuracy in job performance ratings. They speculated that raters who

exhibited less halo in their ratings might have given too much weight to inconsequential negative events. For example, a supervisor might have given an otherwise reliable employee a low rating in attendance because he or she was sick for one week in the prior year. Raters who exhibited a halo pattern in their ratings paid less attention to such rare instances and tended to consider the person's usual performance. This may have resulted in ratings that were more accurate because they were influenced more by general performance than by rare instances of good or poor performance in one or more dimensions.

Results have been more promising with types of training other than RET. Those training procedures teach raters how to observe performance-relevant behavior and how to make judgments based on those observations. Hedge and Kavanagh (1988), for example, found that this observation training increased rating accuracy but did not reduce rating errors (see the Research in Detail box). Perhaps the most promising is **frame of reference training** (Day & Sulsky, 1995), which attempts to provide a common understanding of the rating task. Raters are given specific examples of behavior that would represent various levels of performance for each dimension to be rated. Results with this kind of training have thus far proven to be promising in increasing rating accuracy and providing the rater with a more accurate understanding of the criteria for good performance (Gorman & Rentsch, 2009). One limitation to this line of research is that it has mostly been conducted in laboratory settings with college students, so it is not clear how well the results would generalize to managers rating their employees in the field.

Research in Detail

Several studies have found that training raters to avoid rating errors can reduce their accuracy in evaluating job performance. Hedge and Kavanagh (1988) wanted to see if other types of training would be more effective in increasing the accuracy of performance ratings.

Fifty-two supervisors were randomly assigned to one of four treatment groups. The first group received rater-error training designed to familiarize the rater with rating errors and ways to avoid them. The second group received training in ways to observe behavior relevant to job performance. The third group received training in ways to make proper judgments about performance based on observed behavior. The last group was a control group that received no training.

Both before and after training, all groups watched a videotape of a person performing a job. They then rated the person's performance on several performance dimensions. The videotaped performance was assessed by a panel of experts who provided a standard for comparison of the appraisals by members of each group in the study. Accuracy of performance rating was assessed as the discrepancy between the raters' appraisal of the videotape and the expert panel's judgment of the videotape.

The results showed that those who received rater-error training had decreased rating errors and accuracy. This finding was consistent with prior research on this sort of training. The other two types of training were successful in increasing accuracy but at the cost of increased rating errors. The authors concluded that these two types of training showed promise for increasing rating accuracy. They also concluded that the rating patterns often thought to reflect rating errors may not represent mistakes. Rather, these patterns may accurately indicate the level of performance of individuals on the job. For example, individuals might perform at the same level for different dimensions. The implications of this study are that different types of rater training might help organizations get more accurate performance appraisals.

Source: Adapted from "Improving the Accuracy of Performance Evaluations: Comparisons of Three Methods of Performance Appraiser Training," by J. W. Hedge and M. Kavanagh (1988), *Journal of Applied Psychology, 73,* 68–73.

Other Factors That Influence Job Performance Ratings. So far we have discussed how the ratings of supervisors can be affected by their cognitive processes and by the design of the rating form (and training in how to use it). Other factors can also affect the ratings given by supervisors, including supervisor feelings about the subordinate, supervisor mood, supervisor perceptions about subordinate motives for performance, cultural factors, and the race of both the rater and the ratee.

The idea that supervisors give better ratings to subordinates they like is supported by research (e.g., Ferris, Judge, Rowland, & Fitzgibbons, 1994). This has concerned some people that ratings might be biased and reflect favoritism; however, there is some evidence that liking a subordinate can be the result of good job performance, as supervisors like those who work well for them (Robbins & DeNisi, 1994). It is particularly important for a new employee to be seen as a good performer because that perception will likely lead to being liked by supervisors, which can result in receiving extra support that leads to even better performance in the future (Lefkowitz, 2000).

The continuation of good performance ratings can be influenced by supervisor expectations about performance independent of liking. Murphy, Gannett, Herr, and Chen (1986) found that judgments of performance were influenced by the rater's expectations about the ratee's performance. People are likely to forget instances of behavior that do not fit their view of the person they are evaluating. Thus, a person who is liked and performs well will continue to be seen as a good performer, even if performance has recently slipped. This can produce biased ratings when performance changes over time.

The mood of the rater at the time of appraisal can affect ratings. In a laboratory study, Sinclair (1988) assigned participants to a condition in which their mood was experimentally manipulated to be more depressed or elated. They were then asked to read a description of a professor's behavior and rate that professor's performance. Results showed that participants in a depressed mood rated the professor's performance lower than subjects in the elated mood condition. The depressed participants were also more accurate and exhibited less halo. Sinclair explained the results as reflecting the better information-processing ability of people when they are in depressed moods.

Managers' views of subordinate motivation can be a factor in their ratings of job performance, but interestingly such views can be subject to cultural factors. DeVoe and Iyengar (2004) assessed manager perceptions of their employees as being intrinsically motivated (wanting to do a good job for its own sake) and extrinsically motivated (working hard for rewards) and then linked those perceptions to ratings of job performance. American and Latin managers considered intrinsic motivation to be more important for performance than extrinsic motivation, whereas Asian managers considered both types of motivation to be equally important.

It has been well established that Black employees on average receive lower performance appraisal ratings than White employees (McKay & McDaniel, 2006). Interestingly the race of the rater seems to have no effect on ratings for Whites, but it does on ratings for Blacks. As shown by Stauffer and Buckley (2005), Black and White raters give similar ratings to Whites and rated Blacks lower on average than Whites. However, that difference between the ratings is much larger for White than for Black raters. If it is presumed that Black raters would have less bias than White raters against Black employees, these findings suggest the possibility that White raters are biased against Black employees. Of course, alterative explanations are that Black raters are biased in favor of Blacks and overrate them and that both Black and White raters are biased in favor of Whites and overrate them relative to Blacks. At this time we don't know the extent to which bias is operating in these ratings either for or against Black and White employees.

360-Degree Feedback

In most organizations, the direct supervisor of each employee is responsible for assessing job performance. However, it can be helpful to get multiple perspectives (Furnham & Stringfield, 1994), and their use is becoming standard practice in the evaluation of

managers and others (Rowson, 1998). Ratings by peers, self, and subordinates (for supervisors) can be a useful complement to supervisor ratings and can be helpful in providing feedback for employee development (Maurer, Mitchell, & Barbeite, 2002). In particular, discrepancies between the ratings by self (the employee's own ratings of performance) and others can show those areas in which other people see the employee differently than the employee sees himself or herself.

The use of multiple perspectives for manager feedback has been called **360-degree feedback** (Baldwin & Padgett, 1993). A manager is evaluated by peers, subordinates, and supervisors on several dimensions of performance. In addition, the manager completes a rating of his or her own performance. Ratings can be made with graphic rating forms or with the behavior-based rating forms that we discussed earlier in this chapter. At least one study showed that there can be an advantage in using behavior-based forms in that they can produce more reliable ratings (Hoffman et al., 2012).

Research has shown that people in the different positions in a 360-degree evaluation show only modest agreement in their ratings (Brett & Atwater, 2001; Carless, Mann, & Wearing, 1998; Fletcher & Baldry, 2000), suggesting that they provide different perspectives on a person's performance. Another advantage of using multiple raters is that the effects of the biases of individuals can be reduced. For example, it has been shown that people give higher ratings in 360-degree evaluations to those they like (Antonioni & Park, 2001). For example, the effects of favoritism on the part of the immediate supervisor are diminished when additional information from other raters is added to the appraisal. This can lead to increased trust in and better attitudes about the appraisal system on the part of those being evaluated (Mayer & Davis, 1999).

The purpose of 360-degree systems is to enhance performance, especially for those individuals who are the most in need of performance improvement. These systems have been shown to have positive effects for some individuals but not all. Contrary to these systems' intended purpose, it is the best and not the worst performers who seem to benefit most from 360-degree feedback (Bailey & Austin, 2006). Furthermore, Atwater and Brett (2005) found that those individuals who received low ratings from others and rated themselves low as well had the worst reactions to feedback, suggesting that if one knows his or her performance is poor, having those beliefs corroborated by others was not helpful.

The Impact of Technology on Performance Appraisal

Advances in technology, particularly the Web, have greatly expanded what is practical in performance appraisal. For large companies, the amount of data that is involved in monitoring performance can be staggering. For example, one of the difficulties with 360-degree feedback is the logistics of organizing this large rating task. Each target manager must nominate several subordinates and several peers to provide ratings, do a self-rating, and get his or her supervisor's rating. In some organizations, this might represent 8 or more ratings completed per manager, and if there are 10,000 managers, there are 80,000 ratings to track and process. This is an expensive and difficult task. There are two places in which we see technology involved in performance appraisal—monitoring of objective productivity and implementation of performance management systems. Many employees today work on computer systems, such as reservation specialists for airlines and technical support representatives for computer companies. The systems that allow them to complete their job tasks are also capable of tracking productivity, and such data are routinely collected in many organizations. The use of computers allows for the easy analysis of performance across millions of employee-customer transactions, and it can be a built-in feature of the task software employees use to do their jobs each day.

Computerized, Web-based employee performance management systems help managers clarify goals and expectations, provide coaching and feedback, and evaluate performance (see the I-O Psychology in Practice case study in this chapter). Such systems

automate the entire process, making 360-degree feedback systems economically feasible for large companies. Each target manager can log onto the system and nominate the peers, subordinates, and others who will provide ratings. The system notifies individuals to do those ratings and then pulls together all of the rating information into a report. Consulting firms can be found that specialize in providing the computer services to conduct a 360-degree feedback project.

Legal Issues in Performance Appraisal

Many countries have laws that prohibit discrimination against minorities and women (as well as other groups) in the workplace. These laws cover organizational actions that affect the employment status of people, such as promotions and terminations. Such employee actions are often based at least in part on the person's performance; therefore, the performance appraisal system of an organization can become the target for legal action. In many countries, it is illegal to discriminate in performance appraisal on the basis of certain non-performance-related factors, such as age, gender, mental or physical disability, or race.

In the United States, there have been an increasing number of court challenges to performance-based employee actions, such as promotions and terminations (Latham et al., 1993). Organizations that have lost such cases have been unable to demonstrate to the court's satisfaction that their performance appraisal systems did not unfairly discriminate against certain groups. Subjective methods are especially likely to evoke legal challenges because they allow room for supervisors to express prejudices against certain groups of people. It can be difficult for a supervisor to prove in court that his or her ratings were fair and unbiased when, for example, Blacks get lower performance ratings than Whites (McKay & McDaniel, 2006), as noted earlier.

Barrett and Kernan (1987) suggested six components that should be part of a legally defensible performance appraisal system (see Table 4-9).

1. The system should begin with a job analysis to derive the dimensions of performance for the particular job. The job analysis will ensure that the dimensions chosen are job relevant.
2. Develop an appropriate job performance rating form that is based on the dimensions identified in the job analysis.
3. Raters should receive training in how the rating form is to be used to assess performance.
4. To help minimize personal bias, upper management should review performance appraisals.
5. Performance and the reasons for the employee action should be documented and recorded. It is easier to take action against an employee when the performance,

TABLE 4-9

Six Points of a Legally Defensible Performance Appraisal System

1. Perform job analysis to define the dimensions of performance.
2. Develop a rating form to assess the dimensions from step 1.
3. Train raters in how to assess performance.
4. Have higher management review ratings, and allow employees to appeal their evaluations.
5. Document performance, and maintain detailed records.
6. Provide assistance and counseling to poor-performing employees prior to actions against them.

Source: Adapted from "Performance Appraisal and Terminations: A Review of Court Decisions Since Brito v. Zia With Implications for Personnel Practices," by G. V. Barrett and M. G. Kernan (1987), *Personnel Psychology, 40*, 489–503.

good or poor, has been documented for a long period of time. This eliminates the appearance that the latest appraisal was given to justify a particular action affecting an employee.

6. Provide assistance and counseling to employees whose performance is unsatisfactory. This shows that the organization has done everything possible for an unsatisfactory employee before taking action against him or her.

Werner and Bolino (1997) analyzed the outcomes of 295 U.S. court cases in which performance appraisals were challenged as being discriminatory. Performance appraisal systems that were based on a job analysis, gave written instructions to raters, offered employees the opportunity to have input, and used multiple raters were far less likely to result in an organization losing the case. For example, while overall organizations lost 41% of cases, those that used multiple raters lost only 11% of cases. The use of these four practices combined should result in a relatively safe performance appraisal system from a legal perspective.

Allowing employees to have input into performance appraisals also has benefits beyond legal issues. Research has shown that giving employees the opportunity to sit down with supervisors and discuss appraisals openly can lead to better attitudes (Korsgaard & Roberson, 1995). In one study, this occurred even though employees who were allowed input actually had lower ratings than those who were not (Taylor et al., 1995). Perceptions of fairness in this study even reduced employee intentions of quitting the job. To be effective and perceived as fair, performance appraisal systems should include Barrett and Kernan's (1987) six steps, as well as input by employees.

Chapter Summary

Job performance data have many organizational uses, including administrative decision making, employee development and feedback, and research. The first step in evaluating job performance is to develop performance criteria that define good and poor performance. Once criteria are set, specific methods to measure them can be chosen.

Job performance measures can be classified as either objective or subjective. Objective measures are counts of the output of a job, such as the number of sales for a salesperson or the number of units produced for a factory worker. Subjective measures are ratings by supervisors (or other individuals who are familiar with the person's job performance). Subjective measures are the more commonly used of the two methods, but they suffer from biases and errors attributable to human judgment. Two different approaches have been taken to reduce rating errors in subjective measures: design of the rating form and rater training.

Several different types of rating forms have been devised to increase the accuracy of performance ratings. The Behaviorally Anchored Rating Scale (BARS) asks raters to indicate which of several behaviors comes closest to representing the job performance of the individual. The Mixed Standard Scale (MSS) asks raters to indicate if the individual's performance is worse than, as good as, or better than each of several items of performance behavior. The Behavior Observation Scale (BOS) asks raters to indicate how often ratees perform each of the listed behaviors. Research comparing the behavior-focused rating forms with other types of measures has failed to find consistent evidence for greater accuracy.

Rater training is another approach that has been attempted to reduce errors. Research has suggested that rater error training can reduce rating accuracy, even if it is successful in reducing rating errors. Observation training that focuses on observing performance-related behavior and making judgments of performance has shown promise in increasing accuracy. At the present time, however, it would be premature to conclude that either approach will prove useful in increasing supervisors' performance rating accuracy.

Several factors have been shown to relate to job performance ratings, although it is not entirely clear whether they result in rater bias or not. Whether the rater likes the subordinate, rater mood, perceived motives of the employee for performance, cultural factors, and both rater and ratee race all affect ratings.

Feedback from multiple sources can be helpful for employees wishing to improve their performance. Managers receive 360-degree feedback from a comparison of their self-ratings with those of peers, subordinates, and supervisors.

In the United States and many other countries, performance appraisal is a legal process as well as a technical one. Organizations are required by U.S. law to avoid unfair discrimination in their performance appraisal procedures. Failure to comply with such legal requirements can make an organization subject to lawsuits. Several specific practices, such as basing the system on a job analysis and providing rater training, reduce the chances that an organization will lose in court if challenged.

I-O Psychology in Practice

This case deals with development of a comprehensive performance appraisal and management system that Dr. Amy Carver and her team designed and implemented for Wachovia Bank. Dr. Carver received her Ph.D. in I-O psychology in 1992 from Rice University. At the time of this case, she was Senior Vice President for Organizational Effectiveness for Wachovia Bank. Before that, she had quite a varied and interesting career, having worked for a government agency (U.S. Navy Personnel Research and Development Center), a private company (United Airlines), and her own consulting firm. In her current role for Wachovia, Dr. Carver is involved in employee selection, performance management, executive coaching (see the case study for Chapter 7), organization design, and employee surveys, among other things.

One of the concerns Dr. Carver had when she got to Wachovia was that the organization did not have a common performance appraisal and management system. Each year supervisors filled out evaluations, but there were no consistent standards, and raises were not closely tied to performance. To remedy this, Dr. Carver and her team put together a comprehensive system that became part of the management/supervision system of the organization. This system tied together annual performance reviews with goal setting, employee development, and supervisor coaching.

The system runs on an annual cycle beginning in December. The evaluation portion, which involves both employee self-appraisals and supervisor ratings, is entirely Web-based. Each employee–supervisor pair logs onto the company computer system to complete evaluation forms. These forms are focused on the match between the employee's competencies, as displayed for the year, and the organization's competency model for that position. This model, which was derived from a job analysis, is a specification of the competencies and skills needed for doing the job. When both employee and supervisor are done, a report is automatically generated that highlights areas of disagreement, and this becomes the basis for a face-to-face discussion.

Around the first of the year, each supervisor meets with each subordinate to discuss his or her performance and to agree on goals for the upcoming year. These goals specify not only what is to be accomplished but also how it is to be done, thus providing a balanced emphasis on both work quality and quantity. The Web-based system sends e-mail reminders to each supervisor at quarterly intervals to conduct required coaching sessions with subordinates to provide feedback about competencies and goal progress up to that time of the year. Goals for the future of the system include linking raises each year to performance and making the salary system part of performance management. As you can see, the Wachovia system goes far beyond just completing the usual "report card" on every employee each year.

Discussion Questions

1. Do you think you would like working in a company with this sort of performance system? Why or why not?
2. Why would a company like Wachovia invest so much effort into performance evaluation?
3. Why are managers required to provide quarterly coaching sessions? Isn't once a year enough?
4. Do you think goal setting will increase employee motivation and performance (see Chapter 8's section on goal setting).

Learning by Doing

Determining Criteria for a Job

Criteria for a job can be determined by interviewing employees who hold it. Choose a person you know (acquaintance, family member, or friend) who is currently employed in a job you have never held yourself. Interview him or her about the criteria for performance, taking careful notes. You should ask about the following.

1. What are the major functions of this job?
2. For each function, what is it the employee is supposed to accomplish?
3. For each function, what constitutes acceptable performance and outstanding performance?
4. What would best reflect good performance on this job?

Critical Incidents of Performance

Critical incidents can be quite useful in developing job performance measures. Collect 10 critical incidents, half reflecting effective and half reflecting ineffective performance. Ask people you know to provide examples that they have observed. The same person could give you both an effective and an ineffective incident. It is best to get incidents from several people. Use the incidents to define one or more dimensions of job performance that might be included on a performance rating scale.

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CHAPTER 5

Assessment Methods for Selection and Placement

OUTLINE

Job-Related Characteristics
Psychological Tests
- Characteristics of Tests
- Ability Tests
- Knowledge and Skill Tests
- Personality Tests
- Emotional Intelligence Tests
- Integrity Tests
- Vocational Interest Tests

Other Forms of Testing
- Credit Checking
- Drug Testing

Biographical Information
Interviews
Work Samples
Assessment Centers
Technology and Assessment
- Electronic Administration of Psychological Tests
- Gamification and Simulations
- Electronic Interviewing
- Social Media for Assessment
- Computer Adaptive Testing

Chapter Summary
I-O Psychology in Practice
Learning by Doing
References

Suppose you find yourself responsible for deciding whom to hire for a particular job. It might be hiring an administrative assistant, a computer programmer, a plumber, or a teacher. There are several job applicants, and your task is to decide which one to hire. How would you go about making your choice? Would you interview each one and pick the person who seemed to be best suited for the job? How would you know what characteristics or qualities to look for in a potential employee? Furthermore, how would you go about finding out if applicants have the necessary characteristics? Procedures for the assessment of characteristics for selection (hiring) and placement (assigning current employees to jobs) are the topic of this chapter.

One of the earliest applications of psychology to human problems of organizations had to do with the assessment of people for selection and placement. During World War I, the U.S. Army became one of the first organizations to use large-scale testing of people to determine their job assignments (placement). After the war, large organizations saw the potential value of assessing job applicants for selection and other employment decisions, and the use of testing and other techniques became commonplace. This is true, not only in the United States, but also in most of the industrialized world, such as Canada, Western Europe, and Israel (McCulloch, 1993).

This chapter discusses five techniques for the assessment of characteristics frequently used for selection and placement.

1. A *psychological test* consists of a standard set of items or tasks that a person completes under controlled conditions. Most involve paper-and-pencil (or computer) tasks, such as answering questions or solving problems, although some involve manipulation of physical objects to assess such characteristics as manual dexterity and eye–hand coordination. Psychological tests can be used to assess ability, interests, knowledge, personality, and skill.

2. *Biographical information forms* ask about relevant prior experiences, such as one's level of education and work experience. Some forms can be quite detailed, asking not only about objective facts but about opinions and subjective reactions as well.
3. The *interview* is a meeting between the job applicant and someone at the employing organization who will have input into the hiring decision. This can be done face to face or via technology, such as a telephone or video chat (e.g., MS Teams, Skype, or Zoom).
4. A *work sample* is a test that asks a person to perform a simulated job. The person is given the necessary materials and tools and must perform a particular task, such as assembling a motor, under controlled conditions.
5. An *assessment center* is a series of exercises, including simulated job tasks, which measure how well a person can perform a job. It is commonly used to assess potential for a management or other white-collar job.

Each of these five assessment techniques can be used to determine a person's suitability for a particular job. Often more than one technique is used at the same time to get a more complete picture of how well an individual's characteristics match those necessary for a job. These assessment techniques can have uses other than selection and placement, however. They can be useful for employee development by showing a person's strengths and weaknesses, which can then be addressed by training. Many of these techniques are used to assess human characteristics in research studies concerned with almost all the topics discussed throughout this book. In the next chapter, we will see how the five techniques are used to help choose people for jobs.

Job-Related Characteristics

OBJECTIVES

The student who studies this chapter should be able to

1. Define KSAOs.
2. Describe the five assessment methods in the chapter.
3. Discuss the advantages and limitations of each assessment method in the chapter.
4. Explain how computers and technology are used to facilitate assessment.

Many different characteristics of people, or KSAOs (knowledge, skill, ability, and other personal characteristics), are needed for a job. (See Chapter 3 for a more extensive discussion of KSAOs in the context of job analysis.)

- *Knowledge* refers to what the person knows about a job, such as legal knowledge for an attorney.
- A *skill* is something that a person is able to do, such as program a computer or type.
- *Ability* is the capability to learn something, such as the ability to learn to play a musical instrument or to speak a foreign language.
- *Other personal characteristics* are every other human attribute not covered by the first three. Included are interests, personality, physical characteristics (such as height or eye color), and prior experience relevant for the job.

Table 5-1 contains examples of KSAOs for a sales associate in an Apple computer store. Such a person should have knowledge of the product that he or she will sell, as well as the ability to understand complex computer systems. It is important that the person can ring up monetary transactions. Finally, the person must have a neat appearance and a friendly, outgoing personality. When we hire a sales associate, these are some of the KSAOs from which we will select people.

The KSAOs for each job can be determined by a detailed and thorough study, which is called a *job analysis*. (See Chapter 3 for a discussion of job analysis.) This involves techniques that result in a list of the necessary KSAOs for the job in question. Once KSAOs

TABLE 5-1

KSAOs for a Computer Sales Associate

Knowledge	Knowledge of computer systems
	Knowledge of computer software
Skills	Skill in demonstrating a computer or tablet
	Skill in completing monetary transactions
Abilities	Ability to understand complex technology
	Ability to communicate with other people
Other	Neat appearance
	Outgoing, friendly personality

are determined, procedures can be chosen or developed to assess them in job applicants or current employees. The idea is to select or place people who have the necessary KSAOs for the jobs available. Although this process does not guarantee that all the people chosen will be successful on the job, it increases the chances of making good choices over using other selection and placement approaches. In the long run, organizations that use good selection and placement techniques will have a more skilled and higher-performing workforce and will have to terminate fewer employees for their inability to satisfactorily perform their job. Furthermore, good selection techniques that focus on KSAOs that are needed for the job help reduce discrimination against minorities and women by reducing subjective bias in the hiring process.

All five of the assessment techniques that we discuss attempt to measure KSAOs that are relevant for job performance and other organizationally relevant variables. As with all assessment techniques, the properties of reliability and validity are critical (see Chapter 2 for a discussion of these properties). That is, all measures must be consistent (reliable) and must pass stringent tests for validity. In other words, evidence must exist that they can accomplish the tasks for which they are used in organizations. If a test is to be used to select police officers, for example, it must be shown to predict how well a police officer will do on the job. As we will discuss in Chapter 6, in the United States and many other countries, failure to use a selection technique demonstrating validity can result in costly legal problems for organizations.

Psychological Tests

A **psychological test** is a standardized series of problems or questions that assess a particular individual characteristic. Psychological tests are commonly used to assess many KSAOs, including knowledge, skills, abilities, attitudes, interests, and personality. They are comprised of multiple items, which are indicators of the characteristic of interest. Each item can be completed relatively quickly, making it feasible to include many items to assess each characteristic and to assess several characteristics at one time.

Multiple items provide increased reliability over a single indicator of the characteristic, and this means the test is better able to assess the KSAO intended. Single-item measures tend to have low reliability because a person can easily make a mistake on any one item. For example, an item can be misinterpreted or misread. Consider the following item that might be encountered on a test:

I am not usually the first one to volunteer for a new work assignment.

If a person misreads the item and does not notice that the third word is *not*, the meaning of the item will be reversed. His or her response to the item will be the opposite of what it should be, and the item will not be an accurate indicator of the characteristic of interest. If it is likely that only a few people will make this error, the item may retain some reliability and might still reflect the characteristic intended. However, multiple-item tests

have an advantage over single-item tests because the impact of occasional errors on each person's score is reduced. The contribution of each item to the total score, when there are many items, is quite small.

Tests are one of the most popular tools for employee selection because they are relatively low cost and with online administration, they require few resources. Many organizations will purchase tests from an assessment company, but often they turn to I-O psychologists to help them develop their own tests. Blog 5-1 discusses how organizations go about acquiring tests to use for selection.

BLOG 5-1 Acquiring Pre-employment Assessments

https://paulspector.com/acquiring-pre-employmentassessments



Discussion Questions

1. How would you go about finding an assessment company to provide assessments?
2. Why would you want to develop your own assessment?
3. What are alternative uses for assessments other than for employee selection?
4. What do applicants think about being asked to take online assessments when applying to a job?

Characteristics of Tests

Many different types of tests are available that can assess hundreds of individual characteristics. The nature of the characteristic of interest helps determine which test is used. For example, a test to assess mathematical ability will most certainly be composed of math problems. A test of physical strength, on the other hand, will likely involve the lifting of heavy objects.

Group Versus Individually Administered Tests.

A **group test** can be administered to several people at once. The test itself can be in a printed form (e.g., a booklet), or it can be displayed on a computer screen. In the former case, a group of people can be administered the test in a room at the same time, as is typically done with a course exam. In the latter case, several individuals can take the test simultaneously, either in the same location (e.g., a computer lab) or in different locations. In employment settings, there is often concern about testing conditions and test security, so a test administrator will control access to the test (e.g., hand out tests or log people onto a computer), time the test, and make sure that the individual taking the test is the candidate rather than someone else. An **individual test** is one that a test administrator gives to a single test taker at a time rather than to a group of individuals. This is necessary because either the administrator has to score the items as the test proceeds, or an apparatus is involved that only one person can use at a time. Furthermore, the test administrator can set the pace of the individual items. This approach is often used in administering cognitive ability tests to children. Because of its greater efficiency, the group test is preferred when it is feasible.

Closed-Ended Versus Open-Ended Tests.

With a **closed-ended test**, the test taker must choose one of several possible responses, as in a multiple-choice test. An **open-ended test** is like an essay exam. The test taker must generate a response, rather than choose a correct response. The closed-ended test is preferred because of its greater ease in scoring, whereas the open-ended test is more appropriate for some characteristics. For example,

writing ability is best assessed by asking a person to write an essay. Experts can read and score the essay for several characteristics, such as clarity of expression and grammatical accuracy. These characteristics would be more difficult, if not impossible, to assess with a closed-ended test.

Paper-and-Pencil Versus Performance Tests. With a **paper-and-pencil test**, the test is printed on paper or displayed on an electronic device, and the responses are made in written form, for example, with a pencil or on a computer display. An in-class multiple-choice course examination is a paper-and-pencil test that presents the exam questions on paper; and the responses are made in pencil on the exam itself or on a separate answer sheet. Although we continue to use the name paper-and-pencil, usually employment tests today are administered electronically, with responses made via keyboard, mouse, or tablet. Open-ended tests can also be paper-and-pencil tests if they ask people to record their responses in some form, either by writing on paper or by typing on a computer. A **performance test** involves the manipulation of apparatuses, equipment, materials, or tools. Perhaps the most widely used performance test is a typing test. With this sort of performance test, the test taker demonstrates his or her typing ability on an actual keyboard under standardized conditions. This tests the typing skill itself rather than typing knowledge, which could be assessed with a paper-and-pencil test of knowledge about typing.

Power Versus Speed Tests. A **power test** gives the test taker almost unlimited time to complete the test. A **speed test** has a strict time limit. It is designed so that almost no one can finish all the items in the allotted time. There are two ways in which the speed test is used. First, a speed test can contain challenging items that must be completed under the pressure of time. Some instructors use speed tests for classroom examinations under the presumption that the better-prepared students will be able to answer the questions more quickly than those who are less well prepared. The drawback to this use of speed tests is that the test taker is at a disadvantage if he or she is a slow reader or writer. The second use is with a test that is designed to assess a person's speed in doing a particular task. A typing test is timed because its purpose is to assess a person's typing speed, as well as accuracy.

Ability Tests

An ability, or aptitude, is a person's capacity to do, or learn to do, a particular task. Cognitive abilities, such as intelligence, are relevant to tasks that involve information processing and learning. Psychomotor abilities, such as manual dexterity, involve body movements and manipulation of objects. The importance of each ability is dependent on the nature of the tasks of interest. Some job tasks require mostly cognitive abilities (e.g., programming a computer), whereas others rely mainly on psychomotor abilities (e.g., sweeping a floor). Many tasks require both types of abilities (e.g., repairing an automobile or other complex piece of equipment).

Cognitive Ability Tests. A cognitive ability involves mental reasoning, such as solving a mathematical problem or word puzzle. An intelligence or IQ test of general cognitive ability is the best-known **cognitive ability test**. There are also tests of individual cognitive abilities, such as mathematical or verbal ability. The items on such tests represent individual problems to solve. Such tests can be administered to large groups of individuals simultaneously and provide an inexpensive and efficient means of assessing job applicants.

Figure 5-1 contains two sample items from the Personnel Tests for Industry (PTI), a test designed to assess mathematical and verbal ability. The items are problems involving mathematical and verbal reasoning. The test was designed for group administration and can be completed in about 25 minutes. The PTI was produced by the Psychological Corporation (today part of Pearson TalentLens), which developed many employment tests.

Numerical

For answers which should have a decimal point, the decimal point is printed on the answer line for you to use.

EXAMPLE
There are 8 gallons of water in a tank which can hold 16.5 gallons. How many gallons can be added to this tank ..... 8.5 ..... gallons

$$\begin{array}{r} 16.5 \\ -\ 8 \\ \hline 8.5 \end{array}$$

Verbal

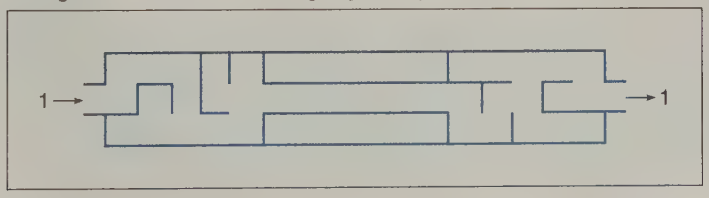
EXAMPLE A
Which does not belong?
(A) red, (B) green, (C) purple, (D) sweet A B C D

Red, *green*, and *purple* are colors but *sweet* (choice D) is not a color and does not belong with the words. Therefore, the D had been marked as shown on the right of the question.

FIGURE 5-1 Two sample items from the Personnel Tests for Industry (PTI).
Source: Adapted from National Psychological Corporation 1969.

Not all test takers are proficient in the local language; therefore, some tests have been developed that do not rely on reading ability. Figure 5-2 contains two items from the Beta II, which is a nonverbal intelligence test. The items involve problem solving without words. The first item asks the test taker to find his or her way through a maze. The second item asks the test taker to solve a coding problem using numbers and shapes. The test administrator reads instructions to test takers for each type of item. Instructions can be given in any language.

Mazes ask examinees to mark the shortest distance through a maze without crossing any lines (1.5 minutes)



Coding requires labelling figures with their corresponding numbers (2 minutes)

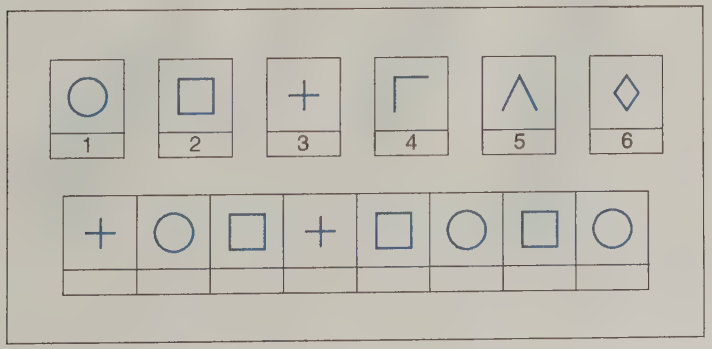


FIGURE 5-2 Two sample items from the Beta II Examination (2nd edition), a nonverbal intelligence test.
Source: Adapted from National Psychological Corporation 1969.

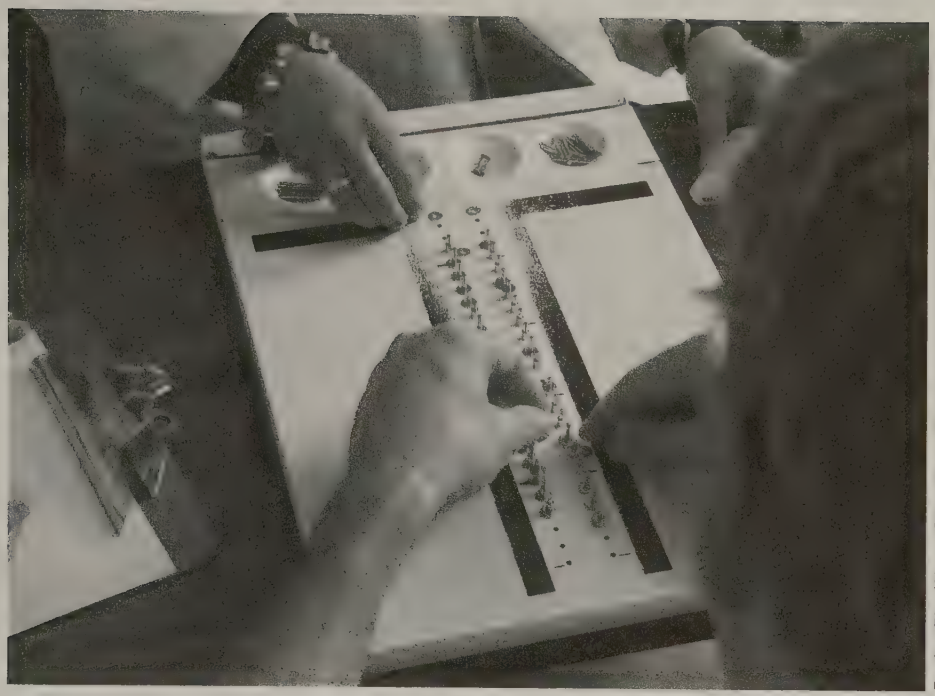
Research has consistently shown that cognitive ability tests are valid predictors of job performance across a large number of different kinds of jobs (Ones, Dilchert, Viswesvaran, & Salgado, 2010). People who score well on cognitive ability tests tend to perform better on the job. Cognitive ability tests have a long history of use by large organizations for employee selection because of their efficiency and ability to predict performance. In a survey of 703 SIOP members, Murphy, Cronin, and Tam (2003) found consensus among I-O psychologists that such tests are fair and useful for selection.

Psychomotor Ability Tests. **Psychomotor ability tests** assess such things as ability to manipulate objects and use tools. They involve both the coordination between the senses and movement (e.g., eye–hand coordination), and the accuracy of movements. Many psychomotor tests are performance tests rather than paper-and-pencil tests because the abilities of interest involve manipulation of objects rather than cognitive elements. People are scored on their ability to perform motor tasks, such as putting pegs in holes or using simple tools to manipulate objects.

Figures 5-3 and 5-4 show two psychomotor tests. Figure 5-3 depicts the Lafayette Instrument Hand Tool Dexterity Test, which assesses the ability to use simple tools to manipulate small objects. This test involves removing and reassembling several fasteners using wrenches and a screwdriver. The score is based on the time it takes to complete the task. Figure 5-4 shows the Purdue Pegboard Dexterity Test, which assesses fine motor ability. The test involves sequential insertion of pegs and assembly of pegs, collars, and washers, with scores based on the speed and accuracy in completing the task.



FIGURE 5-3 The Hand Tool Dexterity Test.
Source: Reproduced by permission. © 2013 by Lafayette Instrument Company, Inc. All rights reserved.



Design Pics/Alamy Stock Photo

FIGURE 5-4 The Purdue Pegboard Dexterity Test.

Knowledge and Skill Tests

An ability test is intended to assess a person's capability or potential to learn. A **knowledge and skill test**, often called an **achievement test**, is designed to assess a person's present level of proficiency. A knowledge test assesses what the person knows, and a skill test assesses what a person is able to do.

In practice, it is difficult to totally separate ability from knowledge and skill, for ability tests rely to some extent on knowledge and skill, and knowledge and skill tests rely to some extent on ability. The major difference between the two types of tests is the emphasis placed on prior knowledge and skill in performing specific tasks. For example, a psychomotor ability test might assess how quickly a person could put pegs in holes as an indicator of eye–hand coordination, whereas a psychomotor skill test might assess how well a person can type. Typing skills are the product of several different abilities.

Many different knowledge and skill areas can be assessed with a test. Some tests focus on general skills, such as math and reading. Others are useful for assessing skills at particular job tasks, such as typing. With a typing test, the test taker is given the task of typing some materials under standardized conditions. The person is scored on the number of words per minute typed, and the number of typing errors. As with ability tests, some knowledge and skill tests are paper-and-pencil tests, and some are performance tests.

Figure 5-5 contains three items from the Bennett Mechanical Comprehension Test. This test assesses a combination of mechanical ability and knowledge about tools. This sort of test is useful for determining if a person has a good understanding of how mechanical things work and how tools can be used. Note that this is a knowledge test and assesses a person's knowledge about tools, rather than his or her skill in using tools. Actual tool use is a skill that involves both cognitive and psychomotor elements.

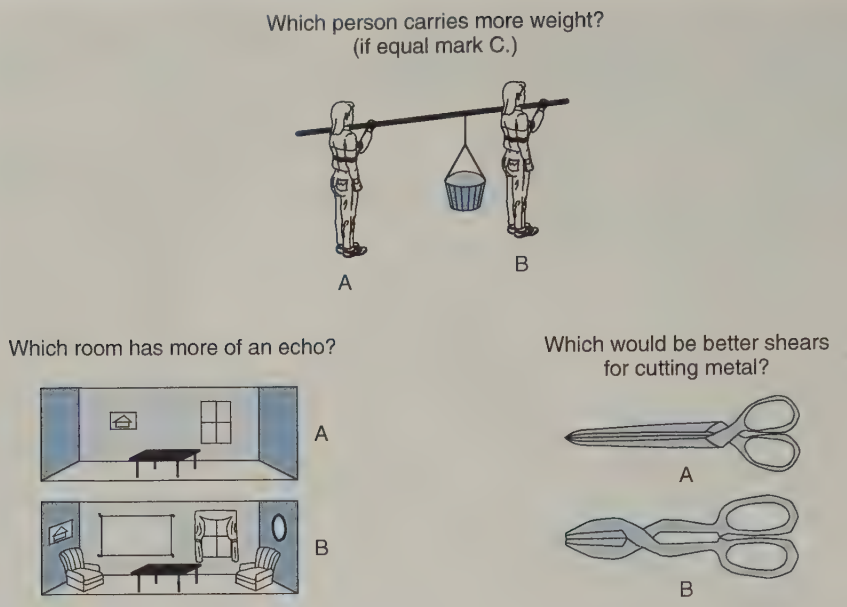


FIGURE 5-5 Three sample items from the Bennett Mechanical Comprehension Test (BMCT).
Source: Adapted from National Psychological Corporation 1969.

Personality Tests

A **personality trait** is the predisposition or tendency to behave in a particular way across different situations. A person who prefers to do things with other people is said to be high on the trait of sociability. A person who frequently influences others is said to be high on the trait of dominance. Personality traits can be important because certain classes of behavior can be relevant for job performance and other behaviors in organizations. Sociability can be an important trait for a salesperson who must interact with other people, whereas dominance can be an important trait for a manager who must direct the activities of others.

Paper-and-pencil **personality tests** can be useful tools for assessing personality traits. Some personality tests are designed to assess a single personality trait; personality inventories assess multiple dimensions and are sometimes used to provide profiles of individuals across several personality traits. They can also characterize people into types, which are combinations of different traits. For example, the extraverted type of person tends to be high on the traits of activity, optimism, sociability, and talkativeness, whereas the introverted type tends to be high on carefulness, quietness, passivity, and unsociability (Pervin, 1993).

Figure 5-6 contains five sample items from the public domain International Personality Item Pool (Goldberg et al., 2006). This Web-based resource (http://ipip.ori.org) provides more than 2,000 personality items that can be used to assess a wide variety of traits. The sample items in the figure are used to assess the Big Five personality theory dimensions of extraversion, emotional stability, agreeableness, conscientiousness, and openness to experience. The Big Five will be discussed in Chapter 10. As with ability tests, many standard tests can be purchased from commercial testing companies, such as Mind Garden, Pearson TalentLens, and Psychological Assessment Resources (PAR).

Researchers frequently use personality tests to study many different aspects of people's behavior in organizations; but there are two major concerns with the use of personality tests for employee selection. First, there is the possibility that job applicants will fake responses to the test by answering the items in the manner they believe will put them in the most favorable light (Birkeland, Manson, Kisamore, Brannick, & Smith, 2006). It is feared that faking will undermine the validity of the test (Heggestad, Morrison, Reeve, & McCloy, 2006). Such concerns have led to techniques designed to reduce faking, such as

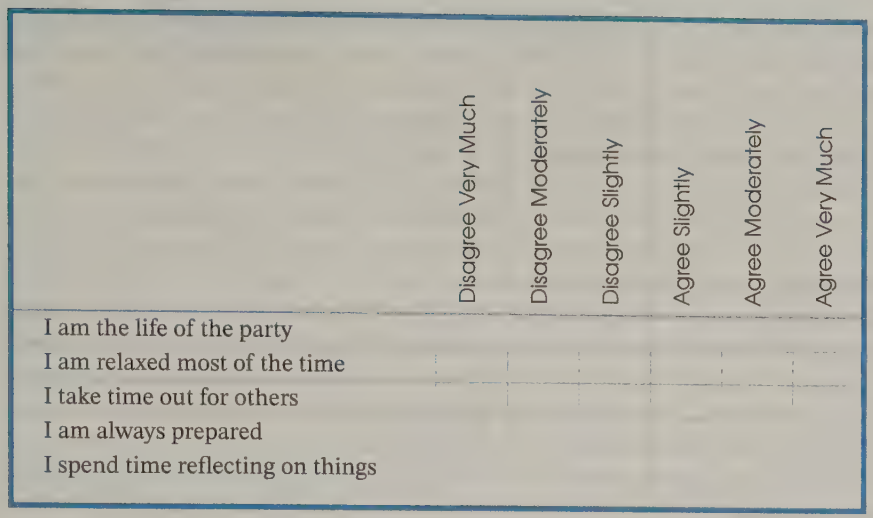


FIGURE 5-6 Five items from the public domain International Personality Item Pool (IPIP) (Goldberg et al., 2006) that assesses the Big Five personality dimensions. In order from top to bottom, the items are from the subscales of extraversion, emotional stability, agreeableness, conscientiousness, and openness to experience. The IPIP website is http://ipip.ori.org.

designing fake-resistant tests or warning applicants not to fake responses (Fan et al., 2012). Research has revealed, however, that attempts at distortion will not necessarily invalidate a personality test used for employee selection (Hogan, Barrett, & Hogan, 2007). This might be because an individual who knows how he or she should appear on a personality test will also know how he or she should behave at work to be effective. Thus, the test might be assessing a person's self-presentation skills (Marcus, 2009). Second, personality tests do not always appear to be as relevant to a job as other assessment devices. *Job relevance* means that what an assessment tool measures is linked to the KSAO requirements of the job. A typing test, for example, is obviously relevant for a secretary who must type as part of the job requirements. It is harder to show that a personality trait, such as dominance, is important for job performance. This has led some to question whether or not it is appropriate to use these tests at all.

Despite concerns over the use of personality tests for employee selection, such tests have been growing in popularity among practitioners and researchers in organizations (Ones & Anderson, 2002). For example, a national survey of more than 6,000 Canadian companies found that 9% of them used personality tests for employee selection (Mann & Chowhan, 2011). Furthermore, there has been a great deal of research concerning whether or not personality can predict job performance. Several researchers have conducted meta-analyses to investigate the relation between personality and job performance. This technique of data analysis allows for the statistical combination of results across multiple studies of the same phenomenon (see Chapter 2). Such analyses have shown that personality can predict performance, although the magnitude of these correlations is modest (Dudley, Orvis, Lebiecki, & Cortina, 2006; Salgado, 2003). One difficulty with drawing conclusions about the validity of personality tests from the existing meta-analyses is that those analyses group together tests that assessed many different traits for the prediction of performance on many different types of jobs. Some of those traits may have represented job-relevant characteristics; others may have been unimportant for success. Existing evidence suggests that matching specific personality traits to the requirements of particular jobs will maximize how well personality tests can predict performance (Paunonen, Rothstein, & Jackson, 1999; Tett, Steele, & Beauregard, 2003).

Emotional Intelligence Tests

A characteristic that falls between a personality trait and a cognitive ability is **emotional intelligence (EI)**. It is defined as people's ability to control and recognize emotions in themselves and in others. In theory, this ability makes people more socially skilled, enabling them to be aware of, and to control, their impact on others. In a work setting, this means being able to work smoothly with colleagues; and in supervisory positions, it

means the ability to exert leadership. Salovey and Mayer (1989) are credited with kicking off interest among psychologists in the idea that emotional intelligence is an important ability. Unfortunately, various researchers who study it have adopted somewhat different definitions and conceptions, and exaggerated claims, both inside the field and in the popular media, have caused confusion and controversy.

There are two types of EI assessments (Joseph & Newman, 2010): trait and ability. The trait type measures EI as a personality characteristic that is accessible to the person's awareness. These trait assessments look like personality tests in that people respond to each item concerning how well it describes them. The ability type has a multiple-choice format with one right answer per question. It is based on the assumption that people cannot directly report their EI because it is not accessible to awareness. Rather, a person reveals his or her EI by choosing the correct answers on the test, just as he or she would indicate cognitive ability with a general intelligence test.

Research with various EI tests has shown that they can predict job performance. For example, a meta-analysis by Joseph and Newman (2010) found that, on average, EI trait tests correlate .32, and EI ability tests correlate .16 with job performance. EI has also been shown to relate to students' college grade point averages (GPAs) (Rode et al., 2007). Finally, manager EI relates to the job satisfaction of their subordinates (Sy, Tram, & O'Hara, 2006), although the correlations are often quite small. However, research does not support the claims that EI is one of the most important characteristics for job success. Joseph and Newman (2010) found that EI ability measures related to performance only in jobs that required employees to manage their own emotions, that is, to display certain emotions by engaging in emotional labor (see Chapter 9). An important issue with EI research, however, is that some have questioned the construct validity of the EI measures used in these studies, suggesting that EI ability measures overlap with measures of cognitive ability and personality (Christiansen, Janovics, & Siers, 2010), which are the real underlying factors relating to performance (Landy, 2005). Although this is an important concern, there is at least some evidence that the ability measure of EI can predict job performance over and above measures of cognitive ability and personality (Iliescu, Ilie, Ispas, & Ion, 2012), suggesting that EI is not the same thing.

Integrity Tests

An **integrity test** is designed to predict whether an employee will engage in counterproductive or dishonest behavior on the job. The behaviors these tests are designed to predict include cheating, sabotage, theft, and unethical behavior. They also are sometimes used to predict absence and turnover. Wanek, Sackett, and Ones (2003) noted that there are two different types of integrity tests: overt and personality.

The *overt integrity test* assesses a person's attitudes and prior behavior. It asks the person to indicate agreement or disagreement with statements concerning honesty and moral behavior. An example of such an item would be the following:

It is alright to lie if you know you won't get caught.

The test taker is also asked how often he or she has done a number of counterproductive behaviors. A possible item might be the following:

How often have you stolen something from your employer?

The *personality integrity test* assesses personality characteristics that have been found to predict overall counterproductive behavior. Whereas the overt integrity tests are obvious assessments of honesty and integrity, the personality tests are hidden in their purpose. In fact, standard personality inventories often are used as integrity tests. We discussed personality tests earlier in this chapter.

Research on integrity tests has shown that they can predict general counterproductive behavior (see discussion of counterproductive work behavior in Chapter 10) as well as job performance itself, although there is some debate on how well they can do

so (Ones, Viswesvaran, & Schmidt, 2012; Sackett & Schmitt, 2012; Van Iddekinge, Roth, Raymark, & Odle-Dusseau, 2012). Counterproductive behavior and job performance are predicted by both overt and personality integrity tests, which are also related to each other (Marcus, Lee, & Ashton, 2007). Interestingly, research has shown that integrity tests may do a better job of predicting absence, general counterproductive behavior, and job performance than they predict theft itself (Wanek, 1999). This is a potential issue because often these tests are used to address employee theft. Part of the problem with conducting validation studies is that accurate data on employee thefts are difficult to obtain because many employees who steal are never caught. Thus, it is difficult to determine how well the test can predict stealing when you do not know for certain which employees were dishonest. However, as Wanek pointed out, these tests have been shown to predict useful behaviors at work besides theft, so there can be benefits, beyond the control of theft, from using integrity tests for selection.

Vocational Interest Tests

A **vocational interest test** matches either the interests or the personality of the test taker to those of people in a variety of different occupations and occupational categories. Interests are assessed by asking the test taker to indicate his or her preferences for engaging in various activities, such as between attending a sporting event and visiting a museum. Personality is relevant, as specific traits might drive people's interests; for example, people who are outgoing and extraverted might prefer activities that involve contact with other people (Larson, Rottinghaus, & Borgen, 2002). Data from vocational interest tests are available about the answers of people in many different occupations. The test taker's answers are matched to those of people in different occupations to see how well he or she fits each occupation.

Interest and personality profiles vary considerably from occupation to occupation. Therefore, any individual test taker will match some occupations and not others. Because occupations tend to group together into categories, a person can be matched to an occupational category. One such occupational category is artistic, which involves creative processes, such as interior design and photography.

One of the most popular vocational interest tests is the Self-Directed Search (Holland, 1994). This test provides scores on six personality types (Figure 5-7). Each type is associated with a particular family of occupations. As shown in the figure, the investigative

The **Realistic** type likes jobs such as automobile mechanic, aircraft controller, surveyor, farmer, or electrician.

The **Investigative** type likes investigative jobs such as biologist, chemist, physicist, anthropologist, geologist, or medical technologist.

The **Artistic** type likes artistic jobs such as composer, musician, stage director, writer, interior decorator, or actor/actress.

The **Social** type likes social jobs such as teacher, religious worker, counselor, clinical psychologist, psychiatric case worker, or speech therapist.

The **Enterprising** type likes enterprising jobs such as salesperson, manager, business executive, television producer, sports promoter, or buyer.

The **Conventional** type likes conventional jobs such as bookkeeper, stenographer, financial analyst, banker, cost estimator, or tax expert.

FIGURE 5-7 The six personality types and associated occupations as assessed by the Self-Directed Search.
Source: Adapted from Psychological Assessment Resources, Inc., 16204 North Florida Avenue, Lutz, FL 33549, from *You and Your Career* by John L. Holland, Ph. D. Copyright 1985 by PAR, Inc.

type likes investigative-type jobs, including scientific fields such as biology and geology. The profile of scores on the six types can guide a person in choosing a career.

The match between a person's vocational interests and the nature of his or her job is related to how satisfied the person is with that job (Rottinghaus, Hees, & Conrath, 2009). A person who takes a job that is a poor match will likely be unhappy with it, whereas a person who takes a job that is a good match will probably like it. The idea behind the tests is to encourage people to select careers that match their interests. Vocational interest tests are frequently used for vocational guidance in helping people decide what careers to pursue.

Other Forms of Testing

So far we have discussed psychological tests that require applicants or employees to complete either paper-and-pencil or manual tasks. Organizations sometimes use other forms of testing that do not rely on responses by individuals. Two that have been seeing increased use, at least in the United States, are credit checks and drug testing. Both are intended to help select individuals who will make better employees, either by having less counterproductive behavior (e.g., drug use at work or theft), or performing the job better.

Credit Checking

There has been a growing use of credit checking among employers, especially in retail, in the United States (Kuhn & Nielsen, 2008). Organizations collect information about amount of debt, credit history, loan defaults, and prior bankruptcy, which are sometimes used in making hiring decisions. As explained by Bernerth (2012), this information is used because of widespread beliefs that poor credit history is an indicator of a lack of conscientiousness and integrity. Thus, those who fail to meet financial obligations would be assumed to fail at meeting work obligations and would be more likely to steal from the employer.

Unfortunately, there are at least three major problems with the use of credit checking for selection. First, there is little evidence for the validity of credit information in predicting workplace behavior. Although it is possible that assumptions about those with poor credit histories are correct, research has not been conducted to support their use. Second, in the United States, ethnic minorities tend to score worse on credit checks, meaning their use would result in hiring fewer minorities (Bernerth, 2012). As we will discuss in Chapter 6, in the United States and some other countries, it is illegal to use selection procedures that disadvantage minorities unless those procedures can be shown to be valid. In the absence of demonstrated validity, credit checking would leave an organization vulnerable to legal challenges. Third, applicants tend to view the use of credit checking as unfair, which can lead to highly qualified applicants rejecting a job offer, as well as a greater likelihood of a rejected applicant filing a legal challenge (Kuhn & Nielsen, 2008).

Drug Testing

Organizations in the United States and elsewhere have turned to drug testing with both applicants and employees as a means of controlling drug use at work. Estimates are that as many as 30 million Americans undergo such tests each year (Mastrangelo & Popovich, 2000). Such testing is of particular importance in jobs that are safety sensitive, meaning that impaired performance could lead to accidents or injury, such as air traffic controllers and bus drivers. However, such tests have been controversial, with many people considering them to be an unfair invasion of privacy. Paronto, Truxillo, Bauer, and Leo (2002) surveyed 1,484 individuals about their attitudes toward drug testing. They found that respondents considered drug testing more acceptable for jobs that were safety sensitive than for jobs that were not.

Biographical Information

One of the easiest ways to find out about people is to ask them what you wish to know. In an employment setting, basic information about people is obtained from an application form. Although they can differ from organization to organization, standard application forms contain questions about education, job skills, personal characteristics, and work history. Some forms can be quite detailed, asking about specific experiences, such as extracurricular school activities (e.g., participation in sports). Most ask about biographical information concerning education, and relevant work experience that might be necessary for a particular job.

The **biographical inventory** asks much more detailed background questions than a typical application form. Whereas application forms ask about prior level of education and work experience, the biographical inventory asks about specific experiences at school and work, or even in other areas of life. Some of the questions ask about objective, verifiable facts, such as

"What was your grade point average in college?"

Others ask about opinions or subjective experiences, such as

"Did you enjoy college?"

If a biographical inventory contains enough of the second type of question, it begins to approximate a psychological test that assesses interests and personality instead of prior life experiences (Schmitt & Chan, 1998). Most inventories use a multiple-choice response format that can be easily scored. Possible answers to the question about enjoying college might be

"Enjoyed very much"
"Enjoyed somewhat"
"Enjoyed a little"
"Didn't enjoy at all"

Table 5-2 contains some examples of biographical inventory items.

Stokes and Searcy (1999) distinguished empirical from rational biographical inventories. The **empirical biographical inventory** is developed by administering many potential items to a group of employees in a particular job. People analytics methods can be used to determine which items are related to job performance. Those items can be compiled into a score that can be used for employee selection. The **rational biographical inventory** is developed by beginning with an analysis of KSAO requirements and then devising items that reflect those KSAOs.

Biographical inventories have been shown to predict job performance (Breaugh, 2009; Speer, Siver, & Christiansen, 2020; Stokes, Toth, Searcy, Stroupe, & Carter, 1999). In a direct comparison, Cucina, Caputo, Thibodeaux, and Maclane (2012) found that the empirical approach to scoring did a better job predicting job performance than did a

TABLE 5-2

Sample Items From a Biographical Inventory

When you were in grade school and people were being picked for teams, when were you usually picked?
During high school, what grades did you get in chemistry class?
Did you attend your high school prom?
In your first full-time job, how often did you initiate conversation with your immediate supervisor?

rational approach. This is perhaps due to the fact that the empirical approach is designed to determine the best possible combination of items. Furthermore, biographical inventories have been found to add predictability over and above personality tests, suggesting they do not just assess the same thing (McManus & Kelly, 1999, see Research in Detail; Mount, Witt, & Barrick, 2000). Furthermore, biographical inventories tend to be resistant to applicant faking (answering dishonestly to look good on a test) because many items are factual in nature and give the appearance of verifiability (West & Karas, 1999).

Research in Detail

One of the criticisms of biographical inventories is that they just assess personality and offer limited advantages over a personality inventory. McManus and Kelly (1999) wanted to see how well a biographical inventory could stand up against a personality inventory in predicting job performance.

The study was conducted in five insurance companies in the United States. Participants in the study were 116 newly hired insurance sales representatives. During the application process, each one completed a widely used off-the-shelf biographical inventory designed for the insurance industry called the Initial Career Profile (ICP). A 124-item personality battery was included to measure, what many consider to be, the Big Five underlying dimensions of personality: extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience (see Chapter 10). The ICP was used for selecting applicants, but the personality battery was not. Six months after an applicant was hired, his or her job performance was assessed with a five-item rating scale completed by the immediate supervisor. This produced two scores: one for the main tasks involved in sales and the other for more general displays of effort and motivation. Both job performance scores were strongly correlated at .69.

Results showed that both the ICP and the personality battery were related to job performance. The biographical inventory correlated .25 and .26 with sales and effort, respectively. Of the personality variables, extraversion correlated with performance the most strongly, with correlations of .29 and .22, respectively. Conscientiousness correlated lowest, with nonsignificant correlations of almost zero. This surprised the authors because prior studies have suggested conscientiousness should relate to performance. When they analyzed the personality battery and the ICP together, they found that, when combined, they did a better job of predicting performance than alone, suggesting that the biographical inventory was not assessing the same thing as the personality battery.

Source: Adapted from "Personality Measures and Biodata: Evidence Regarding Their Incremental Predictive Value in the Life Insurance Industry," by M. A. McManus and M. L. Kelly (1999), *Personnel Psychology, 52,* 137–148.

The biggest criticism of biographical inventories has been limited to the empirical variety, and concerns the fact that items are chosen based entirely on their ability to predict performance, rather than on an apparent link to job requirements. Sometimes an item can predict performance even though it cannot be linked to a KSAO necessary for job performance. These items are combined into scores that predict performance but do not reflect job-related KSAOs, at least directly. Many questions in such inventories can appear completely unrelated to the job or job performance. Applicants may consider some questions to be an invasion of privacy, such as questions about high school dating behavior. Finally, such inventories can often have limited generalizability (Mumford, 1999), and might be useful only for the job and location for which they were developed. On the other hand, rational inventories based on KSAOs can often be used for many jobs and locations.

Interviews

An **interview** is a face-to-face meeting between a job applicant (interviewee) and one or more interviewers, who are collecting information or making hiring decisions. Almost all

organizations use the interview when hiring for most positions, making it the most often used selection device (Oostrom, Melchers, Ingold, & Kleinmann, 2016). Perhaps one reason for the universal use of this technique is that it is widely accepted. Studies across Europe (Ispas, Ilie, Iliescu, Johnson, & Harris, 2010), China (Liu, Potočnik, & Anderson, 2016), and the United States (Steiner & Gilliland, 1996) have shown that people rate interviews as among the most fair selection procedures that organizations use.

There are two types of interviews conducted in organizational settings. During an *unstructured interview*, the interviewer asks whatever questions come to mind. It can be much like a conversation between the interviewer and interviewee, in which the nature of the interaction between the two people determines in large part what is discussed. By contrast, during a **structured interview**, the interviewer has a preplanned series of questions that are asked of every person who is interviewed. This makes the interview relatively standard, although the interaction between the two people can still affect what gets discussed. Nevertheless, the use of a standard set of questions allows the interviewer to collect the same information about each interviewee.

There is no one way to conduct structured interviews. Campion, Palmer, and Campion (1997) discussed 15 ways in which structure can be introduced. Some interviews are moderately structured in that the questions to be asked, or the topics to be covered, are specified and standardized. Others have strict requirements that questions be asked in a set order; that the same phrasing be used; that interviewees not be asked to elaborate on any answer, even if it is unclear; and that interviewees not be allowed to ask questions themselves until the end. With a series of structured questions, the interview can be much like an open-ended test with an oral rather than a written response. Campion et al. suggested that the more highly structured approaches are probably the most valid, and therefore as much structure as possible should be introduced into the interview. Blog 5-2 provides more discussion about interview structure.

BLOG 5-2 Structure That Interview

https://paulspector.com/structure-that-interview

Discussion Questions

1. Why do structured interviews do a better job of predicting future performance?
2. How would people feel about being subject to a totally structured interview?
3. Why do so many managers prefer organic unstructured interviews?
4. How would you go about preparing for a semi-structured interview?

The interview can be used in two ways. One is as an alternative to an **application form** or a written questionnaire for collecting information. Questions can ask about attitudes ("Did you like your last job?"); job experiences ("Have you ever supervised anyone?"); personal background ("What was your major in college?"); and preferences ("Would you mind working weekends?"). A **situational interview** gives the interviewee a series of hypothetical situations and asks what he or she would do or should do. The idea is to assess the individual's judgment in dealing with work issues. How interviewees say they would handle work situations is able to predict how they actually handle situations on the job (Oostrom et al., 2016).

The other way the interview can be used is to make inferences about a person's suitability for a job based on both the person's answers to the questions, and his or her behavior in the interview situation. One way this can be done is by having interviewers

make ratings of job-related dimensions, such as communication skills and relevant experience, or make overall ratings of applicant suitability for the job. These ratings can be subject to the same rating bias and errors as performance appraisal ratings, which we discussed in Chapter 4. However, the use of behavior-based rating scales and rater training has been shown to improve the accuracy of interview ratings (Melchers, Lienhardt, Von Aarburg, & Kleinmann, 2011). Furthermore, often interviews are recorded so that multiple individuals can view and evaluate the candidates.

Huffcutt (2011) describes how the interviewer's judgment of the interviewee can be affected by three types of information. First there is the job-related content that is revealed about the interviewee, such as his or her experience and skills. Second, there is the interviewee's performance, in other words, how well he or she comes across and appears competent. Finally, there are the apparent personal attributes of the interviewee, such as attractiveness or gender that are irrelevant and can introduce bias.



Daemmrich/The Image Works

The interview is used for almost all hiring.

Research evidence supports the use of structured interviews, but not necessarily unstructured ones, in making employment decisions. Ratings of interviewee employment suitability from a structured interview have been shown to predict future job performance across many different studies (Judge, Higgins, & Cable, 2000; Levashina, Hartwell, Morgeson, & Campion, 2014). Wiesner and Cronshaw (1988) conducted a meta-analysis of over 100 interview studies in which they compared structured and unstructured interviews. The average correlation between interview outcome and job performance was larger for the structured interview studies (r = .34) than for the unstructured interview studies (r = .17). Schmidt and Zimmerman (2004) argued that much of the difference in interview validity can be attributed to the lower reliability of unstructured interviews compared to that of structured interviews. With unstructured interviews, multiple interviewers will not agree very well on the applicant's suitability to be hired; and this lack of agreement hurts the ability of the interview findings to predict future job success. Another problem with the unstructured interview is that it leaves too much room for biases (Table 5-3). An interviewer might decide on the basis of appearance, for example, that an applicant is unsuited. Cable and Judge (1997) found that interviewers' hiring decisions were related to how attractive they found the applicant and how much they liked him or her. Interviewers might not be as thorough in questioning a disliked or unattractive applicant and

TABLE 5-3

Information Types That Affect Structured Interview Judgments

Information type	Examples
Job-related content	Experience
	Knowledge
	Personality
Interviewee performance	Interpersonal presentation
	Social effectiveness skills
Personal characteristics	Attractiveness
	Gender
	Race

Source: Adapted from "An Empirical Review of the Employment Interview Construct Literature," by A. I. Huffcutt (2011), *International Journal of Selection and Assessment, 19*, 62–81.

might fail to discover important job-related qualifications that might lead to hiring. Stewart, Dustin, Barrick, and Darnold (2008) conducted simulated interviews that showed how eye contact and firmness of handshake affect interviewers' ratings of interview performance. Given the existence of biases, it should not be surprising that interviewers fail to agree about applicants.

With all the research focus on the validity of interviews, issues about what interviews actually assess have been overlooked. Huffcutt, Conway, Roth, and Stone (2001) did an extensive analysis of the specific personal characteristics assessed in interviews that provides insight into why they are able to predict future performance. The authors conducted a literature review and identified 47 interview studies that provided information about the KSAOs covered. Those most commonly assessed were personality traits and interpersonal skills. Furthermore, structured and unstructured interviews tended to focus on different things. Structured interviews targeted job knowledge and skills, person–organization fit, and interpersonal skills, whereas unstructured interviews targeted general intelligence, education, and prior experience.

Another issue is the possibility that interviewees will fake their answers. That is, they might not be truthful in their responses, perhaps mischaracterizing their background or telling the interviewer what he or she wants to hear. As with tests, however, research suggests that faking has little impact on the validity of the interview (Melchers, Roulin, & Buehl, 2020).

Work Samples

A **work sample** is an assessment device that requires a person to demonstrate how well he or she can perform the tasks involved in a job under standardized conditions. It is a type of simulation in which a person does a job or part of a job under testing conditions rather than actual job conditions.

A work sample is like a psychological test except that it is designed to measure a higher-level skill. A test measures a basic ability or skill, such as eye–hand coordination or manual dexterity. A work sample assesses the skill in doing a particular task, such as driving a bulldozer, which is composed of several basic skills performed in the context of a particular set of conditions. For some applications, the higher-level skill may be more important to assess than basic abilities or skills because a work sample indicates how well a person can actually do a particular task. The psychological test indicates if a person has the requisite basic abilities or skills that should in theory predict how well he or she could do the task, but not how well he or she can actually do it.

The typical work sample gives the applicant the materials and tools necessary to accomplish the task. The person is instructed to complete the task quickly but accurately.

A score is computed based on the accuracy with which the task is completed and the amount of time it took. For example, a person might be asked to disassemble and reassemble an electric motor or a small gasoline engine. A trained observer would score the person on accuracy and speed. Perhaps the most familiar work sample is the driving test that is required of applicants for a driver's license. The applicant is asked to complete a series of maneuvers with the automobile, while the test administrator records the scores for each one. To get the license, the applicant must achieve a total score that meets a prearranged criterion. A work sample in an organizational setting might be used the same way to determine if a person is suitable for a particular job.

Work samples have been found to be good predictors of future job performance (Robertson & Kandola, 1982). The close correspondence between the assessment situation and the job itself certainly has much to do with the success of the work sample in predicting performance. As with most simulation techniques, the work sample has a high degree of job relevance. This increases the likelihood that people will accept its use as a predictor of important skills in employee selection. There are several limitations to keep in mind, however. For many work samples, the applicant must already have experience with the task, work samples can be costly to develop, and the work sample is specific to a particular job (Callinan & Robertson, 2000).

Assessment Centers

An **assessment center** uses a series of simulation exercises to measure some job-relevant abilities and skills that a person has. Most assessment centers are designed to assess management skills, but they are used for nonmanagement jobs as well. The entire center can take several days to complete and are often administered to several individuals at a time. This technique is widely used by many types of employers. For example, in a survey of British employers, Keenan (1995) found that 44% used assessment centers to hire college graduates. In the United States, the assessment center is used primarily for hiring and promotion decisions, although it can also be used to help employees enhance job skills (Bell & Arthur, 2008; Spychalski, Quiñones, Gaugler, & Pohley, 1997).

Assessment center exercises have a high level of realism because they simulate many of the actual tasks included on the job. For example, the person being assessed, or the *assessee*, may be asked to role-play being a manager in a described situation. This might involve dealing with a subordinate or handling the paperwork for the job. The assessee's performance on each exercise is scored by a panel of trained *assessors*. The assessors are asked to evaluate the person's performance on each of several job-relevant dimensions. For a manager's job, these can involve communicating, dealing with other people, making decisions, and planning. Table 5-4 contains the dimensions from a typical assessment center for managers described by Harris, Becker, and Smith (1993). Assessors are carefully

TABLE 5-4

Dimensions Scored in an Assessment Center

Oral communication
Oral comprehension
Problem solving
Interpersonal relations
Coaching
Planning
Written communication

Source: Adapted from "Does the Assessment Center Scoring Method Affect the Cross-Situational Consistency of Ratings?" by M. M. Harris, A. S. Becker, and D. E. Smith (1993), *Journal of Applied Psychology, 78*, 675–678.

trained so that they will show high inter-rater reliability, suggesting that they tend to rate the same person similarly across each dimension (Putka & Hoffman, 2013).

An assessment center can contain many different activities and exercises. The assessee might participate in an interview and take a battery of psychological tests, in addition to completing several simulation exercises. The exercises might include an in-basket exercise, a leaderless group exercise, a problem-solving simulation, and role-playing. Each exercise yields scores on several dimensions, and usually each dimension is assessed by several exercises. In addition, there is an overall assessment of the person's potential for the job in question.

An **in-basket exercise** is a simulation exercise that asks the assessee to pretend that it is the first day of a new job and he or she has found a series of items in his or her in-basket. Items include e-mails, letters, phone messages, and a calendar (Whetzel, Rotenberry, & McDaniel, 2014). The assessee's task is to deal with each item in an appropriate manner, deciding what action, if any, to take by making notes on each item. An example of a memo that could be part of an in-basket exercise is shown in Table 5-5. To score well, the person must handle the memo in an appropriate and constructive manner. Ignoring the memo or writing a nasty reply to the sender would not be a constructive action. Leaving a note for an assistant to complete the report or doing so himself or herself would be better.

In a **leaderless group exercise**, several assessees are given a problem to solve together. The problem might be a competitive one, for example, such as deciding which department gets a new piece of equipment, with each assessee representing one of the departments. Each member of the group might be asked to role-play a particular management position. The problem can also be a cooperative one, in which all group members must generate a solution to an organizational problem, such as deciding whether to market a new product.

In a *problem-solving simulation*, the assessee is given a problem and is asked to come up with a solution, perhaps by producing a report. The problem provides sufficient background information from which to write the report. For example, the assessee could be given information about the costs for, and projected income from, opening a new assembly plant. His or her task would be to produce a feasibility report for opening the plant.

A *role-play exercise* requires the assessee to pretend to be a particular person in a specific organizational role, such as a sales manager. The task is to handle a problem or situation, such as counseling a troubled employee or dealing with an irate customer.

Assessors rate each assessee on each dimension by both observing behavior, and reviewing materials produced during the exercises. Each person is scored on the various dimensions and may get an overall score. The dimension scores can be used to give the person feedback about his or her strengths and weaknesses. The overall score is useful if assessment center performance is to be used to make hiring or promotion decisions.

TABLE 5-5

Example of a Memorandum for an In-Basket Exercise

Memorandum

TO: Robert Jones, Manager of Marketing
FROM: Deborah Smith, Director of Human Resources
SUBJECT: New Position

On October 15 of this year, you requested an additional staff assistant position for your department. I have been instructed by the company president to provide you the position. Before I can do so, however, you need to provide me with a complete justification for why you need this position. Please complete a Position Justification Report and return it to me. I need it by the end of the week, or the position will be delayed until the first of the year.

Research on the assessment center has found it to be a valid device for the selection of employees (Hoffman, Kennedy, LoPilato, Monahan, & Lance, 2015; Sackett, Shewach, & Keiser, 2017). This means that scores on the assessment center are correlated with job performance. For example, Shechtman (1992) found that scores in an assessment center given to university students upon admission predicted their job performance as teachers from two to five years after graduation, with a correlation of .27. Dayan, Kasten, and Fox (2002) found that assessment center ratings predicted job performance both two and four years later for police officers, with correlations of .30 and .21, respectively.

Although overall scores in an assessment center can predict job performance, questions have been raised about the construct validity of the individual dimension scores (Bowler & Woehr, 2009; Kuncel & Sackett, 2014). In other words, we are not certain that the intended dimensions of the assessment center are being measured. Different exercises are designed to assess a common set of dimensions. Because the same dimensions are assessed across exercises, scores on corresponding dimensions from different exercises should correlate well. For example, the score for leadership in the in-basket exercise should relate to the score for leadership in the leaderless group exercise. On the other hand, the different dimension scores within the same exercise should not be highly correlated because the dimensions are supposed to be measures of different, distinct characteristics. High correlations among dimension ratings are similar to halo errors in performance appraisals (see Chapter 4).

The problem with assessment centers is that the various dimension scores given to assessees within an exercise, such as an in-basket exercise, are too highly correlated. Furthermore, the scores given to assessees on the same dimensions across different exercises are not correlated high enough. The high correlations across dimensions within exercises suggest that at least some of the dimension scores are reflecting the same KSAOs rather than the different KSAOs intended. The low correlations for the same dimensions across exercises suggest that the exercises are unable to assess the same KSAOs. Taken together this pattern of results might mean that each exercise assesses a different KSAO, although it seems likely that each assesses its own set of multiple KSAOs (Hoffman & Meade, 2012). Lievens, Chasteen, Day, and Christiansen (2006) suggested that each exercise provides a different set of opportunities for the assessee to display behavior relevant to performance in a unique way. One might reflect leadership, and another might tap problem solving. Thus, it should be no surprise that dimension scores are not very high across exercises. At the present time, we are not certain exactly what the different KSAOs assessed might be. Therefore, use of the assessment center to give specific feedback about individual KSAOs (e.g., decision making or leadership) is questionable. Speer, Christiansen, Goffin, and Goff (2014) noted that one reason dimension ratings can be low across exercises is that exercises can be very different in their demands, and thus each provides a view of the person in a different situation. Combining information across exercises, even when that information is not highly consistent, can be useful in predicting future performance in a complex organizational setting.

The rating task for an assessor is complex, requiring the integration and evaluation of a great deal of material for exercises that can last an hour or more, often consisting of video clips and written materials. Typically, assessors form initial impressions at the beginning of an exercise, and that can affect how they view and rate later performance (Ingold, Dönni, & Lievens, 2018). If an assessee gets off to a poor start, for example, good performance later might be overlooked. Given that each exercise provides a great deal of information, it is perhaps not surprising that assessors would have a hard time using all of it in an accurate way. Research efforts have been made to improve the validity of dimension ratings in assessment centers. Reilly, Henry, and Smither (1990) reasoned that a decision aid might help assessors organize information and improve their ratings. They provided assessors with a checklist of 273 behaviors to use to rate performance in the exercises. The assessors used the checklist to note the specific behaviors performed by each assessee before making their ratings. The results of the study showed that correlations between dimensions within exercises got smaller and correlations between corresponding dimensions across exercises got larger than those typically found in assessment centers. Thus,

the validity of the dimension scores improved. These results suggest that one problem with assessment centers, as they are currently conducted, is that they overload the assessor's ability to accurately assess dimensions. Providing checklists of behaviors imposed structure on the judgment task and improved the validity of the exercise ratings.

Means to improve assessment center ratings were also found by Arthur, Woehr, and Maldegen (2000). They were able to produce good correlations within dimensions across exercises by carefully constructing their assessment center. Most of their assessors were I-O psychologists, and all received careful training about how to translate specific behaviors into ratings. Finally, Lievens (2001) was able to increase the accuracy of assessment center ratings through the use of frame-of-reference training (see Chapter 4). Raters were given examples of effective and ineffective behaviors so they could build a common understanding of performance during training. A combination of all these approaches—using checklists, offering frame-of-reference training, and more carefully choosing assessors, and carefully constructing the centers—will likely produce the best results.

Technology and Assessment

Much of organizational assessment relies on technology, at least in part. Initially, technology was used to deliver assessments, that is, putting paper-and-pencil tests online. As technology has advanced, so too are the electronic tools available for I-O psychologists to use. There are two reasons that organizations have been interested in using technology for assessment. First, Web-based assessment makes it possible to administer an assessment to an applicant anywhere in the world where there is Internet access. This makes it possible to efficiently and rapidly assess a large number of applicants at the same time. Second, there is the possibility that by relying less on human judgment, biases can be reduced, making the selection process fairer to minorities and women. Whether or not that will be the case is still an open question.

Electronic Administration of Psychological Tests

Almost all pre-employment selection tests are administered online. Companies can put a link to the assessment on their application portal, and when a position opens, it is possible to get hundreds of applicants assessed within a matter of hours. Scoring can be automated so that the hiring manager receives a list of prescreened applicants, ordered by their scores on assessments. This enables that manager to quickly identify a group of finalists who can move on to the next step in the selection process, for example, an interview. Although there is much to like about online assessment, there can be disadvantages as well. First, there is concern with cheating and test security. When taking a knowledge test online, an individual can look up answers, which they could not do in a proctored environment when tests are administered in person. Second, computerized tests are not necessarily equivalent to printed tests (McBride, 1998), especially for speed tests, which time how many correct items a person can do in a given interval. One such test is a clerical speed and accuracy test in which the test taker must compare two strings of letters and indicate if they are the same or not—for example:

abdiel	*versus*	abdifl
ghicbe	*versus*	ghicbe

Response time per item can be different when using a computer versus a paper-and-pencil for the same items, thereby, making scores nonequivalent.

Potosky and Bobko (2004) contrasted Web-based with paper-and-pencil tests. They noted that for speed tests, when a test taker has a limited amount of time, adjustments must be made for the loading times of Web pages. Furthermore, test-taking strategies are likely to vary between the two formats. It is easy with paper-and-pencil tests to skip around, so that the test taker might choose to complete certain types of items first and

other types last. Since Web-based tests allow fewer items per screen than paper does per page, it can discourage skipping around, and thus items are more likely to be completed in order. Care must be taken in comparing scores of tests taken with the two formats.

It might seem that computer administration has the potential for increasing the accuracy of personality tests in which people often distort or fake their responses because people are sometimes able to reveal themselves more honestly to a machine, such as a computer, rather than to another person. A computer might seem more impersonal than a paper-and-pencil test to a test taker. Richman, Kiesler, Weisband, and Drasgow (1999) conducted a meta-analysis to see if the tendency to respond in a favorable direction was the same for a computer as it was for a paper-and-pencil administration of a personality test. Overall, the results suggested no differences. However, in looking more closely at the results, Richman et al. noticed that there was somewhat less distortion when the person was alone. When an experimenter was in the room, any feeling of anonymity was apparently lost, and there were no differences between the computer and paper-and-pencil administrations.

Technology is not limited to just administering paper-and-pencil tests with an electronic medium. It allows for the development of new types of tests. Lievens and Sackett (2006), for example, discussed the use of video-based assessment where items consist of a series of video scenarios. These can be administered in an office setting or via the Web. Like assessment centers, trained assessors can score the verbal responses to each scenario by the ratees (Cucina, Su, Busciglio, Harris Thomas, & Thompson Peyton, 2015).

A biographical inventory has also be automated by having applicants dial a phone number and answer yes/no questions using the keys on their telephones (Van Iddekinge, Eidson, Kudisch, & Goldblatt, 2003). Van Iddekinge et al. showed that this type of assessment was able to predict job performance for those subsequently hired. This approach could be used with Web-based technology that allows for more complex answers than simple yes/no.

Gamification and Simulation

Advances in technology and computer graphics capability have led to the development of new types of assessments that can go beyond asking people to answer a series of questions. Simulations can be developed that can measure complex problem solving in the context of a specific job context. These assessments provide the applicant with a simulation of a complex work situation, such as running an airport or factory, which can be like a computer game. The person is given a fixed amount of time to run the simulation; and various indicators of performance are calculated by the computer. Research with these assessments has provided impressive initial evidence that they can predict future job performance for jobs in which problem-solving skills are important (Kleinmann & Strauss, 1998).

Gamification is the introduction of game elements into an activity that is performed, not for fun, but for a serious purpose (Georgiou, Gouras, & Nikolaou, 2019). Existing computer games can be used if they incorporate the needed elements, or applications can be written specifically for a given purpose. For example, one might use a cooperative role-playing game to either train or assess teamwork. Some gamification efforts involve simulation exercises that provide actual job tasks (e.g., flying an airplane). Others can involve applications that are far removed from an actual job, such as running cooperative missions in a first-person shooter (Coovert, Winner, Bennett, & Howard, 2017) to assess or train teamwork.

To date, gamification has been used primarily for educational and training purposes (Coovert et al., 2017), but they have begun to see use as assessments for employee selection purposes. Weiner and Sanchez (2020), for example, showed how a virtual reality game could assess some of the same cognitive abilities as a traditional assessment. Georgiou et al. (2019) gamified a paper-and-pencil **situational judgment test** to see

how it would compare to the original. A situational judgment test contains items that each gives a hypothetical work situation and asks the person to indicate which of a series of actions is best and which is worst. It is sometimes used when hiring managers to get an indication of how well they can make critical decisions that have serious consequences. The scenarios were incorporated into an adventure game that required the test taker to take a series of actions to advance the game story. The choices they made were scored, just as in the original test format. Georgiou et al. argued that their gamification test could assess several job-relevant KSAOs and that they are harder to fake than a traditional test.

Electronic Interviewing

Technology has also made it possible to conduct interviews remotely. Telephone and webcam interviews have become increasingly popular when applicants are located at great distances. Research has shown that interviewees get higher ratings in telephone interviews (Straus, Miles, & Levesque, 2001) and videophone interviews (Chapman & Rowe, 2001). This was particularly true for individuals who were physically unattractive (Straus et al., 2001), suggesting a possible bias in interviews where the interviewer can see the interviewee. Schmidt and Rader (1999) conducted a meta-analysis of structured telephone interview studies and found that the average correlation with performance was about the same as for face-to-face interviews. One of the limitations of the telephone is not allowing for observation of nonverbal information—such as attire, facial expression, and gestures—and these elements can be important to assess for some jobs, such as sales. This limitation can be solved with interviews conducted with a video platform such as MS Teams, Skype, or Zoom. The interviewer and interviewee can see and hear each other as if they were in the same room. The interview can easily be recorded for later evaluation.

A new trend in interviewing is the fully **automated interview**. The interviewee logs into the interview platform and must provide spoken answers to a series of questions that are either presented in written form on the screen or are prerecorded by the interviewer. The responses are recorded with a webcam for later evaluation. Although this interview approach can be efficient in not requiring an interviewer, interviewees do not always respond well. Langer, König, and Krause (2017) observed that interviewees found automated interviews to be creepy, less fair and had privacy concerns compared to a Skype interview with a live interviewer. One limitation is that the automated interview eliminates the social aspects of the interview. Generally, interviews begin with some informal get-acquainted chatting to build rapport with the interviewee (Swider, Barrick, & Harris, 2016). The loss of this interpersonal connection might well come at the cost of a positive experience for the interviewee (Langer, König, & Papathanasiou, 2019), who might leave the interview with a negative impression of the organization, making it less likely that he or she would take the position if offered.

A relatively new development is the use of artificial intelligence (AI) to score interviews and written responses. The automated scoring of quantitative responses to tests and other assessments has been commonplace for decades. Almost no one hand scores tests today—that is done by computer. But there is a big difference between summing quantitative responses to test items and making judgments of nonquantitative materials. Although in its early stages, companies have begun to experiment with automating rating tasks. For example, M. C. Campion, Campion, Campion, and Reider (2016) investigated how well AI could score applicant essays about prior accomplishments. The AI was able to make ratings that corresponded to those that were made by human raters. Similarly, Sajjadiani, Sojourner, Kammeyer-Mueller, and Mykerezi (2019) used AI to score a work history. Although these early attempts are promising, there have been ethical concerns raised about the use of AI where it is not clear about what information is being used to make decisions (Battner, Chamorro-Premuzic, Buchband, & Schettler, 2019).

Social Media for Assessment

A growing trend is to assess characteristics of job applicants through the analysis of their social media presence. Content from Facebook, Instagram, LinkedIn, or Twitter can be evaluated and rated along many different dimensions. Beyond issues of ethics and privacy, a pragmatic question is whether social media can provide assessment of job-relevant information that can be useful to companies. Hartwell and Campion (2020) surveyed hiring managers about their experiences in using social media in evaluating job candidates. While information is relevant to the position in question, such as skills and work experience are seen positively, there are many things people do on social media that leave a negative impression. Some of the things to avoid posting on social media if you are seeking employment are

- Negative comments about gender, race, or religion
- Alcohol or drug use
- Negative comments about current or former employers
- Provocative photos
- Profanity
- Poor grammar and spelling mistakes

Hiring managers might believe social media information is helpful, but can it predict job success? Recent research tells us that it depends on the platform. Van Iddekinge, Lanivich, Roth, and Junco (2016) investigated Facebook as an assessment device. What they found is that not only was it unable to assess KSAOs that would link to job performance, but it also showed bias against women and minorities (see Chapter 6 for discussion of the problems of bias in selection). Based on this study, it would be difficult to recommend using Facebook for selection.

LinkedIn is a professional platform where people can connect to other professionals. People create profiles in which they provide background on their education, employment, and skills. Employers can search profiles to search for potential applicants or screen the profiles of applicants. But, is evaluating profiles worthwhile for organizations? A study by Roulin and Levashina (2019) suggests that it is. Their evaluations of profiles predicted future job success, and they had little bias based on gender or race. They found that there were five characteristics of profiles that led to positive evaluations, in order from most to least important:

1. Length of profile. The more complete the better.
2. Number of connections. LinkedIn allows you to invite people to connect—the more the better.
3. Have a picture in your profile.
4. Include descriptions of your prior job experiences.
5. List your skills.

Most professionals today have a LinkedIn profile. Almost every I-O psychologist I know is on LinkedIn, so it is a good idea to create a profile, particularly if you are employed or are seeking employment.

Computer Adaptive Testing

Computer adaptive testing (CAT) is a flexible computerized approach to item administration where items given to a test taker are chosen based on prior correct or incorrect responses. For an ability test where some items are more difficult than others, the session begins by giving the test taker a moderately difficult item. If the person gets the item correct, a more difficult item is presented. If the person gets it incorrect, an easier item is chosen. As the test proceeds, the computer chooses items that are at the appropriate level of difficulty for the test taker. Thus, each test taker gets a somewhat different set of items, depending on his or her pattern of correct and incorrect answers. By doing

this, CAT is more efficient than standard testing because it can achieve the same level of reliability with fewer items (Penfield, 2006). There is also less concern about security than with nonadaptive testing, since each test taker gets a different set of items, thus making it more difficult to cheat (Reynolds & Dickter, 2010). For these reasons, this approach has been used for mass testing, such as the computerized version of the Graduate Record Examination (GRE).

CAT is not limited to ability tests where each item has a correct item, but can be used with tests to assess characteristics that normally use rating scales, such as attitudes or personality (Stark & Chernyshenko, 2011). One advantage of using CAT techniques to measure these kinds of attributes is its ability to help control for biases and faking that can occur with paper-and-pencil tests (Stark, Chernyshenko, Drasgow, & White, 2012).

CAT is not without disadvantages, however. Perhaps the biggest disadvantage is that the tests take considerable time and resources to develop. A well-designed test will likely have hundreds of items, and data on each item must be collected from a thousand or more test takers in order to determine difficulty levels (Reynolds & Dickter, 2010). Thus, it takes a lot more time and money to develop a computer adaptive test than a nonadaptive test. However, in cases where many individuals will be tested, as with military or school entrance examinations, CAT can be worth the investment.

Chapter Summary

One of the major tasks I-O psychologists do for organizations is the assessment of people's characteristics for selection and placement. These characteristics can be classified as the knowledge, skill, ability, and other personal characteristics, or KSAOs, necessary for successful performance on the job.

The five major methods used to assess KSAOs are

Psychological test
Biographical inventory
Interview
Work sample
Assessment center

A psychological test is a standardized series of problems or questions given to a person to assess a particular individual characteristic. Tests are commonly used to assess many KSAOs, including knowledge, skill, ability, attitudes, interests, and personality.

The biographical inventory asks for detailed information about the person's past experience, both on and off the job. It asks for far more extensive information than the typical job application form.

An interview is a face-to-face meeting between an interviewee and one or more interviewers who are collecting information or making hiring decisions. During an unstructured interview, the interviewer asks whatever questions come to mind. By contrast, during a structured interview the interviewer has a preplanned series of questions that are asked of every person who is interviewed. In both types, the interviewer often makes overall judgments about the interviewee's suitability for the job.

A work sample is an assessment device that requires a person to demonstrate how well he or she can perform job tasks under standardized conditions. It is a type of simulation in which a person does a job, or part of a job, under testing conditions rather than actual job conditions.

The assessment center consists of several different types of exercises that take place over one or more days. Although most assessment centers are used to identify future management potential, they can be used to assess the potential of people for many different types of jobs.

Electronic assessment is commonplace for the administration of psychological tests. Often the test is almost identical to the printed version, with items displayed on the screen and a response made with a keyboard or mouse. Technology is expanding the kinds of

assessments that can be conducted electronically, including interviews and simulation exercises. Gamification is the introduction of the elements of a computer game into assessments and other organizational activities, such as training. Computer adaptive testing (CAT) is a sophisticated approach in which the items administered to an individual are customized, depending on correct and incorrect answers to prior questions. Such tests can yield better reliabilities with fewer items, but they are costly to develop and are, therefore, best left to mass-testing situations.

I-O Psychology in Practice

Many of the I-O functions of organizations are moving to the Web. Dr. Jonathan Canger has been finding new and innovative ways to use this technology in employee recruitment and selection. Dr. Canger received his Ph.D. in I-O psychology from the University of South Florida in 1990. He has worked for a variety of large organizations, including Coca-Cola, Motorola, Verizon Wireless, and Marriott Vacations Worldwide where he is currently the Vice President for Talent and Organizational Capability. He was, at the time of this case, Vice President for Organizational Development at TMP Worldwide, a 10,000-employee national firm that provides a variety of employee recruitment and consulting services. His current responsibilities involve helping the company function more effectively through effective management of employees. He is involved in designing systems to help employees develop their work skills, planning future needs for top managers, and overseeing organizational changes to make the organization function more smoothly. One of the projects he began prior to moving into his current position involved the development of personality tests that could be used to better match people to jobs and organizations.

The best-known service provided by TMP is the Monster career search website. Monster was the 454th dotcom website to be established; and it is one of the few that are currently profitable. It is also one of the most popular: 10% of all Web visits in the world are to the Monster site. The site is a career portal, where potential job applicants can, for no cost, browse lists of available jobs and leave résumés on file (there are currently 14 million) for prospective employers. It is the employer who must pay a fee for listing its jobs or browsing the résumé database.

Dr. Canger came up with the idea of adding personality assessments to the Monster site to assist both applicants and employers in finding better matches. The idea was to put a personality scale online where prospective applicants could easily complete it and have it electronically scored. This information could then be used to help determine which jobs to apply for (applicant side) and who to hire (employer side). Because the number of individuals who would ultimately complete these assessments would be enormous (potentially tens of millions), it was not feasible to purchase an existing assessment from one of the psychological testing companies. Dr. Canger and his team decided to develop their own assessment from scratch.

The first step was to compile a pool of potential personality items. The team decided to use the Big Five theory to provide the underlying dimensions that would be measured. In addition, they added items concerning work values taken from the O*NET (see Chapter 3). These included achievement, recognition, and working conditions. All the items were administered to about 2,000 employees of various organizations in Australia, New Zealand, the United Kingdom, and the United States. This allowed Dr. Canger's team to refine the assessment.

Phase 1 of this project was to put the assessment on the Monster website, available as part of a career development service, which has a nominal fee. People could get feedback about their own personalities, and how they could match to potential employers and jobs. Phase 2 added a component to provide employers with information about potential applicants, so employers could better match people to jobs. Phase 3, scheduled to be operational by the time you read this, will add specific hiring recommendations to employers about individuals, not unlike an I-O consultant who provides selection services.

This is an innovative system for two reasons. First, it is entirely Web based, with both applicants and employers working at different ends of the same integrated computer system. Second, generally, information about personality is used only by the employer, as opposed to potential applicants. Providing this information to both sides should allow for better matching, as both the applicants and the employers will be working toward achieving good matches between the person and the organization.

Discussion Questions

1. What are the advantages and disadvantages of Web-based assessments?
2. Why would it be important to an organization to match a person's personality to a job or organization?
3. Why did Dr. Canger and his team collect initial data in more than one country?
4. What is the advantage of using the Big Five personality dimensions and the O*NET values?
5. What are the advantages to applicants and employers using the Monster website for recruitment?

Learning by Doing

Choosing Selection Tools for a Job

Go to the O*NET website, http://online.onetcenter.org, and go to the "Find Occupation" section. From the top, enter an occupation and review the summary for it. Choose at least 10 KSAOs from the O*NET overview. For each, explain the assessment method you would use to assess it.

Student Selection

List five KSAOs for the job of "college student". For each, explain the assessment method you would use to assess it.

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PART 3

Selecting and Training Employees



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CHAPTER 6

Selecting Employees

OUTLINE

The Planning of Human Resource Needs
Recruiting Applicants
Selecting Employees
- How Do Organizations Select Employees?
- Conducting a Validation Study
- Validity Generalization
- How Predictor Information Is Used for Selection

Getting Applicants to Accept and Keep Jobs Offered
The Utility of Scientific Selection
- How Valid Selection Devices Work
- Computing the Utility of Scientific Selection

International Differences in Selection Practices
Legal Issues
- Legal Selection in the United States
- Legal Selection Outside the United States

Chapter Summary
I-O Psychology in Practice
Learning by Doing
References

Did you ever apply for a job with an organization that required you to complete some sort of an assessment? Most employers will have you complete an application form, but many will also include assessments like the ones we discussed in Chapter 5. The most common are psychological tests, although biographical inventories, simulations, and work samples might also be used. Did you wonder, as you were completing the test, what they were trying to learn about you and why they couldn't just ask? Some tests are fairly obvious, such as a test of mathematical skill, but personality tests often contain questions that seemingly have little to do with the job. Did you feel that the assessments you completed were reasonable, or did they include questions that you felt were none of the organization's business or were not relevant to the job? If the selection system was scientifically developed, the assessments you encountered should have been relevant and would help to predict whether or not you would be successful. Chances are that if you encountered these sorts of assessments, I-O psychologists had something to do with developing them.

Two of the most important functions of any organization are employee recruitment (attracting applicants) and selection (deciding which applicants to hire). The health and well-being of an organization depend in large part on a steady flow of new people. Employees must be hired to fill newly created positions and to replace people who have left the company or been promoted. Acquiring new employees can be a costly and difficult undertaking. It involves the following four steps (Figure 6-1):

Planning the need for new employees
Getting appropriate people to apply for positions (recruitment)
Deciding whom to hire (selection)
Getting the selected people to take the jobs

Employee recruitment and selection involve legal issues in many countries, particularly those in North America and Europe. As we have already discussed, there are

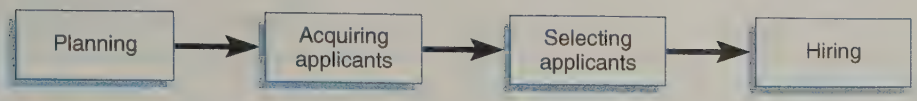


FIGURE 6-1 Four steps for acquiring new employees.

strictly enforced laws in many countries prohibiting discrimination in actions that affect employees. The most frequent target of equal employment opportunity efforts has been the hiring process. An I-O psychologist who gets involved in employee selection must be an expert in the legal issues concerning selection.

In this chapter, we discuss how organizations recruit and select new employees, using the four steps shown in Figure 6-1. Most of the efforts of I-O psychologists involve selection, so we spend more time on that topic than the others. This is not to say, however, that the selection step is the most important. Rather, it is selection that has been the major focus of I-O practice and research since the beginning of the field. In addition to the four steps, we discuss the value or utility of the scientific approach to selection. We also cover the legal issues involved in employee recruitment and selection from the perspective of civil rights legislation.

The Planning of Human Resource Needs

OBJECTIVES

The student who studies this chapter should be able to

1. Explain how organizations conduct human resource planning.
2. Discuss methods of recruitment.
3. Explain the steps involved in conducting a validation study.
4. Describe how scientific approaches to selection can have utility for organizations.
5. Relate the principles of legal selection.

For an organization to stay healthy, it must have a steady supply of human resources or people. These human resources are needed to fill vacancies created by people who change positions within the organization (e.g., are promoted), leave the organization entirely, or to fill new positions that are created by organizational changes or expansion. To do a good job in recruiting the people needed by an organization, careful planning is necessary. Human resource plans must include both a consideration of the organization's needs for people and the supply of possible people to hire (Cascio, 1998).

Forecasts of human resource demands usually list the number of people needed in each job category, such as the number of clerks or teachers. Table 6-1 is an example of a projection that might be made by a manufacturing company that is facing a gradual automation of its factories. The number of assembly-line workers needed declines steadily, while the number of technicians registers a corresponding increase. This is a common trend in industry, and it is important that organizations plan for reduction in one type of employee and increase in another. The organization can take a variety of actions to deal with the shifting nature of jobs and job requirements. The selection approach would replace assemblers with technicians. The training approach would turn assemblers into technicians.

TABLE 6-1

Projections of Employees Needed for an Organization Undergoing Automation of Its Manufacturing Processes

Job classification	Now	Year 1	Year 2	Year 3	Year 4
Assemblers	20,000	16,000	10,000	5,000	4,000
Technicians	20	200	400	600	1,000

The selection approach is necessary when the current workforce does not have the ability and motivation to learn the new skills. The training approach is necessary when there is an inadequate supply of people in the labor market with the necessary KSAOs. Such shortages have necessitated a shift for many companies from a pure selection approach to a training and staff development approach in which existing employees are offered retraining. This approach has the advantage of minimizing harm to current employees and produces less disruption to the workplace that can hurt productivity.

The supply of people to hire in the labor market can be estimated in a variety of ways. Organizations can keep track of the number of people who apply for various positions. In addition, government agencies provide information about the number of available workers in different job categories. In the United States, several agencies provide this sort of information (Table 6-2), including the Bureau of Labor Statistics (http://www.bls.gov; Figure 6-2). A comparison of the demand and supply of people for various jobs is an important component in choosing between a selection or a training approach to meeting future human resource needs.

TABLE 6-2

Sources of Labor Market Information for the United States

Bureau of Labor Statistics of the U.S. Department of Labor
Engineering Manpower Commission
National Science Foundation
U.S. Department of Education
Public Health Service of the U.S. Department of Health and Human Services
U.S. Employment Service

Source: Adapted from *Applied Psychology in Personnel Management*, 5th ed. (p. 163), by W. F. Cascio (1998), Englewood Cliffs, NJ: Prentice Hall.

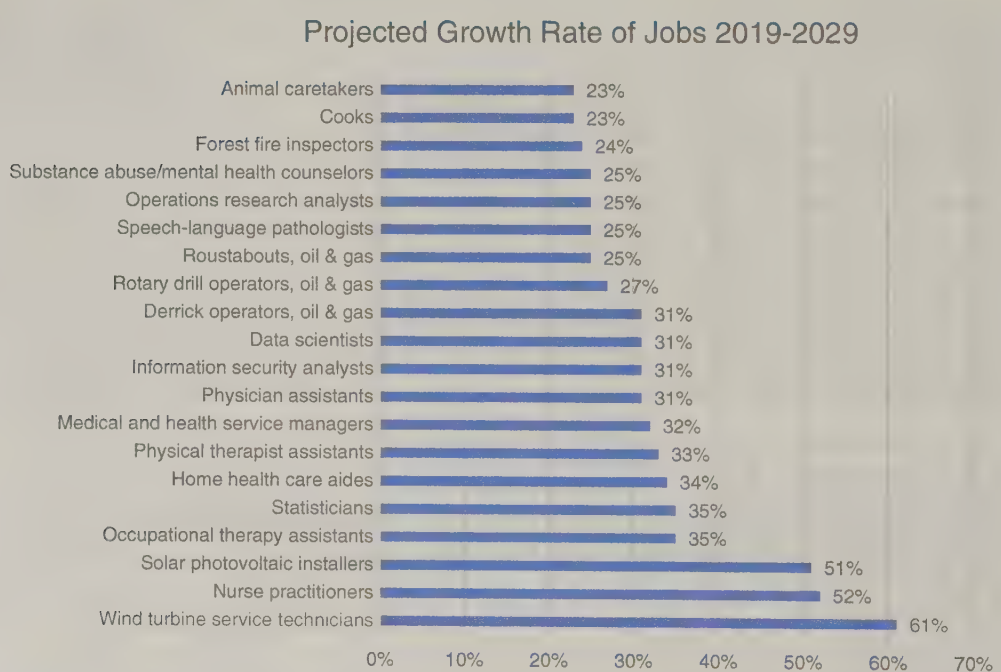


FIGURE 6-2 Occupations with the highest projected growth rate from 2019 to 2029 in the United States.
Source: From "Occupational Outlook Handbook: Fastest Growing Occupations" U.S. Department of Labor (2021). Retrieved April 7, 2021, from https://www.bls.gov/ooh/fastest-growing.htm.

Recruiting Applicants

The attraction of talent is a major human resource activity for large and many small organizations. Acikgoz (2019) notes that recruitment efforts need to consider both the job seeker and the organization. Figure 6-3 illustrates how this process unfolds. We have job seekers who engage in a variety of search behaviors. They might target specific organizations where they wish to work (e.g., Apple, Google, or local law enforcement), or look more globally for positions, perhaps by using job search services or consulting social media. At the same time, organizations are utilizing recruitment resources, depending on the nature of the positions. To maximize effectiveness, they must recruit in places where job seekers are searching. The combination of searching and recruiting results in potential applicants becoming aware of positions. Organizations need to recruit in a way that attracts qualified applicants who have the needed KSAOs to apply for the position; in other words, they need to market the organization to make it attractive to the applicants (Breaugh & Starke, 2000). This means providing sufficient information that makes clear what is required for the position, so unqualified applicants will be unlikely to apply, and at the same time highlighting the positive aspects of the organization (e.g., competitive pay and benefits) and position (e.g., personal development opportunities and high promotion potential).

Turban and Cable (2003) conducted a study in the placement office of a university, finding that companies with better reputations as good employers attracted more and better (higher GPA) applicants. Uggerslev, Fassina, and Kraichy (2012) conducted a meta-analysis of 232 studies that investigated factors that attracted applicants to jobs. They found that the four factors that were most important to applicants were the perceived fit between the applicant and the job, anticipated treatment by the organization, anticipated quality of relationships with coworkers, and the prestige and reputation of the organization.

Once applications are collected, the organization switches from recruitment activities designed to attract applicants to selection activities designed to identify the most qualified applicants who will receive job offers. The selection process should be conducted in a way that attracts applicants to the organization and position. The best selection system in the world will not be helpful if it discourages applicants from accepting offers. This means that every applicant must feel that they were fairly treated during the application process and that the organization would be a good place to work.

There are six possible sources of applicants that are commonly used by organizations:

Company website
Direct inquiries by applicants
Referral by existing employees
Employment agencies or headhunters
Internet (listservs and social media)
School recruiters who visit campuses

The choice of sources depends on the ease with which organizations can recruit applicants and where qualified applicants are most likely to search. Some organizations find that they get enough applicants by posting positions on their own websites, so more

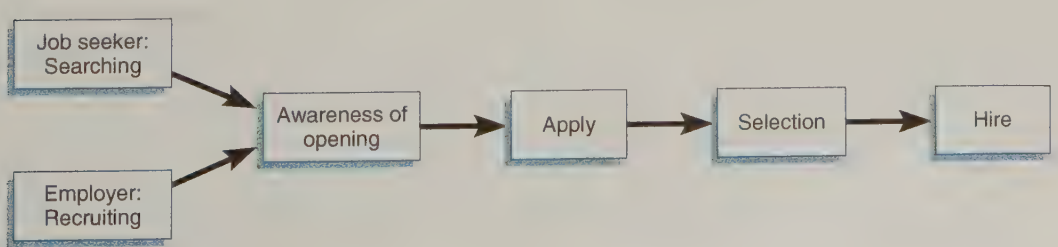


FIGURE 6-3 Five steps of employee recruitment.

costly and time-consuming methods are unnecessary. Others find that they must utilize a variety of sources to get sufficient qualified applicants.

For most positions, organizations rely on their own websites as the initial point of contact (Chapman & Webster, 2003) with job applications being completed online. There is a portion of the organization's website where openings are posted and initial applications are submitted. Applicants interested in specific organizations can monitor openings in the hope that positions they are seeking will appear. Some organizations, particularly smaller ones, might rely on employment companies that will post their positions and handle initial application and screening. One drawback to this automated approach is that there can be little or no human contact, so it can seem distant and impersonal to applicants (Parry & Wilson, 2009), which can make positions less attractive. For this reason, the design of applicant portals is important, as a well-designed and useable site will attract more and better applicants who are likely to be loyal employees who remain with the company (Selden & Orenstein, 2011).

There are a number of Web-based resources for applicants and employers to connect. Web-based recruitment companies, such as CareerBuilder, Monster, Simply Hired, and ZipRecruiter, will post job notices for employers and provide job search tools for applicants. Generally, a potential applicant can go to the website and search for a job for free. Sophisticated features allow for searches by geographic region, job title, and even salary level. Applications can be completed for many jobs online. Employers pay to post positions or to browse résumés of prospective employees who created profiles for particular types of jobs. These Web services can do far more than just post jobs, however. Some provide prescreening, online assessments, and systems to help manage recruitment.

Social media is becoming increasingly important for recruitment. Many companies post ads on social media, such as Facebook and YouTube, and some maintain their own YouTube channels. According to one study, Facebook is a more credible source of information about a position than the company's own website, and it is seen as higher in personal focus (Frasca & Edwards, 2017). This is important since it can introduce a personal element into automated recruitment. LinkedIn is a social media platform where job seekers and potential employers can network and interact one-on-one about positions. Job seekers are able to search for positions, while employers are able to search for applicants based on the experiences and skills listed in their profiles.

With many highly skilled positions, organizations compete with one another to attract the same individuals. When high-quality applicants are in short supply, more expensive and time-consuming methods might be necessary to attract the people who are needed. The different sources of job applicants do not necessarily attract the same quality of applicants. Schlachter and Pieper (2019) reviewed decades of research on applicant sources and found consistent evidence that individuals who were referred by existing employees have better job attitudes, perform better, and remain on the job longer on average than individuals who came from other sources (advertising or employment agencies). Likely, referred employees are more satisfied with their jobs because they have more realistic expectations about what the job will entail (Moser, 2005). Zottoli and Wanous (2000) suggested two reasons for the superiority of referrals. First, such applicants receive more accurate information about the job and so they prescreen themselves out of jobs for which they are unsuited. Second, recommenders will assess fit before suggesting someone for a job. Employees can have a personal stake in hiring good people in their own areas, and so they will refer only individuals who they believe will perform well.

The efforts made to recruit good applicants should be based on a detailed specification of the knowledge, skill, ability, and other characteristics, or KSAOs, needed for a job (see Chapter 3). When the KSAOs are specified in advance, organizational efforts can be directed toward recruiting the right applicants, thereby increasing the efficiency of recruitment. For example, if an organization needs people who have computer skills, efforts can be centered in areas where such people are expected to be, such as large universities. On the other hand, if the organization needs a large supply of manual laborers, an area with a high unemployment rate because of factory closings might be a good place to look.

Selecting Employees

If an organization is fortunate, it will have many more good applicants than the number of vacant jobs. As we will see in this section, the more selective an organization can be, the better the chances that the person hired will be a good employee. This is because many of the employee selection procedures developed by I-O psychologists work best when there are many applicants from whom to choose. These procedures are based on statistical methodologies used to develop selection systems. We first discuss the criterion-related validity approach to employee selection taken by I-O psychologists. This approach is based on scientific principles and statistics. We then briefly discuss alternative procedures that are often used because of practical considerations. Next, we cover the utility of our selection techniques. Utility is concerned with the benefits that organizations achieve from using scientific selection. In other words, is it worth the investment?

How Do Organizations Select Employees?

The purpose of employee selection is to hire people who are likely to be successful on the job, as organizational performance is dependent on having employees who perform their jobs well. A common approach used by many organizations is to have a manager interview the applicants and decide which one seems to be the best choice to hire. Such purely subjective hiring procedures, however, have been shown to be biased and inaccurate. A better approach is to use scientific methods that have been shown to work in almost a century of research on employee selection.

Two important elements in employee selection must be considered. First is the *criterion*, which is the definition of good employee performance. Although it may seem obvious that we hire the person who is expected to be the best performer, it is not always easy to define what we mean by good performance. Job performance involves many different aspects. Some employees may work very accurately, whereas others work very fast. It is not always obvious if we should hire based on one aspect of the criterion (e.g., attendance) or another (e.g., work quantity). These issues were discussed at length in Chapter 4. To use scientific selection methods, we first must know what the criterion is for the job in question.

The second element is the *predictor*, which is anything assessed in job applicants that relates to the criterion. In Chapter 5, we discussed several methods for assessing characteristics that are relevant to job requirements. These techniques can be used to assess KSAOs that are necessary for job success. Measures of KSAOs can be used as predictors of a criterion of job performance. Knowledge of the subject matter, for example, should be a good predictor for the job performance of a classroom teacher. It is not the only predictor, for knowledge alone does not make someone a good teacher.

Determining if a given predictor relates to a criterion requires a **validation study**, which is a research study that attempts to show that the predictor relates to the criterion. To conduct this sort of study, both the criterion and the predictor are quantified. Data are collected for a group of employees on both the criterion and the predictor variables. Because they are both quantified, a statistical test can be conducted to see if they are significantly related. The correlation coefficient indicates how well the two variables relate to each other. If the two variables are significantly related statistically, you can conclude that the predictor is valid in terms of the criterion. The implication is that you could use information about the predictor to forecast the applicant's likely performance on the job.

Conducting a good validation study is a complex and difficult undertaking. First, you must carefully analyze the job and job requirements using job analysis. The results of the job analysis can be used to develop criteria for the job and to pick predictors. Data are collected to verify that the chosen predictors are valid. Such valid predictors will become part of the organization's employee selection system. We discuss this process in greater detail in the next section of the chapter.

Conducting a Validation Study

Conducting a validation study involves five steps:

1. Conduct a job analysis.
2. Specify job performance criteria.
3. Choose predictors.
4. Validate the predictors.
5. Cross-validate.

Conducting a job analysis provides the information needed to proceed with the next two steps of specifying criteria and choosing predictors. Once these steps are completed, data can be collected on a sample of employees to determine if the criteria are related to the predictors. If they are, the results must be replicated on a second sample to verify the results. The five steps are illustrated in Figure 6-4.

Step 1: Conduct a Job Analysis. As we discussed in Chapter 3, a job analysis provides information about the tasks involved in a job. It also provides information about the characteristics (KSAOs) an employee needs to be successful on a job. These two types of information are not independent, for the specification of KSAOs often is derived from an analysis of the tasks required for the job.

As we discuss later in the section on legal issues, an important concept in employee selection is job relevance—the correspondence between the KSAOs needed for job success and the KSAOs of the job applicant (Blog 3-1 discussed job relevance). For selection that is both effective and legal, these two types of KSAO requirements should correspond. Hiring people with characteristics that are not related to the job requirements or without characteristics that are related would be foolish at best and illegal at worst if it results in unfair discrimination against minorities or women. Thus, it would make sense to hire on the basis of physical strength if the job requires heavy lifting, such as a dockworker. It makes little sense to have a strength requirement for schoolteachers.

A job analysis can be used in many ways as the basis for a validation study. The job analysis can identify the major components of the job. Next, an analysis can be done to specify the KSAOs necessary to accomplish each component. From this information, a list of performance criteria and potential predictors can be made.

For example, a major component for a manager's job might be managing a budget. Managers often have to develop budgets and manage their resources so that they do not exceed them. One KSAO that would be important for managing a budget is basic arithmetic skill, such as addition and subtraction. People hired to be managers should have this skill.

Step 2: Specify Job Performance Criteria. Once you have a good idea about what a job entails, you can begin to develop criteria for successful job performance. For example, if a manager is required to manage a budget, a reasonable criterion might be how well the manager stayed within the budget. There can be many reasons for not staying within the budget, so this criterion alone is not sufficient for evaluating how well a person performs the job. However, for a validation study we are interested in using criteria that might be

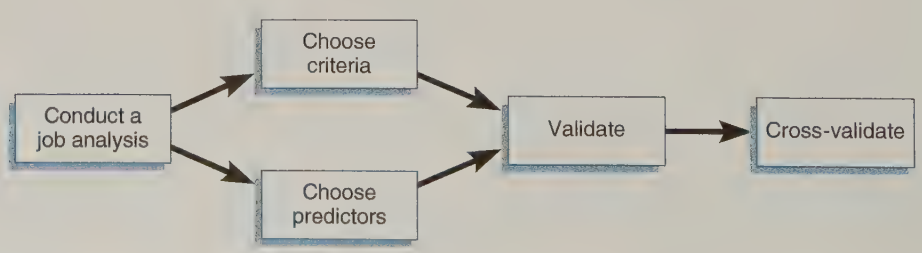


FIGURE 6-4 The five steps for conducting a validation study.

predicted by one or more of our predictors. For example, if a test of mathematical skill is found to predict how well a manager can stay within a budget, then we can expect to hire managers who on average do better on the criterion if that test is used to help select them.

Step 3: Choose Predictors. As we develop our criteria for a job, we also choose potential predictors of performance on those criteria. Potential predictors might be chosen to assess KSAOs directly, as with a psychological test of arithmetic skills. Other predictors might be less direct as measures of a KSAO. We assume that college graduates have certain knowledge, skills, and ability, such as being able to do basic mathematics and to read their native language. Using education level as a predictor can eliminate the need to assess many KSAO requirements for a job. This is why many organizations prefer to hire college graduates. Care must be taken, however, that requiring a college degree is reasonable for the job in question. A degree would be overkill if the job required only basic arithmetic and a fourth-grade reading level.

In Chapter 5, we discussed five methods that can be used to assess KSAO levels of applicants. All these methods are frequently used as predictors in validation studies and have been shown to be valid predictors of job performance:

Assessment centers
Psychological tests
Biographical inventories
Work samples
Interviews

These tools might predict other nonperformance criteria as well, such as job satisfaction. Although few organizations select employees based on the likelihood that they will enjoy the job, it is possible to conduct such a validation study to find appropriate and valid predictors. Criteria chosen for validity studies usually are concerned with an aspect of job performance or other behavior that is directly related to accomplishment of organizational objectives.

Step 4: Validate the Predictors. After the criteria and predictors are chosen, the data collection phase of the validation study can proceed. In this step, measures of the criterion and the predictors are taken on a sample of people to see if the predictor relates to the criterion. A good field test of the predictor is done in the organizational setting in which it is expected to be used in the future. Most validation studies are done in actual organizational settings as opposed to laboratory settings. In the laboratory, you might determine that a human attribute relates to task performance, but you cannot be certain that it will generalize to an organization. By conducting field studies in the settings in which selection tools will ultimately be used, the likelihood of generalization is maximized.

There are two types of study designs for conducting a validation study. In a **concurrent validation study**, both the criterion and the predictor scores are collected from a sample of current employees at more or less the same point in time. A sample of employees might be asked to provide predictor data by taking an assessment test. Test scores would then be correlated with employees' most recent performance evaluation. If the two are related, we assume that scores on the predictor at the time of application for a job will predict later performance on the job.

In a **predictive validity study**, the predictors are measured before the criterion. A sample of job applicants is assessed on the predictor, but scores on that predictor are not used in deciding who to hire. In other words, we hire applicants who are both high and low on the predictor. After the new hires have been on the job for some time (from a few months to a year), we assess the criterion or criteria. We conduct statistical analyses to see if the predictor relates significantly to the criterion or criteria. If the predictor can predict future performance, we can have reasonable confidence in the predictor as a valid selection device.

It might seem that the predictive design would be superior to the concurrent in validating predictors because the predictive design tests the predictor on applicants rather

than employees who already have been selected and trained. Because the predictor is used on applicants, generalizability should be maximized. Research has shown, however, that the two designs are equally effective in validating predictors. Validity coefficients, the correlations between scores on the criterion and predictor, have been found to be about the same in studies using the two different types of designs (Schmitt, Gooding, Noe, & Kirsch, 1984). This is good news for organizations because predictive designs take a long time to conduct. You might have to wait a year after collecting predictor scores to collect criterion scores. Furthermore, for some organizations it could take months or years before a sufficient number of people are hired to conduct the analysis. A concurrent study can be conducted in as little as a few days if the predictor can be administered quickly and the criterion scores are readily available.

Step 5: Cross-Validate. The final step in a validation study is to **cross-validate** or replicate the results of one sample with those of another sample. This is done to be certain that our results are due to a real correlation between the criterion and predictor and not a statistical error. In any study involving statistics, significance can occur by chance as opposed to occurring due to real relations among the variables of interest. Such statistical errors are called Alpha or Type 1 errors. To protect ourselves from making an error in our conclusions about whether a predictor can forecast a criterion, we cross-validate or repeat our analyses on another sample of applicants or employees. It is extremely unlikely that we will find the same results twice if there is no relation among the variables of interest. In other words, two successive Type 1 errors are unlikely.

To conduct a cross-validation, we need two samples. The first sample is used to determine if the criterion and predictor are significantly correlated. A second sample is used to see if the significant relationship found in the first sample can be repeated on the second. The predictor is validated on the first sample and then double-checked or cross-validated on the second. Cross-validation adds to our confidence that the predictor can forecast the criterion or criteria of interest. In most field settings, cross-validation is done by taking the original sample and dividing it randomly in half. The first half is used for the validation, and the second is used for the cross-validation.

Validity Generalization

At times, it is not necessary to collect data to validate a selection test or other assessment device. Selection tests that are valid in one setting are typically valid in other similar settings. **Validity generalization** means that validities of selection devices are generalizable or transportable from job to job and organization to organization (Schmidt & Hunter, 1977). If a knowledge test predicts performance for an administrative assistant in one organization, for example, it will likely predict for an administrative assistant in another organization.

The idea of validity generalization has been widely accepted among I-O psychologists (Murphy, 2000), at least as long as the jobs and tests in question are comparable. If you validate a test for the selection of people in a particular job, the test should be valid for the same job in a different organization. It should also be valid for a job that has the same KSAO requirements. If the second job is different from the job for which the test was valid, the test in the second case may or may not be valid. The only way to be certain would be to conduct another validation study on the second job to determine if the test predicts the criterion.

How Predictor Information Is Used for Selection

Once it is determined that a predictor or predictors are valid forecasters of future performance criteria, it must be decided how best to use the predictor information. Two popular uses of predictor information are as hurdles and as predictors in a regression equation. With either approach, multiple predictors can be used in combination. Often

prediction is better with several rather than single predictors because multiple KSAOs are necessary for job success. Blog 6-1 compares using hurdles versus predictor equations in selection.

BLOG 6-1 Equations or Hurdles in Selection

https://paulspector.com/equations-or-hurdles-in-selection



Discussion Questions

1. Which do you prefer, equations or hurdles, and why?
2. Why should a company use pre-employment assessments?
3. Which are the best pre-employment assessments to use and why?
4. What would be the result of using high cut scores when there are few applicants?

Multiple Hurdles.

The **multiple-hurdle** approach sets a passing score for each predictor. If an applicant achieves that score, then the hurdle is passed. For example, a computer salesperson should have several KSAOs in order to be successful on the job. One obvious KSAO is knowledge of computer principles. Completion of a college degree in computers could serve as an indicator of the KSAO, and the applicant would pass this hurdle if he or she had such a degree. Another important KSAO might be communication skills so that the person can relate well to customers. This might be assessed with a communication skills exercise. Applicants would have to have a passing score on the communication skills exercise to pass this hurdle.

It is efficient to use multiple hurdles in a specified order and eliminate applicants as the assessment process goes from hurdle to hurdle. It would make financial sense to order the predictors in terms of cost from least to most expensive. For example, only those computer sales applicants with college degrees would be given the communication skills exercise, since the earning of a degree can be seen in an initial application, whereas the exercise will have some additional cost to administer. Many organizations use relatively inexpensive preliminary screening methods as hurdles so that expensive assessments are not used with people who easily could have been screened out earlier in the process.

Regression Approach.

The *regression approach* uses the score from each predictor in an equation to provide a numerical estimate or forecast of the criterion. With the computer sales job, an equation could predict the actual dollar amount of sales per month. Predictors for that job might be GPA in college and scores on the communication exercise. Both quantitative variables (GPA and exercise score) can be combined mathematically to forecast criterion scores (e.g., monthly sales). Individuals who are forecasted to have the best criterion scores would be those who are hired.

With a single-predictor variable, a linear regression equation is calculated from a sample of data. To compute an equation, you must have data on both the criterion and the predictor so that you can compare how well the forecasted criterion scores match the real criterion scores. The general form of a linear regression equation is

$$Y = b \times X + a$$

where X is the predictor, Y is the criterion, b is the slope, and a is the intercept. When the equation is used, a and b are known quantities. A forecasted value for the criterion (Y) can be computed by replacing X with values of the predictor.

The regression equation is developed from the data of a validation study. In addition to the correlation coefficient, a regression equation can be computed for a sample of data on a criterion and predictor. As noted earlier, this equation provides a means of forecasting the criterion from the predictor. For example, daily sales for a salesperson might be forecasted from scores on the communication exercise. The most accurate forecast might be achieved from a regression equation such as the following:

$$\text{Sales} = \$400 \times \text{Exercise Score} + \$2{,}000$$

In this equation, a is \$2,000 and b is \$400. If a person had an exercise score of 10, his or her sales would be predicted to be \$6,000:

$$\text{Sales} = \$400 \times 10 + \$2{,}000$$
$$\text{Sales} = \$6{,}000$$

If another person had a test score of 5, his or her sales would be predicted to be \$4,000:

$$\text{Sales} = \$400 \times 5 + \$2{,}000$$
$$\text{Sales} = \$4{,}000$$

Obviously, the first person would be preferred because his or her forecasted performance is higher.

A similar procedure is applied when there are two or more predictors. This case involves the use of multiple correlation and multiple regression. Multiple correlation is the correlation between a criterion and two or more predictors combined. The multiple correlation coefficient is indicated by an R. Multiple regression is a statistical technique that provides an equation relating two or more predictors simultaneously to a criterion. The equation can be used to forecast the criterion from scores on the predictors. In many cases, several predictors combined can provide a more accurate forecast of the criterion than any of them alone.

The general form of a multiple regression equation is

$$Y = (b_1 \times X_1) + (b_2 \times X_2) + a$$

for the two-predictor case. In this equation, the Xs are predictors, Y is the criterion, a is the intercept, and the bs are regression coefficients. The coefficients and intercept are computed from sample data. The equation is solved by substituting values of the predictors for the Xs. A forecasted value for the criterion is then computed.

For example, we can combine the scores on the communication exercise with GPA in college. Assume that both of these predictors relate to sales performance. Combined they might provide more accurate forecasts than either one alone. If each predictor had a correlation of .40 with sales, combined they would likely have a multiple correlation that is greater than .40. The magnitude of the multiple correlation is a function of how strongly each predictor variable correlates with the criterion variable and how strongly the predictor variables correlate with one another. The multiple correlation will have the largest value when the predictor variables are uncorrelated with one another, so there is no overlap between them.

A multiple regression analysis would provide an equation that would forecast sales from both the exercise score and the college GPA. The equation could be used to forecast the sales from scores on the two predictors. Suppose that the predictor equation was the following:

$$\text{Sales} = (\$2{,}000 \times \text{GPA}) + (\$1{,}000 \times \text{Exercise}) + \$2{,}000$$

In this equation, a is \$2,000, and the bs are \$2,000 and \$1,000. To use the equation, multiply GPA by \$2,000, and add it to the exercise score multiplied by \$1,000. To this total add \$2,000. The resulting number is an estimate of the person's future monthly sales. If a person had a college GPA of 2.0 and an exercise score of 4, his or her forecasted sales would be \$10,000. A person with a 4.0 college GPA and an exercise score of 10 would be forecasted to have sales of \$20,000.

The magnitude of the relation between the predictors and the criterion determines how accurate the prediction is likely to be. If the predictors correlate strongly with the criterion, the forecasted values for sales are likely to be fairly accurate. If the predictors do not correlate very well with the criterion, the forecasts will not be very accurate. Even when predictors relate to criteria modestly, however, using the scientific approach we have discussed can still result in hiring better-performing employees than using nonscientific approaches.

Every regression equation must be cross-validated to be sure that it continues to make reasonably accurate forecasts. An equation that is generated from a sample of data will make the most accurate predictions possible for that sample. For statistical reasons that are beyond the scope of this book, it is not likely that the same equation will be as accurate when used on a second sample. To perform a cross-validation, the equation generated from one sample of data is applied to a second sample of data. Usually the accuracy of forecasting will be reduced when using the first sample equation on the second sample. If the regression equation yields nonsignificant results when used on a second sample, it should not be used.

An implication of using the regression approach is that a low score on one predictor can be compensated for by a high score on another. The multiple-hurdle approach avoids this problem because an applicant must reach the passing score for each predictor. This can be important because a person often must have a reasonable level on every KSAO even if some KSAOs are very high. For example, in selecting a surgeon there are two equally important KSAOs. He or she must have the knowledge of how to operate and the manual skill to do so. A high level of one KSAO cannot overcome a deficiency in the other. Skill with a scalpel is insufficient if the surgeon does not know where to cut. The limitation of the regression approach can be overcome by combining it with the hurdles approach. First, applicants would be screened using the hurdles. A regression equation would then be applied only to those who made it past the hurdles.

Even when validation studies have been conducted, it is far more common for companies to use subjective approaches to combine results of different predictors than to use formal multiple hurdles or regression results, the latter of which is rare in practice. Ganzach, Kluger, and Klayman (2000) conducted a study that compared the subjective approach with multiple regression for the recruitment of Israeli soldiers. They found that regression was superior in forecasting a measure of performance, suggesting there can be advantages to this approach but that a combination of regression and subjective judgment worked best.

Alternatives to Conducting Validation Studies. Most organizations select employees without going through costly and time-consuming validation studies. Organizations do not always hire enough people to conduct such studies, which can require more than 100 people to do properly. Other times organizations do not wish to invest the money or time to conduct these studies. For an organization with hundreds of different jobs, it could cost millions of dollars to conduct validation studies for every position.

An alternative approach is to rely on the established validity of selection tools that can be linked to KSAO requirements. With this approach, one conducts a job analysis to determine KSAOs. Established methods to assess each KSAO are then chosen. If the job analysis results indicate that cognitive ability is needed, an existing cognitive ability test can be chosen. This approach relies heavily on existing research findings concerning the validities of existing methods. It does not involve data collection to test for validity of predictors. An organization can often rely on validity generalization results to help guide its choice of selection methods.

It is possible to purchase existing selection devices that have been developed elsewhere. Psychological testing companies have validated tests for sale to organizations. As we discussed in Chapter 5, many tests exist to assess hundreds of different characteristics. It is even possible to hire members of consulting firms to administer all sorts of assessments, including assessment centers, interviews, simulation exercises, and tests. Sometimes it is less expensive for an organization to buy assessment services than to do its own. This is likely to be true with a small company that has few people to assess or a large company that is hiring few people into a particular type of position.

No matter how selection decisions are made, once it is decided whom to hire, procedures must be initiated to get that person to take the job. An organization has many ways to entice a person to join it, including offering fringe benefits and restructuring the job to suit the individual. One procedure that is often used is the realistic job preview, which we discuss next.

Getting Applicants to Accept and Keep Jobs Offered

The recruitment job is not over when it is decided who will be offered a job. The next step is being sure that the applicants an organization wishes to hire are interested in accepting the job offer. Installing the most accurate selection system possible is of little value if the applicants who are identified as potentially good employees will not take the job that is offered. Of equal importance is ensuring that individuals who take a job do not quit in a short period of time because they find that they do not like the job.

Convincing an applicant to accept a job involves several strategies. First, it is important for the recruitment process to be a positive one and for the prospective employee to feel he or she has been treated fairly (Hausknecht, Day, & Thomas, 2004). Second, salary and compensation offers should be comparable to those of other organizations for similar jobs in the same area (Chapman, Uggerslev, Carroll, Piasentin, & Jones, 2005). One way to make sure that offers are competitive is to conduct a salary survey to find out what other organizations are paying. This is done by contacting organizations and asking them what they pay for particular positions. Another way to handle compensation is to negotiate salary and other rewards with the potential employee. Many organizations are flexible in their benefits and salaries and may be able to tailor them to the demands of applicants. One such approach is the **cafeteria benefits** program, in which employees are allowed to choose their benefits from a long list of possibilities, such as different types of insurance policies. Organizations can also offer flexibility in the content of jobs so that a potential employee can modify the job to his or her liking.

Third, the behavior of recruiters is an important influence on applicants accepting job offers. Chapman et al. (2005) showed that it is important for recruiters to be personable and provide honest information about the job. Providing a falsely positive view of an organization can result in high turnover as new employees find that conditions are not as favorable as they were presented to be. A person may find that the job is intolerable because of some situation that he or she did not know about at the time the job was accepted. For example, a person may not have been told that the job involved extensive travel during the summer. A person who finds that job conditions are unacceptable will be likely to quit. Recruitment will have to begin again to find a replacement.

The **realistic job preview (RJP)** is used to give job applicants accurate information about the job and the organization. It is most typically accomplished with a brochure or video clip (Wanous, 1989). A good RJP provides an accurate view of both the favorable and the unfavorable aspects of a job so that a person who accepts a job will do so with accurate and realistic expectations. A person who knows what he or she is going to encounter will be more likely to remain on a job if unfavorable, but anticipated, conditions arise. If conditions exist that a person cannot tolerate, he or she will refuse the job

offer. Another person who is willing to accept the situation will be hired and will be more likely to stay on the job.

Research with the RJP has shown some benefits from their use. A meta-analysis by Earnest, Allen, and Landis (2011) summarized results of 52 RJP studies. They found that the largest benefits were an increase in perceptions of the organization's honesty, and the proportion of applicants who accepted offers. Although there was a decrease in turnover, the effect was surprisingly small. The failure to find larger effects of an RJP on turnover might be explained by the complicating effect of job experience. Meglino, DeNisi, and Ravlin (1993) conducted a field experiment in which applicants for a correctional officer position were assigned to either an RJP or a control condition without an RJP. Applicants in each group were classified according to prior experience as a correctional officer. The results showed that the impact of the RJP on turnover was different for the experienced and inexperienced applicant groups (see the Research in Detail box). These results show that the effects of the RJP might not be the same on everyone, although in general RJPs have been shown to have positive effects.

Research in Detail

Field experiments are difficult to conduct in organizational settings. This study by Meglino, DeNisi, and Ravlin (1993) is an example of a field experiment that was conducted over a relatively long period of time. Its purpose was to investigate the effects of a realistic job preview (RJP) on the turnover of employees who varied in experience on the job in question. Although many studies have shown the effects of RJPs on turnover, these researchers thought that the effects would differ between experienced and inexperienced employees.

Subjects were applicants for the job of correctional officer who were randomly assigned either to receive or not to receive the RJP. The subjects were further divided into two groups depending on their prior experience in a similar job. Data were collected concerning whether or not each applicant took the job and how long each applicant stayed on the job. Thus, there were two dependent variables—job acceptance and job survival.

The results showed that the impact of the RJP was different for the experienced and inexperienced applicant groups. The experienced applicants were less likely to take the job if they were exposed to the RJP. They were more likely to quit the job during a 3- to 9-month probationary period, and they were less likely to quit after the probationary period if they were given the RJP. The inexperienced applicants were more likely to accept the job after seeing the RJP. The RJP had no significant effect on their turnover rate. These results show that the effects of the RJP might not be the same on everyone. Perhaps the RJP was more meaningful to experienced applicants who had a context in which to interpret the information. They knew that a particular feature of the job would be unpleasant, even though it might not initially seem to be so. Results also show that the effects can differ over time. Positive effects on turnover might not occur immediately.

Overall, it has been found that RJPs can be an effective and relatively inexpensive way of decreasing unwanted employee turnover. This study shows that organizations should consider carefully the characteristics of applicants when deciding to implement a preview because they might not reduce turnover for experienced employees.

Source: Adapted from "Effects of Previous Job Exposure and Subsequent Job Status on the Functioning of a Realistic Job Preview," by B. M. Meglino, A. S. DeNisi, and E. C. Ravlin (1993), *Personnel Psychology, 46,* 803–822.

The Utility of Scientific Selection

Perhaps the most important question to ask about the scientific approach to employee selection concerns its utility or value. What is the payoff to an organization, or return on investment, for using this difficult and time-consuming approach to selection? The

answer is not easy to determine. Research has shown that scientific selection can result in the hiring of better employees, but its effects on overall organizational functioning are not as easy to determine. This is because individual units of an organization do not always use selection systems as they were designed (Frese & Zapf, 1999). The study of the value of a selection procedure is called **utility analysis**. I-O psychologists have developed mathematical procedures for conducting utility analyses of selection procedures. In this section, we first discuss in general how selection devices can result in the hiring of better employees. We then consider how utility analysis has been used to show how these selection procedures can have important effects on organizational functioning.

How Valid Selection Devices Work

An understanding of utility analysis must begin with an understanding of how selection devices work. Three basic concepts form the foundation of this discussion:

Baserate
Selection ratio
Validity

These three factors determine the extent to which scientific selection will result in hiring better-performing employees. If it does so, then we must consider the cost of using the selection device in determining its utility.

Baserate.

The **baserate** is the percentage of applicants who would be successful on the job if all of them were hired. For some jobs, most applicants would be capable of performing well, making the baserate close to 100%. For other jobs, relatively few applicants would be successful, making the baserate close to 0%. A baserate of 50% results in the maximum utility because it offers the most room for improvement in accuracy of forecasting. Suppose you know the baserate from prior experience with employees on a job. If 50% have been successful in the past, the best accuracy rate you could expect by guessing which applicants would be successful is 50%. If you guessed that every applicant would be successful or unsuccessful, you would expect to be correct half the time. Using a predictor, you could improve your accuracy up to 100%. This would represent a difference of 50% in accuracy between the baserate and your predictor.

If you know that the baserate is less or more than 50%, you can achieve better than the 50% accuracy by guessing that every applicant will be successful (if the baserate is greater than 50%) or not successful (if the baserate is less than 50%). For example, a 90% baserate would give about 90% accuracy if you guess that everyone will be successful. A baserate of 10% would give about 90% accuracy if you guess that everyone will be unsuccessful (10% of people successful means that 90% are not successful). In both cases, the biggest possible gain in forecasting accuracy is from 90% to 100%.

The more the baserate differs from 50% in either direction (the majority of employees are successful or not successful), the smaller is the room for improvement if we had perfect forecasting. Thus, all baserates that are greater or less than 50% give less room for gain than 50%.

Selection Ratio.

The **selection ratio** is the proportion of job applicants that an organization must hire. It is calculated as the number of positions to fill divided by the number of applicants. Some organizations find that they have many applicants for each vacant position. Their selection ratio will be low. Other organizations find that they have few applicants for each vacant position. Their selection ratio will be high. For example, if there are 100 job applicants for each job, the selection ratio will be $^1/_{100}$. If there are two applicants for each position, the selection ratio will be $^1/_2$. Low selection ratios produce the greatest utility because they allow an organization to be more selective in whom it hires for each position. In the long run, an organization can hire better people when there are many applicants from which to choose.

Validity. The validity of a selection device is the magnitude of correlation between it and the criterion. The larger the correlation is, the more accurately the criterion can be forecasted by the selection device. The more accurate the forecast of the criterion is, the greater is the utility because utility is based in part on increasing the success rate over the baserate.

How Valid Predictors Increase Success Rates. Figure 6-5 illustrates how baserate, selection ratio, and validity combine to increase the success rate of those hired. The figure graphs the criterion and predictor scores for a fictitious sample of 20 job applicants. The horizontal axis represents scores on the predictor variable, and the vertical axis represents scores on the criterion variable of job performance. The individual job applicants are represented by the points on the graph. Each point shows the criterion and predictor score for an applicant.

The criterion for successful performance is represented by the horizontal line across the middle of the graph. Cases above the line are in the successful range on the criterion, and cases below the line are in the unsuccessful range. The proportion of total cases that are above the line is the baserate. The **cutoff score** on the predictor is represented by the vertical line running down the center of the graph. With a multiple-hurdle approach, a cutoff score is chosen to determine who is eligible to be hired and who is not. In this case, applicants who score higher than the cutoff on the predictor (right side of the vertical line) are hired, and applicants who score lower than the cutoff on the predictor (left side of the vertical line) are not hired. In the figure, half of the applicants had predictor scores that were higher than the cutoff.

The graph is divided into four quadrants. The upper-right quadrant contains applicants who would be hired if the predictor is used and who would be successful on the job. They are referred to as *true positives*. The lower-right quadrant contains people who would be hired if the predictor is used but who would be unsuccessful on the job. They are the *false positives*. The lower-left quadrant contains people who would not be hired if the predictor is used and who would not be successful on the job. They are the *true negatives*. Finally, the upper-left quadrant contains applicants who would not be hired if the predictor is used but who would be successful on the job. They are the *false negatives*. There are eight true negatives and eight true positives, and there are two false negatives and two false positives.

If a predictor is valid, the points on the graph will form the shape of an ellipse. This will produce a more accurate prediction over the baserate if a cutoff score on a predictor is used to choose employees. The baserate in Figure 6-5 is 50%, meaning that half of the cases will be successful on the job if all are hired. If the predictor scores are used with the cutoff shown in the graph, eight people will be successful and two will not be. This improves the accuracy of prediction from the 50% baserate to 80%. This gain is a reflection

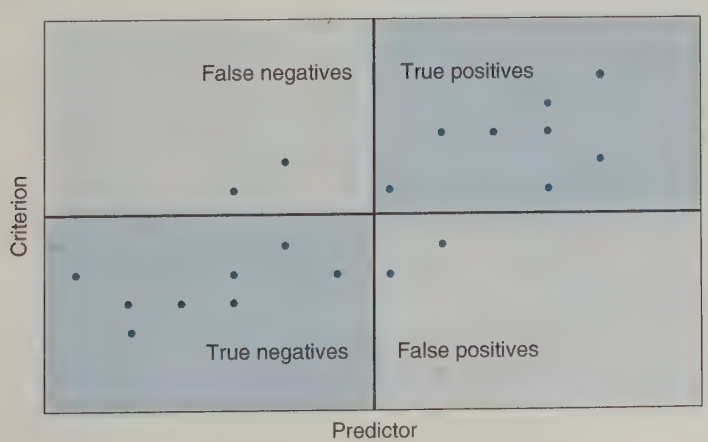


FIGURE 6-5 How a valid selection device increases the accuracy of selection.

of the potential utility of selection and can be substantial when conditions are favorable. As noted earlier in this discussion, the best situation occurs when the baserate is 50% and the selection ratio is low. The greater the validity is, the greater is the potential utility of scientific selection.

So far we have seen how valid predictors can help identify those individuals who will be successful on the job. This is an important part of utility, but it is not the only part. The other important issue concerns the cost of using the selection device and the cost of poor selection. It is the gain in using the selection system versus the cost that determines utility, as we will see next.

Computing the Utility of Scientific Selection

Even though a predictor might result in the hiring of better employees, it is not necessarily the best choice for an organization because the costs of using the predictor might exceed the benefits. For some types of traditional factory work, for example, there is little in the way of skills or training necessary to do the job. It can be relatively inexpensive to replace an unsuccessful employee. In such a case, it would be difficult to justify using an expensive selection method, such as an assessment center. In fact, it has been found that even in factories, psychological tests are less likely to be used in jobs that have few skill requirements and require little training (Wilk & Cappelli, 2003). Jobs that result in a significant investment in individual employees warrant the use of expensive selection devices. For example, it takes millions of dollars for the U.S. Air Force to train a fighter pilot. It is certainly worth the cost to use expensive selection procedures in this case.

The utility concept we have discussed so far has concerned identifying successful versus unsuccessful employees. It is also possible to conduct utility analyses to see what sorts of performance improvements might occur from using a valid selection device to choose employees. If a selection device is valid, we would expect that on average individuals chosen with it will have better job performance. Several studies have shown that the highest performers can be up to 16 times more productive than the lowest performers on jobs with countable output, such as factory work (Campbell, Gasser, & Oswald, 1996). If we can compute the monetary value of that performance gain, we can compute the utility of using a selection device.

Several approaches have been suggested to conduct this sort of utility analysis (e.g., Raju, Burke, & Normand, 1990). Each is based on mathematical equations that provide estimates of monetary gain from using a selection device. The various approaches make their own assumptions and have their own variation on the equations. Each requires finding the relation between performance and monetary gain. For some jobs, this can be straightforward. For example, the performance of a salesperson can be translated into the monetary value of sales made. For other jobs, the translation is not so easy. How would you estimate the monetary value for a teacher's performance? It is possible to do so, usually by asking SMEs to make subjective judgments.

There has been much debate in the I-O field about the best approach to utility analysis. Some of the discussion has concerned how people make judgments about the monetary value of job performance (Becker & Huselid, 1992). These authors have expressed concern that people are not necessarily accurate in their judgments, making utility estimates questionable. Other authors have noted that utility analyses have failed to consider all the major factors involved in utility (Russell, Colella, & Bobko, 1993), resulting in somewhat inflated estimates of gains. As but one example, Boudreau (1983) discussed how increased profits from a more productive workforce should be adjusted for taxes to yield the real bottom-line utility estimate.

Although it can be challenging to compute the monetary gain that scientific selection can provide to organizations, research has shown that it can be considerable. Van Iddekinge et al. (2009) studied the effects of using a scientific selection system on the financial performance of individual restaurants in a fast-food organization. Their results showed that units that used the company's selection system had more satisfied customers and were more profitable than units that did not.

The idea of computing utility is not limited to employee selection. Landy, Farr, and Jacobs (1982) suggested that the approach could be used to estimate the monetary gain of other organizational practices, such as giving employees job performance feedback. If you can estimate the gain in performance from such a procedure, you can compute the utility in terms of monetary gain. Such analyses would share the same limitations as the utility analyses used for employee selection.

One further issue should be noted concerning the use of utility analysis. Such mathematical procedures provide a theoretical estimate of how much gain in performance would occur if more-capable people were hired. Although in theory more-capable people would perform better, in practice the expected gains may never occur. Organizations are complex social systems that affect people's behavior in a variety of ways. Job performance can be both enhanced and inhibited by factors both internal and external to organizations. As we will see throughout the remainder of this book, being able to perform does not mean that the organizational conditions and constraints will allow it. A capable person might not perform well because the equipment or support to do so is not available. Even a highly talented machinist will be unproductive if his or her machine keeps breaking. Nevertheless, utility analysis is valuable because it shows that selection procedures can be of benefit to organizations.

International Differences in Selection Practices

Selection practices vary greatly among organizations or even branches of the same organization in different countries. Ryan, McFarland, Baron, and Page (1999) surveyed managers from 959 organizations in 20 countries concerning their selection practices and in particular the selection devices they used. The interview, former employer reference check, and application form were most popular and were used universally. This was not true when it came to psychological tests. Although the most popular around the world were personality and cognitive ability tests, there was considerable difference in how much they were used from country to country. Biographical inventories and interviews were most popular in Greece, whereas tests were most popular in Belgium and Spain. Zibarras and Woods (2010) surveyed 579 U.K. organizations about their selection practices and contrasted them to U.S. organizations. American companies were more likely to use background checks, biographical inventories, unstructured interviews, and work samples and less likely to use ability tests.

Newell and Tansley (2001) noted that there were differences in selection practices across countries, even where job requirements and situations were similar, and furthermore that often less-valid procedures were preferred over more-valid ones. They suggested several societal factors that account for this. First, before selection procedures can be used, managers have to know about them. Until fairly recently, communication among managers across national borders was limited, and so information about a better selection approach discovered in one place wouldn't always be known in another. Although the Internet has reduced the limitations of physical distance and national boundary, there are still language barriers in many places. Eleftheriou and Robertson (1999), in their survey of selection practices among Greek companies, found that cost and lack of familiarity were reasons psychological tests were not used more frequently. Second, laws and regulations influence selection procedures. In the United States, antidiscrimination laws have shaped how selection must be done (see the following section on legal issues). In many European countries, such as Germany and Sweden, unions are quite powerful, and they influence selection procedures much more than in the United States. Third, economic factors put limits on which approaches are done. In less wealthy countries, expensive assessments are not an option. Finally, there are culture differences in values and what is considered important. For example, in some countries achievement is more important than symbols of status. In the former, the college GPA would be considered more important than the status of the institution attended, but the opposite might be true in the latter. In addition to these factors, there can be country differences in how people view the use of various

selection devices. For example, Vietnamese have less favorable attitudes than Americans toward interviews, and more favorable attitudes toward integrity and personality tests (Hoang, Truxillo, Erdogan, & Bauer, 2012).

Legal Issues

Throughout the industrialized world, it is becoming an accepted value that organizations should not be discriminatory in their practices that affect employees, such as hiring and promotion. Many countries have laws that protect the rights of people from discriminatory actions by organizations. The particular groups of people who are protected by these laws vary from country to country. Most offer protection to women, and many offer protection to Blacks. A group is likely to be protected by law if it represents a reasonably large minority of a country and if members of that groups have been victims of discrimination. Thus, in countries with large Black minorities, Blacks are likely to be offered protection. In countries with few Blacks, this protection might not be found in the law.

In this section, we discuss the legal issues involved in employee selection both inside and outside the United States. Although the United States was a leader in the development of legal protection from discrimination, many countries have not been far behind in this area, and some have pulled ahead in some ways. This discussion offers a contrast between the handling of the problem of discrimination in the United States and in other countries.

Legal Selection in the United States

Prior to 1964 in the United States, discrimination against ethnic minorities and women was widespread for many jobs, particularly the most desirable and highest-paying ones. In 1964, the Civil Rights Act changed the way organizations selected employees because it expanded legal protections from discrimination and provided a mechanism to enforce it. Legislation in the following years has broadened the legal protection to groups that were not covered by the Civil Rights Act of 1964. Discrimination in hiring and other areas of employment has not been eliminated completely in the United States, with over 146,000 federal and state discrimination complaints being filed in 2005 alone (Goldman, Gutek, Stein, & Lewis, 2006). Nevertheless, tremendous progress has been made over the past few decades.

The Civil Rights Act of 1964 made it illegal to discriminate against minorities and other groups in employment and other areas of life in U.S. society. Subsequent legislation and Supreme Court cases have produced a complex and confusing array of legal requirements for employee selection. The Civil Rights Act of 1991 was an attempt to rectify some of the confusion produced by years of sometimes conflicting Supreme Court decisions. Table 6-3 lists six of the most significant Supreme Court cases and the major outcome of each. Although the underlying principles of nondiscrimination are simple, implementing a selection system that meets legal requirements is complicated. This is due in part to the changing requirements of the Congress and Supreme Court and in part to the technical complexities in employee selection systems.

The first issue that we address is the concept of *protected classes*. Certain groups of people who have been historically discriminated against are the target of protection under the law. These **protected classes** include African Americans, Hispanics, Native Americans, and women. Table 6-4 lists the major federal discrimination laws and the specific groups each covers. At the present time, it is illegal to discriminate on the basis of

Age
Color
Disability
Gender
National origin
Race
Religion

TABLE 6-3

Six Significant U.S. Supreme Court Discrimination Cases and Their Outcomes

Case	Outcome
Griggs v. Duke Power (1971)	Selection methods that have adverse impact must be valid.
Rowe v. General Motors (1972)	Legal protection against discrimination holds for performance appraisals.
Albemarle Paper Company v. Moody (1975)	Organizations must use rigorous validation procedures.
Baake v. Regents of the University of California (1978)	Discrimination laws protect everyone, and quotas for admission to graduate school are illegal.
Wards Cove Packing Company v. Atonio (1987)	This case made it more difficult for individuals to win discrimination cases. It was an impetus for the Civil Rights Act of 1991.
Price Waterhouse v. Hopkins (1988)	Promotions cannot be based on gender stereotyping (e.g., requiring a female employee to act or look more feminine).

TABLE 6-4

Civil Rights Legislation in the United States Protecting Various Groups

Legislation	Covers
Civil Rights Act of 1964	Gender, national origin, race, religion
Age Discrimination Act of 1967 (Amended 1968)	Age
Pregnancy Discrimination Act of 1978	Pregnancy
Americans With Disabilities Act of 1990	Mental and physical disabilities

Laws are constantly evolving, and in the United States, sexual orientation was added to protected classes by the Supreme Court in 2020. Many other countries had already offered such protections. It is conceivable that legal protection will be extended to other groups in the future. For example, individuals who are obese face discrimination not only in hiring but in fair treatment on the job (Johnson & Schminke, 2020).

Uniform Guidelines on Employee Selection. In 1978, the U.S. government produced a set of guidelines for legal selection called the **Uniform Guidelines on Employee Selection Procedures** (1978, August 25). Although originally intended to apply to government agencies, the guidelines were eventually adopted as acceptable legal practices for all organizations. The guidelines define several important concepts for selection and provide a procedure by which organizations can conduct legal selection. They provide more than just a statement of legal requirements. They outline the proper way to develop a valid employee selection system, which provides an additional advantage to an organization that follows them.

One of the most important concepts embodied in the Uniform Guidelines is **adverse impact**, which refers to the impact of a given selection practice on a protected class. It is usually defined in terms of selection ratios of the protected class and a comparison group (e.g., White males). Adverse impact occurs when the **four-fifths rule** is violated, meaning that the selection ratio for the protected class is less than 80%, or four-fifths, of that of the comparison group (Roth, Bobko, & Switzer, 2006). For example, suppose that 60% of male applicants were offered a job. Female applicants would experience adverse impact if fewer than 48% of them (four-fifths of 60%) were offered a job (Table 6-5). This



Neustockimages/iStockphoto

Civil rights legislation says that each of these people should have an equal opportunity to be hired for a job.

TABLE 6-5

Applying the Four-Fifths Rule for Adverse Impact Against Women

Case 1: No adverse impact against women

Gender	Number of applicants	Number hired	Percent hired	4/5ths threshold
Men	100	60	60%	
Women	80	40	50%	48%

There is no adverse impact because 50% is above the 48% threshold.

Case 2: Adverse impact against women

Gender	Number of applicants	Number hired	Percent hired	4/5ths threshold
Men	100	60	60%	
Women	80	20	25%	48%

There is adverse impact against women because 25% is below the 48% threshold.

Note: In the first case, 60% of male applicants and 50% of female applicants were hired. Because 50% is more than 4/5ths of 60%, there is no adverse impact against women. In the second case, 60% of male applicants but only 25% of female applicants were hired. Because 25% is less than 4/5ths of 60%, there is adverse impact against women.

four-fifths rule recognizes that an equal number of applicants from every possible group is unlikely. Of importance here is the percentage of applicants who are hired, not the actual numbers. The concept of adverse impact is discussed further in Blog 6-2.

Adverse impact is a threshold for possible discrimination in selection, and it has to do with who is hired and not hired. It is not necessarily illegal to use a selection device that results in adverse impact on a protected class. If a selection device results in adverse impact, there are further tests to decide its legality. To be legal, selection procedures must be job relevant (see Blog 3-1). This means that hiring decisions are based on KSAOs that are necessary for job success. One way to establish job relevance is by showing that selection devices are valid predictors of job performance.

BLOG 6-2 Adverse Impact in Hiring

https://paulspector.com/adverse-impact-in-hiring



Discussion Questions

1. Why would a company use any selection device that had adverse impact?
2. Explain how a company's selection system can have adverse impact against a minority group, and yet not be discriminating?
3. How can a company defend itself from a discrimination charge if a test it is using has adverse impact against a minority group?
4. Why did the Uniform Guidelines introduce the concept of the four-fifths rule?

If selection practices produce adverse impact, an organization must be ready to defend itself from legal challenges. Tests of cognitive ability and physical strength are both likely to have adverse impact on some groups. Their use can be justified only if a job analysis shows that these attributes are necessary KSAOs for the job and if the tests are shown to be valid. An organization that fails both to do a job analysis and to use valid selection methods risks using procedures that are unfair to the adversely affected groups. Although it is legal to require that those who are hired have the required KSAOs to do a job, it is illegal to require KSAOs that are not necessary for success on the job.

Essential Functions and Reasonable Accommodation. The 1990 Americans with Disabilities Act (ADA) extended legal protection from discrimination to people with disabilities. Two concepts came from this legislation. **Essential functions**, as we discussed in Chapter 3, refer to KSAOs that are an important part of the job. For example, spell checking is an essential function for a copy editor, but lifting heavy objects is not. It can be illegal to deny a job to a person with a disability based on a KSAO that relates only to nonessential functions. The idea is that rarely done tasks, such as lifting a heavy object, that require a KSAO that an otherwise competent employee does not have can be done by someone else, or not done at all.

The second concept is **reasonable accommodation** for an employee with a disability. An organization must make allowances that are feasible to enable a person with a disability to perform the job. For example, an organization should not fail to hire someone in a wheelchair just because he or she had to climb two steps to get into the building for work. A minor and reasonable accommodation could be to provide a ramp so the person would not have to climb the stairs. Providing help in doing nonessential functions for a job can be another reasonable accommodation. It is not always clear what actions are reasonable and what actions to help a worker with a disability are too difficult or expensive for an organization. Undoubtedly, future court cases will determine how far organizations must go to make reasonable accommodations for employees with disabilities.

Affirmative Action. **Affirmative action** consists of a variety of practices that organizations use to increase the number of protected class members in targeted jobs. Its purpose is to address the lingering effects of past discrimination in hiring by allowing certain groups to catch up in acquiring jobs that were at one time unavailable to them. Kravitz (2008) distinguished between programs designed to increase the number of minority applicants and those that give preferential treatment to minorities in job offers. The former type of opportunity enhancement program increases the number of minority applicants by engaging in extra recruitment efforts (e.g., advertising in media that target minorities) or by offering training so more minorities have the KSAOs required for a job. One company found that placing practice tests on their website that applicants could use prior to taking the required

assessments not only resulted in better scores for all applicants, it also reduced adverse impact of the testing program (Campion, Campion, & Campion, 2019).

Affirmative action is not a quota system and does not require the hiring of anyone without the necessary KSAOs. The U.S. Supreme Court has consistently ruled against entities using such practices except in extraordinary circumstances (Kravitz et al., 1997), such as when an organization refused to comply with legal selection practices and blatantly discriminated in their hiring. This does not mean, however, that other aspects of affirmative action have been eliminated.

Organizations that have more than 50 employees and government contracts exceeding $50,000 are required by executive order to have an affirmative action program. This requirement affects most colleges and universities whose faculties have government research grants. For most other organizations, this activity is voluntary, although some employers that have been caught using discriminatory practices have been ordered or strongly encouraged by a court to adopt an affirmative action program to end their illegal practices. Most large organizations in the United States practice some form of affirmative action, although some do so more rigorously than others. The widespread practice can be seen in the prominently displayed notice that an employer is an "Affirmative Action" employer, common on the stationery of many American organizations and most universities.

The intent of an affirmative action program is to remedy the widespread problem of discrimination. Such programs should be introduced carefully because they can have unintended detrimental effects on the groups they are designed to help. Madeline Heilman and her colleagues have found that women who are given preferential treatment in hiring can have a negative view of themselves and other women (Heilman, Kaplow, Amato, & Stathatos, 1993), and such negative views can affect self-confidence (Heilman & Alcott, 2001). This effect has been found in minority candidates as well (Evans, 2003). Furthermore, a person who is hired under affirmative action is likely to be seen as incompetent, and that stigma of affirmative action is difficult to overcome in the minds of coworkers (Heilman, Battle, Keller, & Lee, 1998). Research has also shown adverse effects on nonbeneficiaries when preferential treatment has been perceived as unfair (e.g., as reverse discrimination) (Heilman, McCullough, & Gilbert, 1996).

Kravitz (2008) argued that the problems with and debates over affirmative action have all concerned preferential treatment. Programs concerned with other aspects of affirmative action have shown promise and do not share the same drawbacks. He suggested that affirmative action programs should focus on both increasing the number of minority applicants and retaining minority employees. Attracting applicants can be accomplished by doing a better job marketing the organization to minority applicants and by increasing the pool of minorities with the necessary KSAOs through educational programs. Retention can be accomplished with programs that improve the working environment and experiences for minorities—for example, by offering mentoring and training, and by reducing negative experiences, such as ethnic bullying. Kravitz notes that to be effective, these programs should be available to everyone, and not just minorities. For example, a program to decrease incivility should focus on incivility toward everyone, and not just minorities. The advantage of being inclusive with such programs is that they improve working experiences for everyone, and not just minorities, and they reduce the likelihood of backlash against minorities.

Legal Selection Outside the United States

Many countries throughout the industrialized world have discrimination laws similar to those in the United States. Some countries are as vigorous as the United States in enforcing antidiscrimination laws (e.g., Canada and South Africa), whereas others are more lax (e.g., Australia and England). Although the United States may have taken the lead, other countries give employees even more protection and extend protection to additional groups not specifically mentioned in U.S. law. How different countries approach their discrimination issues depends on the nature of those issues and their societies. In 1995,

the United Kingdom instituted the Disability Discrimination Act, which is much like the ADA in the United States. As in the United States, there is resistance by employers, especially those who have negative attitudes about persons with disabilities and who have little knowledge of what the law actually requires (Jackson, Furnham, & Willen, 2000). Canada is much like the United States in terms of laws and vigor of enforcement, and the Canadian system is similar in many ways to the United States.

The countries mentioned here, as well as the remainder of at least the industrialized world, have endorsed the idea that employee selection should be based on the job-relevant attributes of people. With this approach, the person hired is the person who can best do the job. This will eliminate unfairness in selection that results from discriminatory practices. It should also help organizations enhance their effectiveness by hiring the best-qualified people, regardless of age, color, disability, gender, national origin, race, religion, sexual orientation, or other personal characteristics that are irrelevant to job success.

Chapter Summary

One of the most important functions of an organization is the recruitment and selection of new employees. To remain effective, an organization must have a supply of skilled people with the necessary attributes or KSAOs to do the job. Acquiring such people involves a four-step procedure:

Planning the need for new employees
Getting appropriate people to apply for positions (recruitment)
Deciding who to hire (selection)
Getting the selected people to take the jobs

Planning the need for new employees requires the use of forecasting methods. This involves comparing the need for people with specific KSAOs with the number of such people who might be available in the area. Future planning for organizational change and expansion must consider the availability of people to fill the necessary positions. Failure to consider these issues can result in the inability to find the people necessary to carry out an important organizational function.

Getting people to apply for jobs can be a difficult task if there is a shortage of qualified people. The problem is more often one of getting the right people to apply, because there can be a surplus of people with certain skills and a shortage of people with others. There are several ways that organizations acquire applicants, including advertising, using recruiters, and using Web-based services.

Scientific selection involves the use of selection devices that have been shown to predict job performance. Developing an effective selection system involves a five-step procedure: The KSAOs are identified with a job analysis, the criteria are chosen, the potential predictors are chosen, the predictors are validated with a research study, and finally the predictors are cross-validated with a second sample or study.

Once an organization has decided whom to hire, it must convince the person to take the job. To do so, an organization must be sure that it offers rewards that are equivalent to those offered by other organizations. One procedure that has been used to ensure a better match between a person and a job is the realistic job preview (RJP), which provides accurate information about the job that allows an applicant to make an informed decision about accepting a job offer.

Utility analysis is used to determine the benefits of using a predictor to hire people. These analyses are based on mathematical formulas that require an estimate of the monetary value of good job performance. There have been disagreements among researchers about the best way to conduct utility analysis. Nevertheless, the results of utility analyses have shown that scientific selection can have substantial benefits for organizations.

Employee selection is not only a scientific process; it is also a legal process. Most industrialized countries have laws against discriminatory selection practices. In the United

States, it is illegal to discriminate on the basis of age, color, disability, gender, national origin, race, religion, and, starting in 2020, sexual orientation. To avoid legal problems, an organization must base selection decisions on job-relevant factors.

I-O Psychology in Practice

This case concerns the development of an unusual assessment device to measure the artistic ability of employees. It was carried out by Dr. Anna Erickson, who was an I-O psychologist for SBC Communications Inc., which owns several telephone companies, including Pacific Bell and Southwestern Bell Inc. Dr. Erickson received her Ph.D. in I-O psychology in 1995 from Iowa State University. At the time of this project, her role in the company was to do selection research, although she also has done projects in the areas of job analysis, performance appraisal, planning for future employee needs, and surveys of employee opinions. At the present time, she is Director of Marketing Research and is responsible for conducting studies of customer preferences for and reactions to telephone company products and services, such as call waiting and caller ID. This is not an unusual job for an I-O psychologist, for the methods and techniques are much the same as those for more traditional I-O work discussed in this book.

One type of employee hired by the telephone company is a yellow page artist who sketches ads for company customers. The company decided to expand the advertising services, which requires a higher level of artistic talent than is necessary for ad sketches. Supervisors of the ad artists were asked to recommend individuals for the more artistic jobs, but this procedure led to widespread controversy and a union grievance over favoritism. Clearly a new procedure had to be found that would be seen as fair to the employees, while providing a valid means of choosing good artists.

Dr. Erickson was asked to solve this problem, but unfortunately no existing assessments for artists could be found. She would have to invent a new assessment device, while at the same time gaining the support of the employees. To accomplish this objective, she put together a task force of employees and managers. At the same time, she studied the research literature on creativity and discovered that, despite the seemingly subjective nature of art, experts show a high degree of interrater agreement when evaluating it. This gave her the idea of developing an assessment center in which raters would be faculty members from a well-known university art department.

The first step in developing the center was to conduct a job analysis to identify KSAOs for the job. Results showed that there were two important components to assess. First, the artist had to deal with customers, and second, he or she had to do the creative work. The customer service part was assessed with a structured interview. The creative part was assessed by having experts rate the quality of a portfolio the person submitted and the performance of the person in a simulation. All ratings were done blind, with the rater not knowing whose work was being assessed.

The task force was unanimous in approving this assessment procedure. It accomplished the goal of settling the union grievance. Dr. Erickson conducted a validation study of the assessment center and found it predicted very well professor ratings of their art students' employability. Those students who were rated most capable and employable did best in the assessment center. It is now being used for placement and selection in the company. This case illustrates how often employees perceive effective selection as fair selection.

Discussion Questions

1. Why was it important to have employee acceptance of the new assessment center?
2. Do you think supervisor nomination was an unfair way to decide who got the jobs?
3. How else could this assessment center be validated other than with the procedure used?
4. Can you think of other ways to measure artistic creativity?

Learning by Doing

Job Market for an Occupation

Go to the O*NET website, http://online.onetcenter.org, and then go to "Find Occupation." From the top, enter an occupation and you will get a summary for it. Go to the bottom where it shows "Wages & Employment Trends." Choose a state and hit the GO button. Write a brief report that compares your state with the United States in terms of wages and growth in the number of people needed.

How Companies Approach Minority Hiring

Choose a large company (e.g., a Fortune 500 company like General Motors or Verizon) and go to its website. Search for evidence and write a report listing ways in which it encourages minorities to apply and values diversity in its workforce.

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CHAPTER 7

Training

OUTLINE

Needs Assessment
Objectives
Training Design
- Trainee Characteristics
- Design Factors That Affect Transfer of Training
- Work Environment
- Training Methods
- Electronic Training
- Mentoring
- Executive Coaching
- Veteran Reintegration

Delivery of a Training Program
Evaluation of a Training Program
- Set Criteria
- Choose Design
- Choose Measures of the Criteria
- Collect Data
- Analyze and Interpret Data

Chapter Summary
I-O Psychology in Practice
Learning by Doing
References

If you accept a job with a large organization, it is almost certain that you will complete a formal training program. Even people with college degrees need additional instruction in order to do most jobs. Even simple jobs require training. For example, every employee at a McDonald's restaurant gets trained. The person who makes French fries is taught the proper way to do the job. A restaurant manager receives hundreds of hours of training, much of it in a classroom setting. There is much to learn to be able to do most jobs well. Future trends suggest that the need for training will increase in most jobs as they become more and more technically oriented.

Training is one of the major human resource activities of both large and small organizations in both the private and the public (government) sectors throughout the world. It is a necessary activity for both new and experienced employees. New employees must learn how to do their jobs, whereas experienced employees must learn to keep up with job changes and how to improve their performance. In many organizations, a person will not be considered for a promotion until certain training has been completed and certain skills mastered. Learning in many jobs is a lifelong process that does not stop with a certain level of education. Even a physician with a medical degree must continue to complete rigorous training to maintain his or her medical license. Blog 7-1 discusses how to decide when to use training versus selection.

Five steps are required for effective organizational training programs, as shown in Figure 7-1. Each step should be based on the one that precedes it.

1. Conduct a *needs assessment* study in order to determine who needs training and what kind of training is needed.
2. Set objectives so that it will be clear what the training should accomplish.
3. Design the training program.
4. Deliver the training to those employees designated by the needs assessment.
5. Evaluate the training to be certain that it reached its objectives. If the training was ineffective, the training design should be modified.

BLOG 7-1 Should You Test or Train?

https://paulspector.com/should-you-test-or-train

Discussion Questions

1. Thinking back to Chapter 6, why does the number of applicants per open position matter in deciding if pre-employment assessments should be used?
2. When would it be better to test than train?
3. When would it be better to train than test?
4. What are some KSAOs that would be difficult to train?

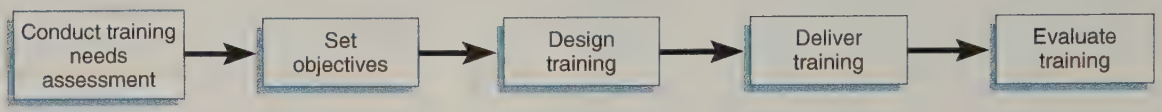


FIGURE 7-1 Five steps to developing an effective training program.

In this chapter, we discuss all five steps in the training process. All but the delivery step fall within the domain of I-O psychology. Most training is conducted by professional trainers who specialize in its delivery. I-O psychologists are often behind the scenes, determining what training is needed, helping to design the training that others will actually deliver, and then figuring out if the training was effective. Although I-O psychologists have a lot to offer organizations in the training area, most of the training conducted in organizations does not utilize the talents of I-O psychologists and professionals with similar expertise. This is perhaps one reason that so much training has little effect on organizational functioning.

OBJECTIVES

The student who studies this chapter should be able to

1. List the steps involved in developing and implementing a training program in an organization.
2. Describe how needs assessment is conducted.
3. Explain the various factors that affect learning and transfer of training.
4. Discuss the various training methods, including their advantages.
5. Discuss how training is evaluated.

Needs Assessment

A needs assessment is conducted to determine which employees need training and what the content of their training should be (Arthur, Bennett, Edens, & Bell, 2003). It is too often the case that training resources are wasted by training the wrong people or teaching the wrong content. A needs assessment can ensure that training resources are wisely spent on areas in which there is a demonstrated training need.

According to Goldstein (1993), needs assessment should focus on three levels: organization, job, and person. The *organization level* is concerned with the objectives of the organization and how they are addressed by the performance of employees. An analysis of the organization's objectives can offer hints about the training that is needed. For example, if an organization has the goal of minimizing injuries, it would seem reasonable to train employees in principles of workplace safety. If the goal is to maximize productivity, training would involve principles of production efficiency.

The *job level* is concerned with the nature of tasks involved in each job. A job analysis can be used to identify the major tasks and then the necessary KSAOs for each task. From the list of KSAOs, a series of training needs can be specified. A police officer, for example,

must have knowledge of legal arrest procedures. This would be a rather obvious area in which training would be provided.

The *person level* is concerned with how well job applicants or present employees are able to do job tasks. In other words, it assesses the KSAO levels of people rather than jobs. A comparison of the KSAOs of jobs and individual employees suggests the areas of greatest potential training need. An employee development plan can be created for each employee both to remedy areas of deficiency in knowledge and skill and to enhance knowledge and skill that would allow the employee to take on additional responsibilities or be promoted.

So far we have discussed needs assessment from the perspective of what should be included in an organization's training program. This approach, however, says nothing about the content of a training program that might already be in use. J. K. Ford and Wroten (1984) developed a procedure for determining the extent to which an existing training program meets actual training needs. It is somewhat like a job analysis, except that the training is analyzed rather than the job. To conduct such an analysis, subject matter experts (SMEs) review the content of the training program and compile a list of the KSAOs that are addressed. A separate group of SMEs reviews the KSAO list and rates the importance of each one to the job in question. This procedure can identify how well the program components match the training needs for the job. Programs can be adopted or modified on the basis of this procedure.

Despite the importance of needs assessment, organizations do not often use it. A survey of 1,000 large private companies in the United States found that only 27% use some sort of needs assessment before conducting training of their management-level people (Saari, Johnson, McLaughlin, & Zimmerle, 1988). Too often training resources are wasted because the needs assessment that might have redirected that effort was never performed. A well-conducted needs assessment can help organizations make the most of their training resources.

Objectives

One of the most important steps in developing a training program is setting objectives. Unless you are clear about the purpose of training, it is difficult to design a training program to achieve it. Part of this step is to define the criteria for training success. The objectives of training are based on criteria and should include a statement of what a trainee should be able to do or know after training. The training criterion is a statement of how achievement of the training objective can be assessed. The training objective of acquiring knowledge, for example, can be assessed by seeing if trainees can meet a criterion of a cutoff or passing score on a knowledge test, say answering 80% of questions correctly.

Criteria serve as the basis for the design of organizational training. Once we know what the training criterion is, we can design appropriate training to achieve it. Criteria also serve as the standards against which training programs can be evaluated, which we discuss later in the section on training evaluation. Training objectives should be based on the results of the needs assessment.

Training Design

Most organizational training is conducted with the expectation that employees will apply what they have learned on the job (Blume, Kevin Ford, Surface, & Olenick, 2019). This is called **transfer of training**. Transfer is affected by a number of factors in both the job environment and the training itself, and there is no guarantee that training will always transfer (Taylor, Russ-Eft, & Taylor, 2009). Individual differences in characteristics among trainees also are an important consideration in whether or not training will transfer. Figure 7-2 is a model of transfer developed by Baldwin and Ford (1988). Their model

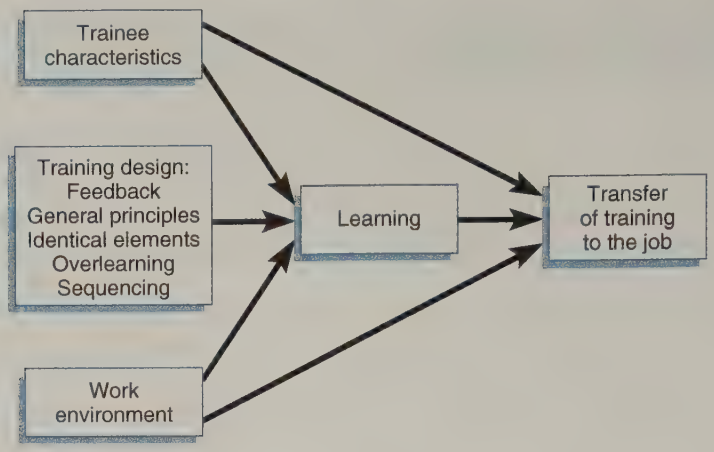


FIGURE 7-2 This model of transfer of training shows how characteristics of the trainee, training program, and work environment affect learning and transfer of training.
Source: Adapted from "Transfer of Training: A Review and Directions for Future Research," by T. T. Baldwin and J. K. Ford (1988), *Personnel Psychology, 41,* 63–105.

describes how features of the training design can affect how well trainees learn and in turn how well the training transfers to the job. They also noted that individual differences among trainees and characteristics of the work environment are important influences.

In this section, we discuss the training design factors that affect both learning and transfer. In addition, we cover eight popular training delivery techniques. Training can be done in many ways, from the relatively passive lecture to the very engaging simulation. With a lecture, the trainee listens to a presentation, whereas with simulations he or she can try out the new skill. Each of the eight methods is useful in some training situations.

Trainee Characteristics

Individual differences among people in both ability and motivation are important for learning (Herold, Davis, Fedor, & Parsons, 2002). Not everyone is equally able to learn specific tasks, and where one person is better able to learn cognitive tasks, another has more ability at motor tasks. Thus, some people are skilled academicians and others are world-class athletes. These differences are important when it comes to the design of training. Not everyone has the same ability to learn a given task, and training needs to recognize these differences. Perhaps the most studied individual difference is cognitive ability, which has been shown to relate to training performance in a variety of settings, with individuals scoring higher on cognitive ability performing better in training (Hughes et al., 2013; Ziegler, Dietl, Danay, Vogel, & Buhner, 2011).

Bunker and Cohen (1977) studied the effectiveness of a training program designed to instruct telephone company employees in basic electronics theory. The mathematical ability of each trainee was assessed before training, and a measure of electronics knowledge was taken both before and after training. Results showed that those trainees with the highest level of mathematical ability gained the most from training. In order to get each trainee up to a given level of knowledge, more training would be necessary for the low-ability trainees. A good strategy for training is to give each individual trainee the amount of training necessary for him or her to reach the training criterion. This can mean that some people get more training than others.

Ability is not the only individual trainee characteristic that affects training outcomes. Goals and motivation can affect whether individuals put forth effort to learn and transfer that learning to the job (Blume et al., 2019). People who do not wish to learn are not likely to get much benefit from a training program. One of the most important factors that must be considered is how to motivate employees to do their best in a training situation. This can be done by giving external rewards for successful completion (e.g., promotion)

or by making the training interesting to the trainees. Colquitt, LePine, and Noe (2000) conducted a meta-analysis of training motivation studies. They found that, not unexpectedly, motivation consistently relates to transfer of training, as well as to good employee attitudes.

People also differ in the best way to learn new material. Some people are good at learning from a presentation, whereas others do well with written materials. People's capacities and preferences for different types of training are important considerations and should be taken into account if possible. People who do not read well should be trained with spoken approaches. Others who like to study and think about material might do better with a written manual.

Design Factors That Affect Transfer of Training

The transfer-of-training model in Figure 7-2 specifies five design factors that affect transfer. Each factor should be considered in the design of a training program. The appropriate use of these factors will maximize the likelihood of transfer. Ignoring them might result in a training program that is ineffective in impacting behavior on the job.

Feedback.

Feedback is an important component of learning. Without some sort of feedback, it is doubtful that learning can occur at all. Feedback should be built into the training as appropriate so that the trainee can tell if he or she is learning the correct material.

Training that is intended to impart information or knowledge can build in feedback in two ways. First, trainees can be tested on the information with an examination, and then given their scores. This will show them what they did and did not learn. Second, trainees can ask questions of the trainer. Both of these procedures are a regular part of most college or university courses. Training that is intended to teach a skill should allow the trainees to practice and get feedback as they learn. For example, training in driving an automobile should allow the person to drive with an instructor who will give feedback. Feedback is also built into the task itself. Trainees can tell if they are staying on the road and if they are driving straight.

General Principles.

General principles mean that training should teach *why* something is done as well as *how* it should be done. Many training programs include a section on principles behind the material being taught. With computer training, there might be an introduction to the principles of computer and software design. This would be brief and rather general, but it would give the trainees a general idea of what the computer is and how it works. The purpose of teaching the general principles is that it provides a framework for learning. It has been found that including general principles where appropriate enhances learning (Baldwin & Ford, 1988).

Identical Elements.

A training program that has good transfer-of-training capability should include **identical elements**, which means that the responses in the training situation are identical to those in the job situation. It also means that the stimuli the person perceives will be identical in both settings. The closer the match is in both responses and stimuli, the easier it will be for trainees to apply what has been learned in the training to the job setting.

A flight simulator is a training device that takes advantage of the identical elements idea. A flight simulator allows the trainee to fly an airplane without leaving the ground. There are two types: high fidelity and low fidelity. The high-fidelity simulator is extremely realistic and might be a cockpit from a real aircraft mounted on a moving platform that simulates the motion of the airplane. The motions of the simulator match the movements of the controls. If the trainee pulls back on the stick, for example, the front of the cockpit tilts upward. A low-fidelity simulator is best illustrated by a computer game that simulates flying. Even though these low-fidelity simulator games do not contain all the elements of a real airplane, many of the elements are authentic. For this reason, the U.S.



Jeremy Horner/Getty Images

FIGURE 7-3 Pilots learn many of the skills of flying an airplane in a flight simulator such as the one shown in this picture.

Navy uses such games to help train their pilots on some aspects of flying. To complete training, however, pilot trainees must use the high-fidelity simulators. The simulator provides training that transfers well to actual flying because there are many identical elements (Figure 7-3).

Overlearning. **Overlearning** refers to giving the trainee practice beyond that necessary to reach a criterion for success in training. The idea is that a person first learns the material and then continues to overlearn it. Through overlearning, the person consolidates the new knowledge or skill so that he or she can use what has been learned with little thought. He or she has achieved **automaticity**, meaning that a task (e.g., driving a car or riding a bicycle) can be done smoothly without the person having to mentally monitor or pay attention to how he or she is performing. This results in much more effective performance and should be the goal for much organizational training (Ford & Kraiger, 1995).

Athletes practice their skills until they have become so overlearned that automaticity is achieved. Their actions are often so complex and done in such short periods of time that it is not possible to think about all the elements. Overlearned elements are performed automatically and quickly. On the job, the same principle can apply, as overlearned skills can be used when there is not enough time to think about how to perform a task. For example, in a hospital emergency room, there is little time to think about every task that needs to be done to save a person's life. Equipment must be used quickly and automatically when a person is in critical condition.

Overlearning can be built into training through practice and repetition. Information and knowledge training can include repetition of important concepts to ensure that the person rehearses the information. Examinations can also allow the person to rehearse, thus helping to consolidate what has been learned. With manual skills, sufficient practice should be allowed so that the skill becomes overlearned. It is not sufficient to allow the person to try the skill until he or she can do it correctly one time. Repeated practice is necessary to provide overlearning. The more the person gets to practice, the more likely it is that he or she can apply what has been learned on the job.

Although it is often assumed that once overlearned, the material or skill will be retained, such is not always the case. Rohrer, Taylor, Pashler, Wixted, and Cepeda (2005) compared short-term (1-week) and long-term (9-week) retention of learned material.

They found that although the overlearners retained more material throughout the study, almost all of the initial gain disappeared by the ninth week. They suggested that the problem with retention length can be solved by incorporating spaced training in which extra practice occurs over extended periods of time and not all in a single long training session. To assure retention, overlearning should be paired with spaced training, which will be discussed next. Blog 7-2 talks about the limitations of overlearning.

BLOG 7-2 The Truth About Overlearning

https://paulspector.com/the-truth-about-overlearning

Discussion Questions

1. Why should you build overlearning into a training program?
2. What is the ideal interval between training sessions to use?
3. Based on the overlearning research, what would be the best strategy for preparing for exams in this course?
4. What are some concepts in your course that are repeated over time? Do you think you will remember them after the class is over?

Sequencing of Training Sessions

There are two aspects of sequencing training sessions: *part* versus *whole* and *massed* versus *spaced*. **Part training** refers to breaking a task into components, which are learned one at a time. After the components are learned, the entire task is taught as a whole. **Whole training** occurs when the entire task is taught at one time rather than breaking it into individual components.

Part training is preferred over whole training when tasks are too complex to be learned all at once. It would be difficult to learn to play golf or tennis using the whole approach. It would be better in this case to learn one aspect of the game at a time, such as swinging the golf club or serving the tennis ball. To concentrate on all aspects of the game at once would be very difficult. Learning to ride a bicycle, on the other hand, is taught whole. One does not usually learn the components separately, such as pedaling and steering.

Massed training means that the training sessions are long in duration and take place over a short period of time. **Spaced training** means that training sessions are short and are spread out over time. Massed and spaced are relative terms that can be used to refer to some training programs as being more massed or spaced than other programs. A training program that holds sessions 1 hour per day for 10 days is more spaced than a program that meets once for 10 hours.

Massed training can be very efficient. For that reason, it is often used for organizational training when it is easier to allow a person to attend training for one 8-hour day than for 1 hour a day for 8 days. With many jobs, a replacement will have to be found while the person is in training, and it can be difficult to find a replacement for an hour at a time. The person might have to be paid for an entire day to fill in for 1 hour. Furthermore, considerable travel time may be needed to get to the training site, which might be in another city. For these practical reasons, massed training is often used.

On the other hand, spaced training can be more effective than massed training in the long term and produces better learning (Cepeda, Pashler, Vul, Wixted, & Rohrer, 2006). Furthermore, the optimal spacing interval is dependent on how long people need to retain the information. In a series of experiments, Cepeda and colleagues manipulated the length of spaced training trials and then assessed retention of the learned material for up to a year later. They found that the ideal spacing was determined by how long the material had to be retained, such that longer intervals were better for long-term retention. They suggested that spacing training sessions over weeks and even months might be needed

for optimal training design (Cepeda et al., 2009; Cepeda, Vul, Rohrer, Wixted, & Pashler, 2008). These results are most relevant for knowledge and skill that an employee needs but does not use regularly—for example, first aid or CPR (cardiopulmonary resuscitation). In such cases, follow-up refresher training should be given periodically. For knowledge and skills that are regularly used on the job, spaced refresher sessions might not be necessary, as doing job tasks themselves continually refreshes knowledge and skills.

At least part of the problem with massed training is that it can produce boredom, which interferes with learning, and there are limits to how long a person can learn before fatigue comes into play. Imagine learning to play tennis in 10-hour sessions. The fatigue would make it impossible to get the full benefit of the training. Even with mental tasks, a person is not efficient when he or she is tired. Any student who has crammed for an exam has learned that massed training is not always the best procedure, in either the short or long term.

Work Environment

Training in organizations takes place in the context of a complex work environment. Whether or not the skills learned in training are used on the job is dependent in large part on the environment of the job. Just because management provides training does not mean that employees or their direct supervisors will support its transfer to the job. It is not uncommon for direct supervisors of lower-level employees to tell their subordinates that the new procedures or skills learned in training are not to be used in their departments. Supportive environments where supervisors and other people encourage the application of learned principles produce employee motivation to learn and increased transfer of training (Machin & Fogarty, 2003). Unless there is support by employees and their supervisors, the best training will not have its intended effects. Getting that support is a complex problem that goes beyond the proper design of training.

Another issue concerns whether or not the opportunity arises to use the new training. For example, employees might be trained in using a new computer system. The system might not be available to them on the job, meaning that the training could have no effect. This issue goes back to the idea of needs assessment. People should not receive training in something that they will not encounter on the job.

Training Methods

Many different methods for training are available. Because each has its advantages and limitations, there is no one best way to train, and all of them can be effective in the right situation (Callahan, Kiker, & Cross, 2003). As noted earlier, different individuals may do well with different approaches. The best training programs are flexible and can adapt to the demands of what and who are being trained.

In this section, we discuss eight different training methods that are frequently used in organizational training. These methods can be used in combination because a good training program may need to take advantage of the strengths of different methods for different aspects of training. For example, the training of pilots may involve many, if not all, of these methods. The learning of complex tasks can require the use of a variety of approaches. Table 7-1 lists all eight methods and summarizes the major advantages of each.

Audiovisual Instruction.

Audiovisual instruction involves the electronic presentation of materials using presentation of materials using a variety of devices including computer, laptop, or tablet. Although audio recordings and videos have long been used for training, technology has been expanding the ease and flexibility with which such media can be used. It is commonplace for lecturers in business and higher education to use computer-based tools such as PowerPoint to add audiovisual elements to presentations. Online courses often include video clips of lectures and provide visual examples to illustrate principles. These methods can also be used by individuals in autoinstruction, which is the

TABLE 7-1

Advantages of Eight Training Methods

Method	Advantages
Audiovisual instruction	Presents material that could not otherwise be heard or seen
	Can train many people at once
Autoinstruction	Gives immediate feedback to trainees
	Provides individualized pacing
Conference	Allows for feedback to trainees
	Provides a high level of trainee involvement
Lecture	Is economical
	Is a good information-giving method
Modeling	Provides a high level of feedback
	Provides practice of new skills
On-the-job training	Gives exposure to the actual job
	Ensures a high level of transfer
Role-playing	Provides a high level of feedback
	Provides practice of new skills
Simulation	Ensures a high level of transfer
	Provides practice of new skills

Source: Adapted from "Selection, Training, and Development of Personnel," by W. C. Borman, N. G. Peterson, and T. L. Russell (1992), in G. Salvendy (Ed.), *Handbook of Industrial Engineering* (2nd ed.), New York, NY: John Wiley.

next method we will discuss. When training videos are placed online, trainees can have the option of commenting and asking questions. This interactive feature of audiovisual instruction can increase feelings of the social presence of others that is linked to trainee engagement with the material that can enhance learning (Andel et al., 2018).

Autoinstruction. **Autoinstruction** refers to any training method that is self-paced and does not use an instructor. The most well-known technique is **programmed instruction**, which divides the material to be covered into a series of individual chunks or frames. Each frame contains a piece of information, a question to be answered, and the answer to the question from the prior frame. The person works at his or her own pace. There is repetition built in, as the same material is presented more than once. There is also feedback, as the person must answer questions and is then given the correct answers almost immediately. Although the medium for programmed instruction was originally a book or manual, the computer provides a much more flexible approach to autoinstruction training.

Conference. A **conference** is a meeting of trainees and a trainer to discuss the material in question. The distinguishing feature of the conference is that participants can discuss the material and ask questions. It also allows for a free flow of ideas so that the discussion can go beyond the prepackaged materials. Thus, the conference can be used to create an active learning environment that engages the trainees. It is especially effective when used with trainees who have already acquired expertise with the material. It is the major teaching method used at the Ph.D. level in the training of I-O psychology students.

Lecture. A **lecture** is a presentation by a trainer to a group of trainees. Its major advantage is its efficiency. One trainer can present material to a large number of trainees at the same time. At some universities, lectures are given to a thousand or more students at once. The greatest strength of the lecture is also its greatest weakness. The mass presentation to many people limits the amount of feedback that can be given. If there were even 40 people in a lecture and each person asked one question, the lecturer would have little time to present. For situations in which feedback is not needed, the lecture can be a very

effective means of training. Lectures can also be recorded and become part of an online autoinstruction effort.

Modeling. **Modeling** involves having trainees watch someone perform a task and then model what they have seen. The model can be live or recorded. Models can show both effective and ineffective examples of behavior. This approach is often used for the training of supervisory skills, such as giving negative feedback to an employee who is performing poorly. The examples of supervisory behavior are shown, and then the trainees attempt to imitate what they have seen. The trainer's role is to encourage the trainees to try the approaches and to give them feedback about how well they imitated what they saw.

Research on the modeling approach has provided support for its ability to train people in interpersonal skills, such as communicating with others. P. J. Taylor, Russ-Eft, and Chan's (2005) meta-analysis showed that modeling was effective in enhancing learning performance as assessed by both paper and pencil tests and simulations. Simon and Werner (1996) reported better learning with modeling than with autoinstruction or lecture in training U.S. naval personnel to use a new data processing system on a personal computer.

On-the-Job Training. **On-the-job training** is not a particular method but is any method used to show employees how to do the job while they are doing it. The greatest amount of job training often occurs while the person is doing the various job tasks. On-the-job training can be an informal system whereby a new employee watches an experienced employee to see how the job should be done. It can also involve a formal training program such as an **apprenticeship**, which is commonly used for jobs for which it may take years to fully train the employee. For this sort of job, the other methods might not be feasible because the organization cannot afford to pay a person for years of training without productivity. If the person quits before training is completed, the training effort has been wasted. An apprentice is an employee who can serve as an assistant to the trainer. The trainer is an employee who is doing the job and training the apprentice at the same time. This approach is often used to train people in trade occupations, such as electricians and plumbers.

Role-Playing. A **role play** is a type of simulation in which the trainee pretends to be doing a task. It usually involves an interpersonal situation, such as giving a person advice or feedback, and is used frequently for supervisory training. The role play is part of the modeling procedure we discussed earlier. The role play itself does not have to involve first observing another person perform the behavior. It can be an effective training technique, but it is costly in that only a few trainees can be trained at one time.

Simulations. As discussed earlier, a **simulation** is a technique in which specialized equipment or materials are used to portray a task situation. Trainees are to pretend that the situation is real and carry out their tasks as they would in the actual situation. Simulations can be used for training people in the use of equipment, such as automobiles or airplanes. They can also be used to simulate other situations, such as a business decision simulation that asks the trainee to pretend to be an organization member who has been given a problem to solve or task to accomplish. For example, a simulation might involve running an airport or a factory (Funke, 1998). These simulations can be made very realistic, for they can be based on real examples from the same organization. The simulation shares the limitation of the role play in that only a few trainees can participate at one time.

The use of technology has expanded the complexity of simulations that are possible. One type of computer simulation is a computer game (recall our discussion of gamification in Chapter 5) that is designed to teach specific KSAOs. Such games have been found to be effective, largely because they actively engage the employee in the training and not because the use of games themselves are especially effective (Sitzmann, 2011). A disadvantage to the computer game simulation is that it can cost millions of dollars to design a single game (Sitzmann, 2011). However, once the game is developed, employees can do the training on their own, and many employees can be trained simultaneously, as the game can be loaded onto an off-the-shelf computer.

Electronic Training

Electronic training or **E-learning** is the latest trend in both organizational training and university education. About half of training in companies is now done electronically (Cascio, 2019). This kind of training involves the use of electronic tools, often Web-based, and several of the training methods discussed here can be done electronically. Some forms of E-learning merely make use of a technology to deliver training originally developed for another medium, such as Web-broadcasting a lecture so people can watch it remotely on their electronic devices, such as laptops or smartphones. Other, more sophisticated approaches allow for complex, individualized training methods that incorporate sophisticated assessments to both provide feedback and make training more efficient by matching it to the level of the trainee. Practice can continue until a criterion level of proficiency is achieved, and already learned material can be skipped. Gamification elements can also be incorporated as the person works through the training materials (Armstrong & Landers, 2018). One advantage of electronic training is that materials can be put online so they are available to employees on demand. Short **micro-learning** modules of 5 minutes or less can be available when a particular knowledge or skill is needed (Cascio, 2019). This "just in time" approach makes training efficiently available whenever and wherever the employee comes across a situation in which it is needed, rather than having to wait until a training session is available.

Derouin, Fritzsche, and Salas (2005) noted several potential advantages of E-learning that make it attractive to organizations. First, it can give the learner a great deal of control over the training experience by being able to determine when and where the training is delivered and, with some methods, the order of the material. Second, technology allows for rapid development and modification of training materials as they are needed. A training module written in PowerPoint can be put together and e-mailed to employees or posted on a website in a very short time. Third, E-learning can be combined with other, more traditional methods, producing **blended learning**. For example, a classroom lecture can be coupled with some E-learning exercises. Finally, E-learning can be easily customized to meet individual employee needs. For example, a training program might include assessments that determine when the learner has mastered the material and is ready to move to the next topic. R. Newton and Doonga (2007) surveyed training managers of organizations who noted that the major advantages for them were the flexibility in where training could be done, the efficiency of delivery, and not having employees absent to attend training sessions. Rather, employees can complete training in small sessions during the workday (e.g., during breaks).

On the other hand, there are drawbacks to E-learning. As noted earlier, motivation is an important element in training, and it can be a particular concern with E-learning (Brown, 2005). Since it is self-paced, there is no trainer or other trainees to help motivate a trainee who has little intrinsic interest in the material. One solution that can increase trainee engagement is to incorporate gamification into training (Dicheva, Dichev, Agre, & Angelova, 2015; Foster & Warwick, 2018). As we discussed in Chapter 5, gamification involves the inclusion of game elements into nonleisure pursuits such as employee assessment or training. Miller, Grooms, and King (2018) created a gamified training program for newly hired IT support staff that was designed around a space exploration game theme. Not only did trainees report enjoying the training, but also a customer service survey indicated that their performance was better than employees in the past who were trained in a traditional nongamified way.

Another issue with E-learning is that typically employees are asked to complete training at their own pace when they can find time. Oiry (2009) noted that employees complain that their supervisors are reluctant to provide breaks for training, given the demands of heavy workloads. This problem is reduced when an employee is given a day off to attend training.

E-learning is certainly popular for delivery of organizational training, and it seems to have become a common part of organizational life. Studies have shown that it can

produce learning that is equivalent to or in some situations even better than learning from classroom instruction (Sitzmann, Kraiger, Stewart, & Wisher, 2006). Of course, as with all training methods, it is suitable for some but not all training situations.

Mentoring

Many organizations have found that new and inexperienced employees can benefit from being mentored by more senior and usually higher-level employees. **Mentoring** is a special kind of work relationship between two employees where the more experienced offers advice/coaching, counseling, and friendship and serves as a role model (Baranik, Roling, & Eby, 2010). Furthermore, although most mentor situations involve employees of different organizational levels and often a mentor is the protégé's supervisor, mentors can also be peers who are at the same level but are just more experienced. Mentoring can be thought of as a kind of training that not only helps a new employee get oriented to the job but also helps that employee develop his or her career with the company over a considerable period of time (Young & Perrewé, 2004). Research has shown that those mentored or protégés derive a number of benefits from mentoring, including better job performance, quicker promotion, better job attitudes, and less turnover (Blickle, Witzki, & Schneider, 2009). There are also benefits to the mentors, including improved personal satisfaction, enhanced job performance, recognition by others, and future loyalty of the protégés, which can be helpful (Eby, Durley, Evans, & Ragins, 2006). Both mentor and protégé can experience enhanced psychological well-being from participating in a mentoring relationship (Chun, Sosik, & Yun, 2012). Finally, recipients of mentoring are more likely to engage in organizational citizenship behavior (OCB) that consists of beneficial acts that go beyond job tasks (Eby, Butts, Hoffman, & Sauer, 2015).

Kraiger, Finkelstein, and Varghese (2019) conducted an in-depth study of what mentors do to help their protégés. Their mentoring activities fit three categories:

1. Clarifying career objectives and helping protégés develop their skills
2. Providing emotional support in dealing with stressful situations
3. Instilling a feeling of psychological safety as trust develops between the mentor and protégé

These different activities focus on both the short term (e.g., helping a protégé resolving a conflict with another employee) and long term (e.g., deciding whether to invest time in a training opportunity).

Mentoring occurs quite naturally as relationships develop between people at work, but many organizations have formal mentoring programs in which mentors and protégés are assigned to one another (Raabe & Beehr, 2003). Formal programs can be useful because not all employees are likely to find mentors on their own. Such programs have been shown to have a favorable impact on protégés (Bear, 2018; Mylona et al., 2016). Of course, mentoring experiences are not always positive. In the extreme, mentoring can become dysfunctional when the relationship between mentor and protégé becomes destructive, with the mentor being overly critical and even undermining the protégé. Such negative experiences can be worse than no mentor at all and can create significant problems for protégés (Eby, Durley, Evans, & Ragins, 2008).

Executive Coaching

High-level executives and managers, especially in private companies, are sometimes paired with a consultant who can serve as an executive coach to help him or her improve job performance. **Executive coaching** was originally designed to assist high-level managers with performance problems, but it has evolved to become a means of helping even well-performing managers enhance their management skills (Bono, Purvanova,

Towler, & Peterson, 2009). There are many ways in which a coach can operate. One way is to solicit feedback from employees who interact with the executive, perhaps using 360-degree feedback (see Chapter 4). The coach then meets with the executive to help interpret the feedback and devise an action plan to improve in areas that are deficient. For example, if subordinates and peers note problems with communication, a plan to enhance such skills can be devised. The coach might work with the executive for an extended period of time, providing continual advice and feedback.

One concern with executive coaching is that there is no particular background or credentials one needs to be a coach, and there is no consensus concerning the KSAOs required (Bono et al., 2009). Coaches can be found with a variety of backgrounds, including I-O psychology (see this chapter's I-O Psychology in Practice). The scant research concerning effectiveness suggests that executive coaching can have positive effects (Grant, Curtayne, & Burton, 2009). For example, Baron and Morin (2010) found that managers who were coached increased their self-efficacy, which means they felt more confident about their management abilities. As we will see in Chapter 8, self-efficacy is an important prerequisite to good job performance.

Veteran Reintegration

There has been growing realization that deployed military veterans face serious challenges when reintegrating into civilian life. Many returning veterans, particularly those that might have enlisted before finishing their education, lack obvious marketable skills for the civilian workforce (Ray & Heaslip, 2011). Salisbury and Burker (2011) note estimates ranging from 10% to 24% of formerly deployed veterans experience symptoms of post-traumatic stress. Although the military might have programs to ease the transition to civilian life (Currie, Day, & Kelloway, 2011), these programs are not sufficient to address work-related needs of veterans.

In a national survey of 754 American veterans, Sayer et al. (2010) found that the second most often mentioned need was for information about education and employment. Job readiness programs can be found at colleges and universities that can prepare veterans for careers. For example, Green River Community College in Washington State has developed a "green jobs" training program specifically for veterans (Bellotti, Laffaye, Weingardt, Fischer, & Schumacher, 2011). The goal of this program is to teach skills for jobs in green industries, such as agriculture, aquaculture, forestry and recycling. Partnerships of such educational programs with industry can provide both a smooth transition to the workforce for veterans, and a steady source of talent for organizations.

Delivery of a Training Program

Even the most well-designed training program will be ineffective unless it is properly delivered. In most organizations, specialists who are skilled in training deliver the program. They may or may not be experts in the content of the training or in training design. Content is the responsibility of SMEs who know the topics that the training will cover. I-O psychologists and people from several other fields are experts at program design. Because program delivery is not a frequent activity of an I-O psychologist, we move on with the next topic: training evaluation.

Evaluation of a Training Program

As far as an I-O psychologist is concerned, a training program is not completed until its effectiveness has been evaluated. An evaluation is a piece of research to see whether the program had its intended effects. This is important because many training programs are

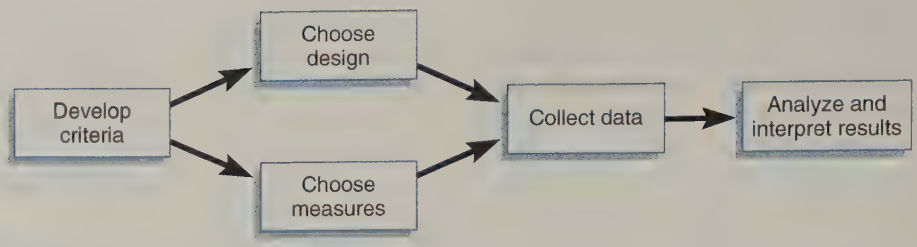


FIGURE 7-4 Five steps to evaluating a training program.

ineffective. For example, Morrow, Jarrett, and Rupinski (1997) evaluated the utility of 18 training programs in an organization and found that 5 cost more than they returned in improved performance on the job. The principles of research design, as discussed in Chapter 2, are very much involved in the design of evaluation. There is little difference between conducting an evaluation study for a training program and conducting a research study to determine the effects of any intervention that is tried in an organization. Thus, the principles and techniques of research methodology that we discussed in Chapter 2 apply to the evaluation of a training program.

Carrying out a training evaluation requires five steps (Figure 7-4). The first step is to define the criteria for evaluation. As we have discussed several times in this book, you must have criteria before you can evaluate something. Criteria are the standards used for comparison that allow you to determine if training has been effective. Once criteria have been selected, a design for the study and the measures used to assess the criteria can be selected (steps 2 and 3). Step 4 is collecting the data for the study. Step 5 is analyzing the data and reaching conclusions about the effectiveness of the training program. We discuss each of these steps in greater detail now.

Set Criteria

Training criteria serve as the standard by which training can be evaluated. If you know what the training is supposed to achieve, you can design an evaluation study to determine if the goals were met. Suppose a manufacturing company is selling too many defective products. It might set as a training objective, teaching employees to reduce errors in their manufacturing tasks. The criterion could be a specified reduction in the number of defective products. When the criterion is specific, such as a reduction of 10%, it is relatively easy to evaluate the effectiveness of the training program.

Training criteria are classified into two levels—training level and performance level—both of which are important in evaluating training. **Training-level criteria** are concerned with what people are able to do at the end of training in the training environment itself rather than on the job. **Performance-level criteria** are concerned with the person's performance on the job rather than in the training setting. In other words, performance criteria are concerned with transfer of training. Thus, training level is concerned with what the person learned, whereas performance level is concerned with the effects of the training on the job itself.

Performance-level and training-level criteria work hand in hand in evaluating the effectiveness of training. The performance level is important because it shows whether the training has had the intended effects on the job. Because most training is intended to affect job performance, a training program without effects at the performance level is ineffective. On the other hand, it is important to know what the employees learned in the training. The best criterion for this is at the training level. Someone might learn a great deal and for some reason not apply it to the job. Failure to have an effect on the job might be due to other factors. For example, a person might know what to do and how to do it, but the opportunity to apply the knowledge might

never occur. Employees might be given a first aid course to help them better handle work accidents. If no accidents occur, the employees will not show any effects at the performance level.

Another useful way of classifying criteria is to divide them into four types, two of which can be placed in the performance level and two in the training level (Kirkpatrick, 1977):

Reactions
Learning
Behavior
Results

Reactions criteria refer to how much each trainee liked the training and how much the trainee believed he or she got out of it. It is assessed with a questionnaire given to each trainee at the end of the training session. **Learning criteria** refer to what the person learned in training—what the trainee is able to demonstrate behaviorally in terms of knowledge and skills acquired in training. It might be assessed with an examination given at the end of training. Both of these criterion types relate to the training level. They are frequently used in colleges and universities. Student evaluations of instruction at the end of a course are reactions criteria, and exam scores are learning criteria.

Behavior criteria concern the trainee's behaviors on the job that might have been due to training. This type of criterion looks at whether the person is doing the things he or she was taught. **Results criteria** deal with whether the training had its intended effects on the organization itself. Did the training reduce costs or increase productivity, for example? This final type of criterion serves as the bottom line for the effectiveness of a training program. Both behavior and results criteria relate to the performance level because they focus on what happens on the job rather than in the training setting.

All of these criterion types are important because each is a partial indicator of training success. A meta-analysis of 34 training studies showed that most criteria assessed within the same study are only slightly correlated with one another (Alliger, Tannenbaum, Bennett, Traver, & Shotland, 1997). Furthermore, in any given training program, only some of the criteria may show the desired results. Campion and Campion (1987) conducted a study in which they evaluated a training program against four different criteria. Their results showed that the training of interview skills was effective at the training level but not at the performance level. On the other hand, Maurer, Solamon, Andrews, and Troxtel (2001) were able to show that training in how to interview was effective in enhancing performance in interviews away from the training situation. Thus, we can see that interview training can show transfer but does not always show transfer. These studies demonstrate that one must be careful not to assume training will have the intended effects and that one should include criteria at both levels to thoroughly evaluate effectiveness (see the Research in Detail box).

Choose Design

A *design* is the structure of a study that specifies how data are collected, whether it is a study of training or some other phenomenon. With a training evaluation, the type of criterion sets limits on the designs that can be used. For reactions criteria, the only feasible design is one that assesses participants once at the end of training. It makes no sense to assess nonparticipants as a control group or to assess participants before they go through training. People who are not going to be trained cannot have a reaction to what they have not experienced. People who have not yet been trained cannot have a reaction to what they are about to experience.

Research in Detail

Sometimes events occur in organizations that produce the equivalent of an experiment. Such was the case when the availability of training for only some employees allowed Campion and Campion (1987) to conduct a naturally occurring experiment to evaluate the effects of training. Employees were assigned to be either trained or untrained merely because the organization had insufficient resources and time for everyone to be trained. After the training was completed, the researchers assessed everyone using four criteria to compare the trained and untrained employees.

This study took place in an electronics company that needed to move a large number of employees from manufacturing jobs to marketing jobs. Many of the employees lacked interview skills. The managers of the organization were concerned that their employees would be unable to perform well enough in an interview to transfer to another job. To remedy the deficiency, an interview skills training program was developed and implemented.

Roughly half of the eligible employees were given training and half were not. The training was evaluated with each of the four types of criteria: reactions, learning, behavior, and results. The reactions criterion was assessed with a questionnaire at the end of the training. The majority of participants believed the training was worthwhile. Learning was assessed with a test given to the trained employees at the beginning and end of training. This knowledge test showed that the participants learned about proper interview behavior during the training.

The behavior criterion was assessed by having the interviewers who later interviewed all employees rate how well they performed. According to this criterion, the trained group performed the same as the untrained group. Finally, the results criterion was assessed by noting the number of job offers each employee received. Here again there were no differences between the trained and untrained individuals.

These results suggested that the training was effective in teaching the employees interview skills but ineffective in helping them perform better in an actual job interview. From the organization's point of view, the training did not meet its objectives. The reasons for this failure are not clear. Perhaps the training was unnecessary because most employees already had good interview skills. Perhaps the training included the wrong material. In either case, this study demonstrates why it is important for organizations to assess different types of criteria when evaluating a training program.

Source: From "Evaluation of an Interviewee Skills Training Program in a Natural Field Experiment," by M. A. Campion and J. E. Campion (1987), *Personnel Psychology, 40,* 675–691.

Other criteria can be assessed with many different types of designs. The two most popular are pretest–posttest and control group. The *pretest–posttest design* assesses trainees before and after training. The *control group design* compares trainees with a group of employees who have not received the training. Each design has its advantages and limitations in evaluating a training program.

Pretest–Posttest Design. The **pretest–posttest design** is intended to provide information about how much the trainees gained from the training. It can be used to assess the amount learned in the training itself or the amount of change in behavior back on the job. To conduct a study with this design, the measures of interest are assessed before the training begins (pretest) and again after it has been completed (posttest). Figure 7-5 illustrates the structure of this design. Both pretest and posttest measures are part of

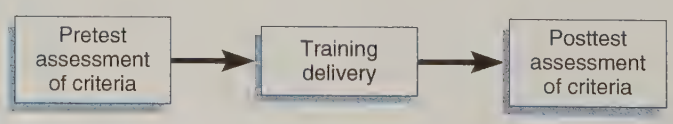


FIGURE 7-5 Structure of a pretest–posttest training evaluation design.

the training program. It is not unusual for a training program to begin with a test to see what trainees know and conclude with a test to see what they have learned. Assessments can also occur on the job well before and well after training. For example, if a training program is intended to improve productivity, measures of productivity could be taken for the 6 months prior to and the 6 months after training. Sometimes training does not show effects on the job for a long period of time. In that case a thorough evaluation would not be possible immediately after training.

The pretest–posttest design is popular because it is a practical design to use in organizations. It is usually easy to build in an assessment at the beginning and end of a training program. The assessment can also be used as a means of providing feedback. The major drawback of this design is that it is difficult to attribute changes to the training itself rather than other events in the organization. This is particularly true for performance criteria. If a training program is designed to improve job performance, gains in performance from before to after training might have occurred for many reasons. Just making supervisors aware that performance is a problem could motivate them to put pressure on subordinates to perform. This increased attention to performance would coincide with the training and might be the cause of the performance gains. To find out if the training itself was the cause of the improvement would require a research design with a control group.

Control Group Design. A **control group design** compares employees who have received training to equivalent employees who have not been trained. Figure 7-6 illustrates the structure of this design. To conduct a control group study, a group of employees is selected for the study. Half are assigned at random to the trained group, and the other half are the controls who receive no training. At the end of the training program, all employees in the study are assessed on the measures of interest. The comparison between the two subgroups of employees indicates the effects of the training.

This design is more difficult to use in an organization because it is not always possible to assign employees at random to the two groups. In addition, there can be contamination as the trained employees tell the untrained control group employees what they have learned. However, this design is an improvement over the pretest–posttest when you wish to determine the effects of training. It helps control for the possibility that it was something other than training that caused the changes that you observed in employees.

Choose Measures of the Criteria

Once criteria have been chosen, the actual measures of those criteria need to be selected. The criterion of interest determines to a great extent what sorts of measures can be used to assess it. Reactions criteria require the use of a questionnaire that trainees can complete to give their reactions. The specific design of the questionnaire must be decided. There are

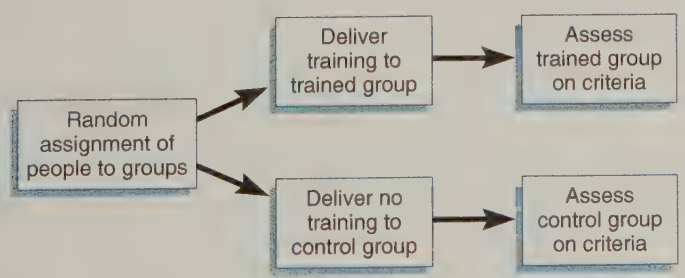


FIGURE 7-6 Structure of a control group training evaluation design.

many ways to ask people their reactions to training. For example, questions can ask how much the trainee learned or if the training was enjoyable.

Learning criteria usually involve some sort of test given at the end of training. Training intended to increase knowledge about a topic can be evaluated with a knowledge test, much like an examination given in school. Training to enhance other types of skills requires a different approach, such as a role play or simulation test. Assessment of performance criteria requires measuring trainee behavior or results in the job setting rather than in training.

Collect Data

Although the underlying logic of an evaluation study is simple and straightforward, carrying out the study can be a difficult undertaking because collecting the data poses many practical problems. People are not always cooperative, and many things can and do go wrong. It is difficult to perform pure random assignment in an organization, so that compromises must be made. Often this means that the trained group comes from one department and the control group from another. Differences between the trained and untrained employees might then be caused by department differences on the criteria of interest rather than the training.

The best possible design should always be planned. Every researcher knows that the plan might not be carried out without compromises. This means that modifications might have to be made during the study. A good researcher is able to deal effectively with problems that occur during the data collection step of the study. If this step is conducted properly, it will be possible to draw conclusions about the effectiveness of the training program.

Analyze and Interpret Data

The data from evaluation studies are analyzed with inferential statistics. With a pretest–posttest design, the statistics indicate how much the trainees changed from the pretest to the posttest. With a control group study, the statistics show how much difference, if any, exists between the trained and untrained employees. In both cases, the statistic used could be as simple as a *t*-test.

If all four prior steps of the training evaluation have been well done, it will be possible to reach a confident conclusion about the effectiveness of the training program. It is always a good idea to evaluate training, and it should be evaluated at both the performance and the training levels. Training will often be effective at only one of the two levels, so assessment of both will give useful information about the effects the training might have had.

If training works at both levels, it can be considered effective and should continue. Training that does not work at either level should be considered ineffective and eliminated or modified. Training that is effective at the training level but not the performance level is probably the wrong approach or an incomplete solution to the problem. A productivity problem might be due to inadequate knowledge or skill, but it can be caused by other factors as well. In a manufacturing plant, poor productivity can be caused by poor equipment maintenance or poor supervision. Training of equipment operators is unlikely to affect their productivity if it is being reduced by one of these two factors. An evaluation of training would likely show that the operators learned but that productivity stayed the same. Of course, it is always possible that the training was effective in teaching new skills, but constraints in the work environment prevented employees from using them. The evaluation might give hints that changes need to be made, not to employees, but to equipment or to supervisors.

The development of a new training program should always include an evaluation component. Training that is found to be ineffective should be modified if it is possible

to make it effective or discontinued if it is not. A good strategy for developing training is to pilot test it before implementation. A small group of employees could be put through the training, and then the training would be evaluated at several levels. It would not be implemented throughout the organization until it had been found to be effective during pilot testing. This approach allows for the modification of training so that it can be improved before full implementation throughout the organization. This strategy for developing training programs should result in making the most of training resources.

Chapter Summary

Training is one of the most important activities of organizations. The design of effective training programs is a five-step process:

Determine training needs through needs assessment.
Set objectives for training.
Design training.
Deliver training.
Evaluate training.

The first step of a training program is to determine the need for training. This includes not only what should be trained but also who should be trained. Once the training need is established by a needs assessment, the objectives for the training should be decided. From these objectives, a series of training criteria should be developed by which to judge the effectiveness of the training.

The design of effective training should consider characteristics of trainees. Different individuals might have different training needs. It should also incorporate the principles of good training and the methods that will be used. Many principles determine whether a particular training program will be effective:

Feedback
General principles
Identical elements
Overlearning
Sequencing of training sessions

Many training methods can be used. Each has its strengths and limitations, and no one method is necessarily better than the others. Choice of method depends on what and who are trained. E-learning, the use of technology to deliver training, has become commonplace in organizations. Web-based training can be effective and efficient if used properly. Mentoring is a special relationship between an experienced and an inexperienced employee in which the former helps the latter develop his or her job skills.

Training evaluation is done by conducting a research study to determine if the training was effective. The evaluation process includes five steps:

Select criteria.
Choose a research design.
Choose measures of the criteria.
Collect data.
Analyze data and interpret results.

A well-conducted evaluation study can provide valuable information about whether a training program is having its intended effects on individuals and organizations. A training program that is ineffective should be modified to make it effective or eliminated. In the long run, a policy of evaluating training will lead to better use of training resources and a more effective workforce.

I-O Psychology in Practice

This case concerns executive coaching—the development of management skills in high-level corporate executives—which was one of the major responsibilities of Dr. Charles Evans, an I-O psychologist working for RHR International, an international consulting firm in Toronto, Canada. Dr. Evans received his Ph.D. in I-O psychology from the University of Guelph in Canada in 1994. His RHR responsibilities were to work on projects for client organizations, which are some of the largest corporations in the world. Most of his work was in the areas of employee assessment and performance appraisal, as well as executive coaching.

As an executive coach, Dr. Evans's major function was to provide assistance and feedback to executives who need to enhance their managerial skills. Often people who are promoted to high levels in organizations find that success on the job requires new approaches to dealing with people rather than the approaches they had used effectively at lower levels. A common problem is that executives are too autocratic and focused on results. Although subordinates at lower levels might have responded constructively to direct orders, middle- and higher-level managers do not. Instead, executives need to use skills in communication and persuasion. One must gain support for taking actions that require cooperation from many people for success. Individuals who lack these skills must develop them, or they will remain ineffective.

Dr. Evans addressed these and other problems by collecting information about the individual and then giving feedback based on that information. He conducted a structured interview to assess the individual's background and interpersonal skills. A 360-degree feedback (see Chapter 4) was conducted, and the results were discussed with the person to let him or her know how he or she comes across to peers, subordinates, and supervisors. Dr. Evans assisted the person in coming up with a development plan to address deficiencies and improve management skills. He served as a coach to the person in helping figure out ways to do a better job.

Dr. Evans did this work mainly in North America, but his firm works with executives throughout the world. Companies pay executives very high salaries, and they are willing to spend a lot on their development, including hiring a private coach to help enhance their management skills. Such efforts can help organizations function better because their executives are more effective in dealing with people.

Discussion Questions

1. Why would a high-level executive want to enhance management skills?
2. How do you tell a person who has risen to the top of an organization that he or she needs to handle people more effectively?
3. Which of the training methods would be most effective here?
4. How would you go about evaluating what Dr. Evans does?

Learning by Doing

Training Needs Assessment

One of the major methods of needs assessment is to survey employees about their training needs. Choose a person you know (acquaintance, family member, or friend) who is currently employed in a job you have never held yourself. Interview him or her about the training needs for the job. Ask about the three or four most important areas in which training is needed. You should ask about the following:

1. Job title
2. Areas in which training is needed
3. KSAOs that would be enhanced by the training
4. Tasks that would be facilitated by the training

Write a brief report that provides an overview of what you learned about the job.

E-Learning at Your University

Find a course at your university that uses some form of E-learning. Review whatever materials you can find about the course (e.g., catalog description or syllabus). Explain the specific E-learning methods used in the course and whether or not blended learning is being used. Discuss how the specific topics of the course fit or fail to fit the E-learning method being used.

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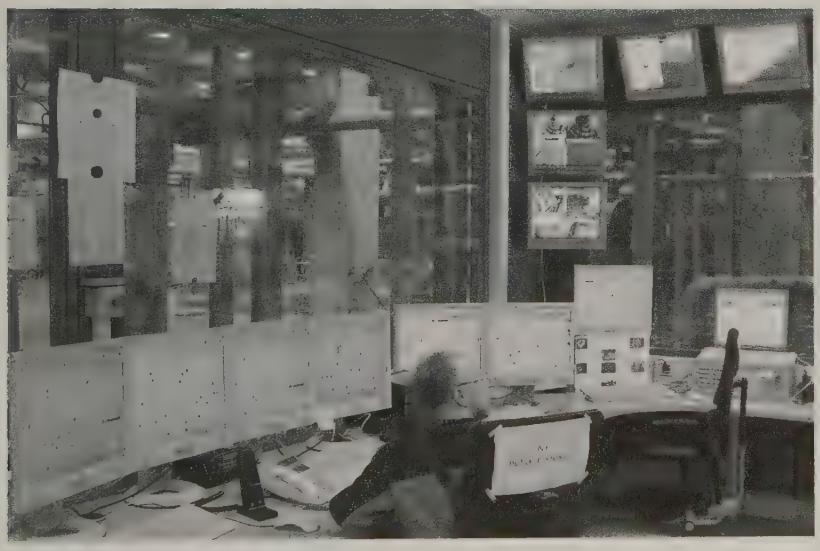
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PART 4

The Individual and the Organization



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CHAPTER 8

Theories of Employee Motivation

OUTLINE

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Bill Gates, the founder and former head of Microsoft Corporation, was well known for his arduous work schedule. When running the company, he typically spent 12 hours a day at the office and worked several hours more at home. He did not own a television set because he said it was too distracting. By the time he was in his mid-30s, Gates had amassed a fortune of several billion dollars, and he became one of the richest people in the world. Yet he continued to work harder than almost anyone, even though he did not need more money. In fact, Gates created a charitable foundation that has been giving away his wealth. What drove Gates to work so hard? He said that he was motivated by challenges and the desire to learn new things.

Few people work as hard as Bill Gates did. Furthermore, not everyone works for the challenge that he did. A variety of factors motivate people to work hard. The necessity to make money is certainly one of them, but there are others, which can be tangible, such as an insurance benefit, or intangible, such as a sense of accomplishment. Theories of motivation explain why people work hard. They also explain other types of behavior that do not involve job performance. Most of the theories, however, have focused on job performance because job performance has been a central variable for the I-O field.

This chapter discusses job performance in terms of several popular theories, with a focus on motivation rather than capability—the knowledge, skill, and ability we discussed in earlier chapters. (In Chapter 10, we will explore other things that affect performance, as well as other forms of work behavior, such as turnover.) This chapter begins by defining motivation in the context of the work environment. It then introduces work motivation theories and provides a brief overview of the nine theories to be covered. Each theory is next discussed in greater detail, along with the research evidence for its validity.

What Is Motivation?

OBJECTIVES

The student who studies this chapter should be able to

1. Define motivation.
2. List the major work motivation theories that are discussed in this chapter.
3. Describe how each of the major work motivation theories explains work behavior.
4. Compare and contrast the major work motivation theories.

Motivation is defined as an internal state that induces a person to engage in particular behaviors. From one perspective, it has to do with the direction, intensity, and persistence of behavior over time.

- *Direction* refers to the choice of specific behaviors from a large number of possible behaviors. For example, an employee might decide to volunteer for an extra work project that will require him or her to work overtime instead of going home on time and relaxing.
- *Intensity* refers to the amount of effort a person expends at doing a task. If an employee is asked to sweep a floor, the person can exert a lot of effort by sweeping hard and fast or exert a little effort by sweeping softly and slowly.
- *Persistence* refers to the continuing engagement in a behavior over time. An employee might try to accomplish something over an extended period of time, such as studying to pass the CPA exam to become a certified public accountant, even though it might take several attempts.

From another perspective, motivation is concerned with the desire to acquire or achieve some goal. That is, motivation derives from a person's desires or wants. Some people, for example, are highly motivated to acquire money. It is presumed that a high level of motivation to have money affects the behavior relevant to acquiring it.

Work Motivation Theories

Work motivation theories are most typically concerned with the reasons, other than ability, that some people perform their jobs better than others. Depending on the situation, these theories can predict people's choice of task behavior, their effort, or their persistence. Presuming that people have the necessary talents and that constraints on performance are relatively low, high levels of motivation should lead to good job performance. (See the broader discussion of job performance in Chapter 10.)

The theories covered in this chapter view employee motivation from very different perspectives. According to need theories, people are motivated to acquire certain categories of things, such as food or recognition. Need hierarchy theory classifies all human needs into a small number of categories, and it presumes that people's behavior is directed toward fulfilling their needs. Self-determination theory suggests that jobs that allow for the fulfillment of three basic needs will be motivating to employees.

Expectancy theory attempts to relate environmental rewards to behavior. It is concerned with human cognitive processes that explain how the possibility of achieving rewards will motivate behavior.

Self-efficacy theory is concerned with how people's beliefs about their own capabilities can affect their behavior. According to this theory, motivation to attempt a task is related to whether the person believes he or she is capable of successfully accomplishing the task.

Justice theories are quite different from the other theories in that they are concerned with people's values rather than beliefs, needs, or reinforcements. These theories presume that people universally value fairness in their social relations at work. Situations in which unfairness or inequity exists are presumed to motivate employees to remedy the unfairness.

Goal-setting theory explains how people's goals and intentions can result in behavior. Like need theories, it notes that motivation begins inside the person, but it also shows how environmental influences can shape motivation and behavior. Cognitive control theory is also concerned with goals but focuses attention on feedback toward goal attainment and how discrepancies between goals and the current situation motivate behavior. Action

theory was developed in Germany to explain volitional (self-motivated and voluntary) behavior at work. It is another cognitive theory that explains how goals are translated into behaviors that persist until the person reaches his or her objective.

These theories can be described along a continuum from distal to proximal (Kanfer, 1992). **Distal motivation theories** deal with processes that are far removed from the behavior. **Proximal motivation theories** deal with processes that are close to the behavior. Need theories are distal because they deal with general needs that can be translated into behavior in many ways. Goal-setting theory is more proximal because it deals with goals that lead to specific behaviors, such as a goal by a salesperson to sell a particular amount of product.

Even though these various theories view motivation from different perspectives, they do not necessarily lead to different predictions about behavior. Portions of some of these theories can be complementary, and efforts have been made to integrate features of some of them. For example, Locke and Latham (1990) combined aspects of expectancy and self-efficacy theories with their goal-setting theory. In the remainder of this chapter, the various motivation theories will be discussed in detail.

Need Theories

The two need theories discussed here view motivation as deriving from people's desires for certain things. It is implied that needs can differ both within the same person over time and across different people. Need theories have a long history in I-O psychology, with early studies focused on identifying relevant needs and determining how need satisfaction might relate to behavior. This static approach has fallen out of favor as it provided few insights into how to best manage people to enhance motivation. It is illustrated by the classic need hierarchy theory that deals with the structure of human needs. The more modern approach, illustrated by self-determination theory, identifies three basic needs and explains their role in motivation. The theory provides hints about how to manage people to fulfill their needs and maximize their motivation at work. Where there is little research conducted today on need hierarchy theory, self-determination theory has become a major focus for workplace motivation researchers.

Need Hierarchy Theory

Maslow's (1943) **need hierarchy theory** states that fulfillment of human needs is necessary for both physical and psychological health. Human needs are arranged in a hierarchy that includes physical, social, and psychological needs. Figure 8-1 illustrates the need hierarchy from the lowest level physical needs to the highest level psychological needs. In order from low to high, the needs are listed as follows:

1. **Physiological** needs include the physical necessities for survival, such as air, food, and water.
2. **Safety** needs are those things that protect us from danger. This level includes the need for security and shelter.
3. **Love** needs include the need for affection from and affiliation with others.
4. **Esteem** needs involve self-respect and the respect of others.
5. **Self-actualization** was not defined precisely. It refers to fulfilling personal life goals and reaching one's potential, or as Maslow stated, "the desire to become . . . everything that one is capable of becoming" (Maslow, 1943, p. 382).

According to Maslow, a need must be unmet to be motivating, and people are motivated by the lowest level need that is unmet in the moment. That is, if two levels of needs are unmet, the lower-level need will dominate. Thus, a hungry person would not be concerned with danger and might risk stealing food even though the punishment for theft is severe. A person with unmet safety needs would not be concerned with going to a party and having a good time with friends. Maslow recognized, however, that there can be

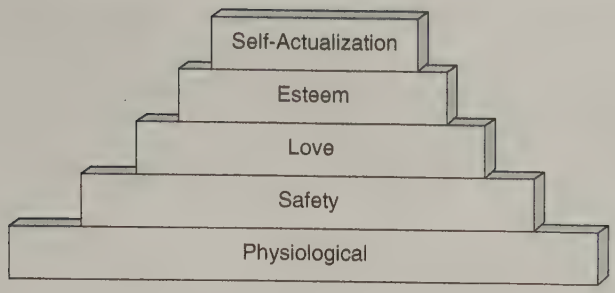


FIGURE 8-1 Maslow's needs hierarchy.

exceptions to the hierarchy and that some individuals can find certain higher-order needs to be more important than lower-level ones. Furthermore, many individuals in Western society have the first four needs met and may never have experienced deprivations of one or more of them, especially food. Therefore, the basic needs are not motivating.

Research on need hierarchy theory has not been very supportive. Locke and Henne (1986) noted that at least part of the difficulty is that Maslow's statement of the theory is rather vague, making it difficult to design good tests of it. Despite its lack of empirical support, need hierarchy theory has had a positive impact on organizations. It continues to be taught to both current and future managers. This helps focus attention on the importance of meeting employees' needs at work.

Self-Determination Theory

Self-determination theory (Ryan & Deci, 2000, 2020) is designed to explain how people regulate their actions to achieve their goals (Ryan, Kuhl, & Deci, 1997). It breaks down motivation into different types, four of which are listed here.

- **Intrinsic motivation** is motivation to engage in activities performed for their own satisfaction, such as exploration and play. If we are lucky, we have jobs that allow us to engage in intrinsically motivated activities that we enjoy and would do even if we were not being paid.
- **Extrinsic motivation** is motivation to engage in activities that are not particularly enjoyed but lead to external rewards. Much of what we do at work is extrinsically motivated as we do activities that meet our goals, which is not only being paid, but might also be to collect experiences that will allow us to move up in the organization.
- **Autonomous motivation** occurs when we do activities for our own purposes. It can be intrinsic where we engage in an activity for enjoyment or extrinsic when we engage in an activity because it allows us to achieve our personal goals. Many jobs allow employees considerable autonomy in how they do their jobs, which allows people to engage in activities that enhance autonomous motivation.
- **Nonautonomous motivation** occurs when we do activities because we are forced by external factors. This can occur at work when we are forced, under threat of being fired, to engage in activities we do not wish to do.

Self-determination theory is based on three basic human needs that are important for autonomous and intrinsic motivation.

1. **Autonomy:** People have the need to be able to control their own environments, both on and off the job.
2. **Competence:** People need to feel that they can accomplish what they set out to accomplish on the job, this means being able to perform job tasks correctly and well.
3. **Relatedness:** People have the need to develop positive social connections and relationships with others.

The theory notes that intrinsic and autonomous motivation are enhanced by situations that lead to satisfaction of needs, and they are inhibited by situations that prevent need

satisfaction (Deci, Olafsen, & Ryan, 2017). Feedback and rewards for good performance can be effective need satisfiers, for example, because they signal that the employee is competent in performing the job (Ryan & Deci, 2000). Negative feedback, on the other hand, can be detrimental to motivation because it can threaten feelings of competence. This is why negative feedback must be provided carefully in a supportive environment where the employee can view feedback as intended to enhance future competence that will lead to need satisfaction.

I-O research has supported self-determination theory in the workplace. A meta-analysis by Van den Broeck, Ferris, Chang, and Rosen (2016), for example, included studies that linked the three needs of autonomy, competence, and relatedness to a wide variety of organizational variables. As predicted by the theory, they found that need satisfaction was related to employee job performance, intrinsic motivation, and well-being. Interestingly, of the three needs, autonomy was most related to intrinsic motivation, but competence was most related to job performance. The first finding makes sense because intrinsic work motivation cannot develop unless one has the freedom to engage in interesting activities. The second finding makes sense because successful performance leads to feelings of competence.

A recent trend in organizations is to apply gamification elements into work to enhance motivation and performance. As noted in Chapter 5, gamification means incorporating game elements into nonleisure activities. Cardador, Northcraft, and Whicker (2017) describe how companies incorporate game elements to motivate employees, for example, sales associates. These include

- Achievements: Recognition for hitting specific benchmarks, such as completing certain training certifications
- Badges: A symbol that specified achievements have been reached, such as selling a certain amount of product
- Leaderboards: A publicly posted list of top performers, for example, top sales producers
- Levels: A rank system where employees are given specific levels, often numeric, that reflect their achievements, such as a level 8 salesperson

The use of these elements, commonly found in video games, is all forms of positive feedback, which, from a self-determination theory perspective, fulfill competency needs.



OLIVIER MORIN/AFP/Getty Images

It requires a tremendous amount of motivation to win a marathon. Most jobs require far less effort than running a marathon.

Expectancy Theory

Expectancy theory explains how rewards lead to behavior by focusing on internal cognitive states that lead to motivation. **Reinforcement theory** states that reinforcement will lead to behavior; expectancy theory explains when and why this will occur. The basic idea is that people will be motivated when they believe that their behavior will lead to rewards or outcomes that they want. If they do not believe that rewards will be contingent on their behavior, they will not be motivated to perform that behavior. If they do not want the contingent rewards, they will not be motivated to perform a behavior. Blog 8-1 discusses the use of intangible rewards to motivate employees.

BLOG 8-1 People Work for Praise

https://paulspector.com/people-work-for-praise

Discussion Questions

1. Explain how praising employees relates to the three self-determination theory needs.
2. Why would a supervisor be reluctant to praise an employee?
3. How does the practice of praising employees fit in the three motivation theories that involve goals?
4. How might the practice of praising employees create problems for the justice climate of an organization?

Several versions of expectancy theory have been adapted to the I-O domain. The oldest and most well-known is Vroom's (1964) theory that motivation or force is a mathematical function of three types of cognitions. The equation relating force to cognitions is

$$\text{Force} = \text{Expectancy} \times \pounds(\text{Valences} \times \text{Instrumentalities})$$

In this equation, **force** represents the amount of motivation a person has to engage in a particular behavior or sequence of behaviors that is relevant to job performance. It could be thought of as the motivation to perform. **Expectancy** is the subjective probability that a person has about his or her ability to perform a behavior. It is similar to self-confidence or self-efficacy (that we will discuss later in the chapter) in that a person believes he or she can perform the job at a particular level. *Subjective probability* means that people can vary in the certainty of their beliefs. A subjective probability of zero means that the person is certain that he or she is incapable of performing successfully. For example, I have a subjective probability of zero that I could beat Serena Williams in a game of tennis. A subjective probability of 1.0 means that the person is absolutely convinced, without the slightest doubt, that he or she can perform successfully. A subjective probability of .50 means that the person believes there is a 50/50 chance of success.

Valence is the value of an outcome or reward to a person. It is the extent to which a person wants or desires something. In the job setting, money is a frequent reward that can have different valence levels for different people. For example, one person is eager to work overtime for extra pay, whereas another person would rather have the time off than the extra pay. **Instrumentality** is the subjective probability that a given behavior will result in a particular reward. For any given situation, there can be more than one reward or outcome for a behavior. For each possible outcome, a valence and instrumentality are multiplied. Then each valence–instrumentality product is summed into a total, and the total is multiplied by expectancy to produce a force score. If the force score is high, the person will be motivated to perform the task behavior in question, in other words, work hard. If the force score is low, the person will not be motivated to perform on the job.

TABLE 8-1

The Relation of Expectancy, Valence, and Instrumentality to Force

Expectancy score	Valence score	Instrumentality score	Force score
High	High	High	High
High	High	Low	Low
High	Low	High	Low
High	Low	Low	Very low
Low	High	High	Low
Low	High	Low	Very low
Low	Low	High	Very low
Low	Low	Low	Extremely low

Table 8-1 shows how possible combinations of values for expectancy, valence, and instrumentality are combined into a force score. This case presumes that there is a single outcome. As the table shows, only when all three components are high will force be high. If any one of the three components is low, force will be low. If any one of the three components equals zero, there will be no motivation.

In most situations, more than one outcome is possible, so that the situation is complex because the valence–instrumentality for each outcome is combined. The way this works is best illustrated with an example. Suppose you are at work on a Friday afternoon and your boss asks for a volunteer to work overtime for extra pay. You find your job rather boring and view the prospect of working extra hours as somewhat aversive. In this case, there are two outcomes—receiving extra money and enduring several hours of boredom. If you believe that you are capable of working overtime, your expectancy will be high. Assuming that you believe both that you will get the overtime pay and that you will be bored, both instrumentalities will be high. The final factor that determines your motivation to work overtime will be the relative valences of the two outcomes. If the positive valence or desire for money is greater than the negative valence or desire to avoid the boredom, then you will be motivated to volunteer. If the positive valence for money is less than the negative valence for boredom, then you will be motivated to avoid volunteering.

Expectancy theory can also predict a person's choice of behavior from two or more options. Suppose that on the day your boss is looking for someone to work late, you have a dinner date, and you must choose between working overtime and going on the date. For each possible course of action, there will be an expectancy, valences, and instrumentalities. Thus, there will be a force to work overtime and a force to go on the date. The course of action with the greater force is the one in theory that you will take.

There has been research support for the predictions of expectancy theory. Studies have shown that performance is related to the individual components of expectancy theory, as well as to the multiplicative combination (Van Eerde & Thierry, 1996). In the typical study, a sample of employees is surveyed and asked to indicate their expectancies that they can perform the job, as well as their valences and instrumentalities for each of a number of possible outcomes. In addition, supervisors are asked to provide job performance ratings for each employee. The total force score is then correlated with performance.

Van Eerde and Thierry (1996) conducted a meta-analysis of expectancy theory studies that looked not only at predictions of job performance but at effort and preferences as well. Although the study showed that the force score related to measures of job performance as expected, it related more strongly to measures of effort. Similarly, the force score related more strongly to an individual's preference for something other than their actual choice—for example, wanting to quit a job versus actually quitting. These findings demonstrate that motivation is only one element in the processes that lead to behavior at work. A person might be motivated to work harder, but this does not always produce better job performance. Having a preference for something is not the same as

making an actual choice, for other factors can be important, such as not being able to find another job when you want to quit your present one.

Self-Efficacy Theory

Self-efficacy theory states that motivation and performance are determined in part by how effective people believe they can be (Bandura, 1982). In other words, people with high **self-efficacy** believe they are capable of accomplishing tasks and will be motivated to put forth effort. People with low self-efficacy do not believe they are capable of accomplishing tasks and will not be motivated to put forth effort. In a way, this is like a self-fulfilling prophecy in which a person behaves in a manner that fulfills his or her initial belief. Of course, people with high self-efficacy can be effective only if they have the necessary ability and constraints on performance at work are not insurmountable.

The self-efficacy concept itself is concerned with specific tasks or courses of action, and people vary in their self-efficacy across different tasks. Thus, a student might have high self-efficacy for taking essay tests and low self-efficacy for taking multiple-choice tests. This can explain why many students complain that they are good at one type of test and not the other. The theory would predict that students exert greater effort when taking the type of test for which their self-efficacy is higher.

Self-efficacy is much like the concept of expectancy from expectancy theory. The major difference is that expectancy is concerned with a specific activity at a particular point in time, whereas self-efficacy is concerned with the general feeling that a person is or is not capable in some domain of life, such as playing tennis. For example, a person might have a high level of expectancy that if he or she makes the effort, he or she can win a tennis game against a particular opponent. A high level of self-efficacy is the belief that one is a good player in general. Obviously, these two concepts are closely related, for the person with high self-efficacy should have a high expectancy in most cases, but they are not the same. The person who believes he or she is good at tennis might not be confident about winning if he or she is playing one of the best professional players in the world. Alternatively, one might not think he or she is a very good player (low self-efficacy) but have a high expectancy that he or she can defeat a particular opponent who is an even worse player. Self-efficacy theory and expectancy theory are compatible in predicting that people will try hard and do well at tasks when they believe they can succeed. Expectancy theory also considers the influence of rewards on motivation, a subject that is not addressed by self-efficacy theory.

The theory of self-efficacy has been well tested, and research has been quite supportive inside and outside of the workplace (Bandura & Locke, 2003). Studies in the training domain have shown that self-efficacy for particular tasks relates to performance in training on those tasks (Hughes et al., 2013). For example, McIntire and Levine (1991) conducted a longitudinal study of self-efficacy and performance among students taking college-level typing courses. They assessed self-efficacy before the course began and at the end of the course. They also assessed the number of words per minute typed and the grade at the end of the course. Finally, each student was asked to set a goal for the number of words per minute he or she would be able to type by the end of the course. The results were that self-efficacy before the class predicted the number of words per minute typed at the end of the course but not the grade in the course. Self-efficacy was also related to the goal set, with greater self-efficacy associated with setting a higher goal. These results suggest that self-efficacy can be a factor in future performance. The results with goals suggest that self-efficacy might operate through the setting of goals, so that students with high self-efficacy set harder goals for themselves, which results in better performance. Goal setting is discussed in detail later in this chapter.

Similar results with self-efficacy have been found in other training studies. Mathieu, Martineau, and Tannenbaum (1993) found that self-efficacy assessed before a bowling class was related to students' subsequent performance at the end of class. Locke and Latham (1990) conducted a meta-analysis of 13 studies relating self-efficacy to performance in

both laboratory and field settings. They found a mean correlation of .39, with correlations as high as .74.

While at least some of the observed relation between people's self-efficacy and their performance can be attributed to motivational effects of self-efficacy, some of the relation might also be due to the effects of successful performance on self-efficacy. W. D. Davis, Fedor, Parsons, and Herold (2000) studied self-efficacy in aircraft pilot training. Those students who performed well in simulation training developed high self-efficacy for subsequent flying. In the McIntire and Levine (1991) study, course grade related to self-efficacy at the end of the class but not the beginning, suggesting that students who achieved better grades enhanced their self-efficacy. Karl, O'Leary-Kelly, and Martocchio (1993) found that positive feedback on a speed reading task raised the self-efficacy of people who were initially low in self-efficacy.

Dov Eden and his associates conducted a series of studies in the workplace in which they manipulated self-efficacy to see its effects on job performance. These experimental studies controlled for ability and initial motivation by randomly assigning subjects either to a treatment group in which their self-efficacy was raised by providing information or training or to a control group that did not get the information or training. Eden refers to this as the **Galatea effect**, in which people's beliefs about their own capabilities lead them to perform better, as in a self-fulfilling prophecy. Eden and Aviram (1993) successfully applied this approach to increase the job search success of unemployed people. Similarly, Eden and Zuk (1995) used this technique to convince naval cadets in the Israel Defense Forces that they were unlikely to get seasick. This illness creates significant problems for all navies because it can interfere with job performance at sea. Eden and Zuk conducted an experiment in which cadets were randomly assigned to one of two groups: a group that attended a briefing where they were assured that seasickness was unlikely and would not interfere with their performance or a control group that was given no such briefing. While at sea, the briefed cadets had less seasickness and performed better than the control group. This very simple technique to enhance self-efficacy was quite effective.

In another military study, this time in the United States, Jex, Bliese, Buzzell, and Primeau (2001) linked self-efficacy to soldier stress and well-being. They found that individuals with high levels of self-efficacy reported feeling low levels of work overload and psychological distress. Taken together, all this research suggests that high self-efficacy contributes to both effective performance and employee well-being.

Self-efficacy is a useful theory with implications for the work setting. It suggests that motivation and performance, and perhaps well-being, can be enhanced by raising the self-efficacy of employees. Bandura (1982) discussed how self-efficacy can develop through a series of successes with increasingly difficult tasks. An organization can apply this principle by structuring the assignments of employees in such a way that they succeed at increasingly challenging tasks. This strategy can be particularly important with new employees, who may take some period of time to become adept at all aspects of the job. Relatively simple assignments can be given to new employees, with more difficult tasks introduced slowly to allow the person to experience few, if any, failures. As the person experiences success on more and more difficult tasks, his or her self-efficacy should increase. Karl et al. (1993) suggested incorporating just this approach into the design of training programs that introduces material that increases in difficulty so that trainees can build self-efficacy as they learn.

Justice Theories

A different approach to motivation is provided by justice theories, which focus on norms for fair treatment of employees by their organizations. The underlying assumption of these theories is that people value justice and that they are motivated to maintain fairness in relationships between themselves and organizations.

Equity Theory

Equity theory (Adams, 1965) states that people are motivated to achieve a condition of fairness or equity in their dealings with other people and with organizations. According to Adams (1965), employees who find themselves in inequitable situations will experience dissatisfaction and emotional tension, which they will be motivated to reduce. The theory specifies conditions under which inequity will occur and what employees are likely to do to reduce it.

Inequity is a psychological state that arises from employees' comparisons of themselves with others. What is specifically compared are ratios of outcomes to inputs. **Outcomes** are the rewards or everything of personal value that an employee gets from working for an organization, including pay, fringe benefits, good treatment, enjoyment, and status. **Inputs** are the contributions made by the employee to the organization. They include not only the work that the employee accomplishes but the experience and talents that he or she brings to the job as well. Thus, an employee with many years of job experience would have greater inputs than an employee just starting out in a career.

The theory posits that employees make psychological comparisons of their own outcome/input ratios to those of other employees. That is, employees psychologically evaluate how much they receive from the job (outcomes) in relation to their contributions (inputs), which is represented as the ratio

$$\text{Outcomes/Inputs}$$

Each employee compares his or her ratio to the ratios of people chosen for comparison. These comparison people or *others* might be employees doing the same job inside or outside the organization. They might also be people who have different types of jobs. The comparison involves the entire ratio and not the individual outcomes or inputs. Thus, a person may believe a situation is equitable even though his or her outcomes are less than inputs. It is only when the employee believes that his or her ratio is different from other people's ratios that inequity exists. This difference can be in either direction. That is, an employee can experience *underpayment* inequity if he or she believes that other people get more outcomes for their inputs. *Overpayment* inequity exists when an employee believes he or she is getting more outcomes for his or her inputs than other people are getting.

Figure 8-2 illustrates several possible comparison situations. In each case, it is presumed that the target employee (Person A) has a ratio of 10/20. That is, Person A receives

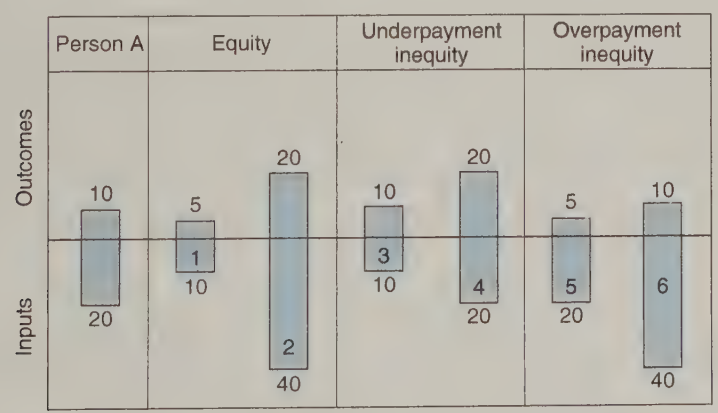


FIGURE 8-2 An illustration of equity and inequity. Person A has twice as many inputs as outcomes (see the bars in the first column). The other six bars represent comparison others' inputs and outcomes. Person A will experience equity or inequity depending on whom he or she chooses as a comparison. Cases 1 and 2 illustrate equity, where both inputs are double outcomes. Case 3 represents underpayment because the outcomes are the same as Person A's, but inputs are only half. Case 4 is underpayment because inputs are the same as Person A's, but outcomes are double. Case 5 is overpayment because inputs are the same as Person A's, but outcomes are half. Case 6 is overpayment because outcomes are the same as Person A's, but inputs are double.

one unit of outcome for each two units of input. Note that the outcome and input scores do not have to be equal. It is the comparison of ratios that is important, not the comparison of outcomes to inputs. In the first two cases, the comparison other also has a ratio that reduces to one outcome per two inputs, which is the same as A's ratio, so equity is achieved. In the first case, the outcomes are half of Person A's (5), but the inputs are half as well (10). In the second case, both the outcomes and the inputs are double (20 and 40, respectively). The next two cases illustrate underpayment inequity. That is, Person A's ratio is lower than the comparison other's, resulting in a feeling of underpayment. In the third case, the comparison other is getting the same outcomes but is giving only half the inputs (10/10), and in the fourth case, the comparison other is getting double the outcomes for the same inputs. The last two cases involve overpayment inequity. That is, Person A is receiving more outcomes per unit of input than the comparison other. In case 5, the comparison other receives half the outcomes for the same inputs, and in case 6 the comparison other receives the same outcomes for double the inputs.

According to Adams (1965), underpayment inequity induces anger and overpayment inequity induces guilt. In either case, the employee will be motivated to reduce the inequity through several possible mechanisms. Three of these mechanisms are particularly relevant to the organizational setting: changing inputs, changing outcomes, and withdrawing from the situation. An employee can change inputs by either increasing or decreasing productivity, depending on whether the inequity is over- or underpayment. An employee can change outcomes by seeking additional rewards from work. For example, he or she can ask for a raise or file a formal grievance. Withdrawal can be temporary, as in absence or lateness, both of which can be a means of reducing inputs. It can also be permanent turnover.

There has been good research support for the expected underpayment effect of lowered performance but not the overpayment effect of raised performance (Bolino & Turnley, 2008). A study conducted by Greenberg (1990) showed that a pay cut was associated with increased stealing by factory workers. Greenberg argued in equity theory terms that employees who experienced inequity because of the pay cut increased their outcomes by stealing. In an Australian study, Iverson and Roy (1994) found that employee perceptions of inequity correlated with their intentions to quit the job and with job search behavior. Both of these variables have been found to predict turnover (Blau, 2007), as we will discuss in Chapter 10.

Fairness Theory

Recent research on fairness in the workplace has replaced equity theory with the somewhat different perspective of **fairness theory** (Cropanzano, Byrne, Bobocel, & Rupp, 2001). Rather than focusing on the fair allocation or distribution of rewards, fairness theory distinguishes between the distribution of rewards and the procedures by which rewards are allocated. **Distributive justice** is similar to equity and concerns the fairness with which rewards are found among people. **Procedural justice** is concerned with the fairness of the reward distribution process as opposed to that distribution itself. Although in many cases it might be expected that procedural justice would lead to distributive justice, this is not always the case. For example, past reward policies may have created a situation in which some people are paid more than others for similar inputs, a case that represents distributive injustice. A new procedure that gives the underpaid a small salary adjustment each year to make up for it might be seen as procedural justice, even though it might take years to make up the difference and achieve distributive justice.

Another distinction from equity theory is that fairness theory does not assume that perceptions of injustice necessarily come from a social comparison with others. Rather, it suggests that people perceive injustice when something negative happens and they perceive it to have been done purposefully by another person in an unfair way. For example, suppose a company fails to give employees an annual raise. This would be a negative event that employees will see as unfair if they perceive that management has withheld

the raise purposefully and that the basis for doing so is unreasonable. If the company has announced financial problems, the CEO cuts his or her annual salary to $1.00 and cancels executive bonuses, employees might see this as beyond management's control and might not perceive the situation as unfair. However, if management fails to provide a convincing explanation, employees will likely feel the situation is unfair.

There have been many studies relating both distributive and procedural justice perceptions by employees to organizationally relevant outcomes. Cohen-Charash and Spector (2001) conducted a meta-analysis of these studies and found as predicted that both forms of justice are related to job performance, job satisfaction, and intention of quitting the job. Injustice has been linked to fewer positive behaviors, such as volunteering to do extra work (Colquitt et al., 2013), and more negative behaviors that harm organizations, such as excessive absence (Robbins, Ford, & Tetrick, 2012). Furthermore, experiencing injustice can be stressful to employees, and might lead to emotional distress and even negative health consequences (Robbins et al., 2012). In fact Yang, Bauer, Johnson, Groer, and Salomon (2014) showed that being exposed to injustice can result in physiological changes (increase in cortisol) that are associated with stress.

Another aspect of justice is that it is not only about the perceptions of individual employees concerning their own treatment. Justice can be an enduring characteristic of an organization or unit of an organization, such as a work team. Employees might agree about how fairly their organization treats them, and this shared **justice climate** (see the discussion of climate in Chapter 14) has been shown to relate to the quality of a work team's performance (Whitman, Caleo, Carpenter, Horner, & Bernerth, 2012). Furthermore, perceptions of injustice do not derive just from an individual's own treatment, but feelings of vicarious injustice can be induced by seeing a coworker treated unjustly. Furthermore, the effects of seeing injustice can be quite similar to the effects of experiencing injustice personally, and that form of observed injustice can have similar effects to being the target (Siegel Christian, Christian, Garza, & Ellis, 2012).

Goal-Setting Theory

The theory of motivation that has been the most useful for I-O psychologists is **goal-setting theory** (Locke & Latham, 1990). Principles of goal setting have been widely used in organizations although this is not necessarily based on the theory. For example, Yearta, Maitlis, and Briner (1995) noted that 79% of British organizations use some form of goal setting. Various goal-setting programs have been widely used throughout the industrialized world.

The basic idea of this theory is that people's behavior is motivated by their internal *intentions*, *objectives*, or *goals*—the terms are used here interchangeably. Goals are quite "proximal" constructs, for they can be tied closely to specific behaviors. For example, a salesperson might have the goal of selling a certain amount of product in a month. Because goals can be tied closely to behaviors relevant to performance, goal-setting theory has been strongly tied to behavior.

According to the theory, a goal is what a person consciously wants to attain or achieve. Goals can be specific, such as "receive an 'A' on the next exam," or general, such as "do well in school." General goals such as doing well in school are often associated with a series of specific goals such as receiving an "A" in various courses. People vary in their **goal orientation**—that is, in whether they focus their efforts on learning (**learning orientation**) or on achieving certain levels of job performance (**performance orientation**). A person with a learning orientation is primarily concerned with enhancing knowledge and skill, whereas a person with a performance orientation focuses efforts on enhancing performance on specific job tasks (DeShon & Gillespie, 2005; Payne, Youngcourt, & Beaubien, 2007). However, goal strategies that might be effective for one orientation will not necessarily be optimal for the other. Kozlowski and Bell (2006) noted that there can be an incompatibility between the two orientations in that focusing on performance directs attention away from learning, and focusing on learning diverts effort

from performance. Most of the research on goal setting has focused on performance and does not necessarily apply to learning goals.

Locke and Henne (1986) noted four ways in which goals affect behavior. First, goals direct attention and action to behaviors that the person believes will achieve the goal. A student who has the goal of making an "A" on an exam will engage in studying behavior, such as reading the assigned material and reviewing class notes. Second, goals mobilize effort in that the person tries harder. The student with the goal of an "A" will concentrate harder to learn the material. Third, goals increase persistence, resulting in more time spent on the behaviors necessary for goal attainment. The student who wants an "A" will spend more time studying. Finally, goals can motivate the search for effective strategies to attain them. The conscientious student will attempt to learn effective ways of studying and good test-taking strategies.

Goal-setting theory predicts that people will exert effort toward accomplishing their goals and that job performance is a function of the goals set. From an organizational standpoint, goal setting can be an effective means of maintaining or increasing job performance, and many organizations have used goal setting to do so. According to Locke (2000), several factors are necessary for goal setting to be effective in improving job performance (Table 8-2). First, employees must have *goal commitment*, which means that they accept the goal. An organizational goal is not necessarily an individual employee goal, and only goals of the individual person will motivate behavior. Second, *feedback* is necessary because it allows people to know whether their behavior is moving them toward or away from their goals. It is difficult for goals to direct behavior unless the person receives feedback. Third, the more difficult the goal, the better the performance is likely to be. A goal of a 4.0 GPA is likely to result in better performance than a goal of 3.5, which is likely to result in better performance than a goal of 3.0. Although people will not always reach their goals, the harder the goal, the better the performance, at least until the point at which the person is working at the limit of his or her capacity. Fourth, specific hard goals are more effective than vague "do your best" goals. Vague goals can be effective, but specific goals that allow the person to know when they are met are best. Finally, self-set goals are usually better than organizationally assigned goals. It is generally best to either allow employees to set their own goals or at least allow them input into setting goals rather than having supervisors assign goals without employee involvement. This leads to better goal acceptance, which is necessary for goals to be effective.

Goal setting has been shown to be effective at increasing job performance just as the theory predicts (e.g., Ludwig & Goomas, 2009). Not only have its propositions been the subject of considerable research, but goal setting is a popular means of increasing job performance as well. For example, H. J. Klein, Wesson, Hollenbeck, and Alge (1999) described a meta-analysis of 83 studies, showing that greater goal commitment is associated with better performance. In another meta-analysis, Kleingeld, van Mierlo, and Arends (2011) found that more difficult goals resulted in better performance than less difficult goals. The theory and research surrounding goal-setting theory have underscored important factors (shown in Table 8-2) that should be incorporated into a goal-setting program.

Although research has shown that goal setting can be effective, some researchers discussed its limitations. Yearta et al. (1995) noted that most goal-setting studies involved

TABLE 8-2

Important Factors for Goal Setting to Improve Job Performance

1. Goal acceptance by the employee
2. Feedback on progress toward goals
3. Difficult and challenging goals
4. Specific goals

Source: Adapted from "Work Motivation Theories," by E. A. Locke and D. Henne (1986), in C. L. Cooper and I. T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology 1986*. Chichester, England: John Wiley.

single goals, such as increased production in a factory. They showed that with more complex jobs and multiple goals, performance was lower when goals were difficult. Doerr, Mitchell, Klastorin, and Brown (1996) showed that group goals were better than individual goals for increasing speed of production in a fish-processing plant (see the Research in Detail box). Ambrose and Kulik (1999) listed several drawbacks of goal setting. The most important is that employees sometimes focus so much on the goals that they ignore other equally important aspects of the job and that goals can conflict, so that working on one prevents achieving another. Furthermore, setting individual goals when people work in teams can result in worse, not better, team performance. When people work in teams, goals should be set for teams rather than for individuals (Kleingeld et al., 2011). Finally, Drach-Zahavy and Erez (2002) discussed how difficult goals can actually lead to worse performance when stress is high. Putting all this together suggests that difficult goals work best when situations are relatively simple (single goals and simple jobs), people are working on individual tasks, and there are low levels of stress.

Research in Detail

There has been a trend in large organizations toward the use of work groups and teams rather than individuals to accomplish work. Thus, it is important that we understand how groups and individuals differ in their behavior and reactions. One area of concern is how to motivate people who work in groups. Goal setting can be an effective motivational technique for individuals, but will it be equally effective with groups?

This study was conducted in a fish-processing plant in the northwestern United States with a workforce consisting entirely of non-Americans. These employees worked 2 to 3 hours per day cleaning and dressing salmon that arrived by boat. During the course of the study, 39 employees participated in an experiment with goal setting. Three conditions were created: group goal, individual goal, and no goal. An initial baseline measure of production speed was taken to serve as the standard against which to set goals. The goals represented working at a consistent pace that was faster than typically maintained. Employees were given feedback as well as an incentive of state lottery tickets for goal achievement.

To meet the group goal, the output of everyone combined had to achieve the predetermined amount. For the individual condition, each person had his or her own goal. Results showed that productivity was significantly higher for both conditions than for the no goal control condition, although productivity for the group goal condition was even higher than for the individual goal condition. Mean time to process 50 fish was 538 versus 570 seconds for the group and individual goal conditions, respectively. The no goal condition mean was 702 seconds.

These results demonstrate that in production situations, goal setting can be quite effective. Furthermore, groups might respond even more favorably than individuals. As discussed in Chapter 12, groups can have powerful effects on members, and conditions that motivate groups can have enhanced effects on individuals in those groups. However, it should be recognized that this study involved single goals with very simple tasks. These effects might not occur in situations where things are more complex. Nevertheless, goal setting can be a powerful motivational tool if applied appropriately in the proper setting.

Source: Adapted from "Impact of Material Flow Policies and Goals on Job Outcomes," by K. H. Doerr, T. R. Mitchell, T. D. Klastorin, and K. A. Brown (1996), *Journal of Applied Psychology, 81*, 142–152.

Control Theory

Control theory (Klein, 1989) builds upon goal-setting theory by focusing on how feedback affects motivation to maintain effort toward goals. As shown in Figure 8-3, the process explained by the theory begins with a goal that the person is intending to accomplish. The goal might be assigned by a supervisor or chosen by the individual, but the theory says that the person must believe the goal is attainable and accept it. Over time, as

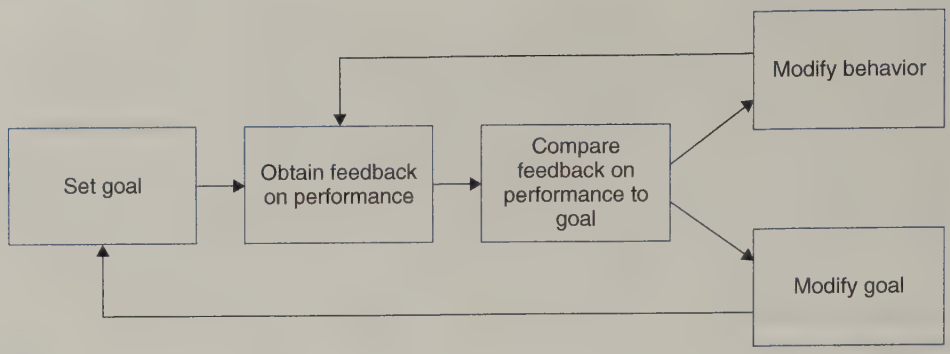


FIGURE 8-3 Control theory suggests that people set goals and then evaluate feedback about how well their performance is achieving their goals. Discrepancies can motivate people to modify their behaviors or their goals.

the person works toward the goal, feedback about performance will be given. The person will evaluate the feedback by comparing current goal progress to some internal standard or expected progress. If progress is insufficient, the person will be motivated to take action, which might include goal reevaluation and modification or adoption of different strategies to improve performance. This might be simply exerting more effort (working harder) or adopting new approaches that might be more effective (working smarter).

Evidence has been provided in support of control theory predictions. For example, Donovan and Williams (2003) studied the goals and performance of university track and field athletes during an 8-week season. Before the season, each athlete set goals for the first meet and the entire season. Each week the athletes completed progress reports that included their weekly performance and goals for the following week. They tended to revise their future goals based on discrepancy between their performance and prior goals, and the amount of goal adjustment was greater for the proximal next week goals than the distal season goals. This showed that feedback did result in adjustment to goals rather than just increased effort toward meeting the goals originally set.

Action Theory

Action theory is a comprehensive German theory of work behavior that describes a process linking goals and intentions to behaviors (Frese & Zapf, 1994). This theory proposes that work motivation theories should focus mainly on goal-oriented or volitional (voluntary) behaviors called actions. Such actions are the product of a conscious intent to accomplish something, which can be as small as finishing one piece on an assembly line or as large as achieving a promotion at work. The major focus of this theory is on the actions themselves and on the processes leading to actions.

Action theory describes the **action process** linking a hierarchy of cognitions to both actions and feedback from the environment. Figure 8-4 illustrates this sequence. It begins with an initial desire to accomplish or have something, and that desire leads to specific goals. These goals in the workplace are often tied to tasks (similar to tasks in a job analysis) that define the nature of what the individual employee is supposed to accomplish at work. The theory points out that there is an important distinction between external tasks and internal tasks. An external task is assigned by the organization to the employee, whereas an internal task is chosen by the employee himself or herself. An important element is the redefinition process whereby the employee translates an external task into an internal one. In other words, the employee changes the assigned task to suit himself or herself.

The next step after goals are set is to translate those goals into plans. Plans are specific steps chosen to accomplish the goals and are specifications of actions and sequences of actions. Next, the plan is executed, and execution involves actions. Finally, the person

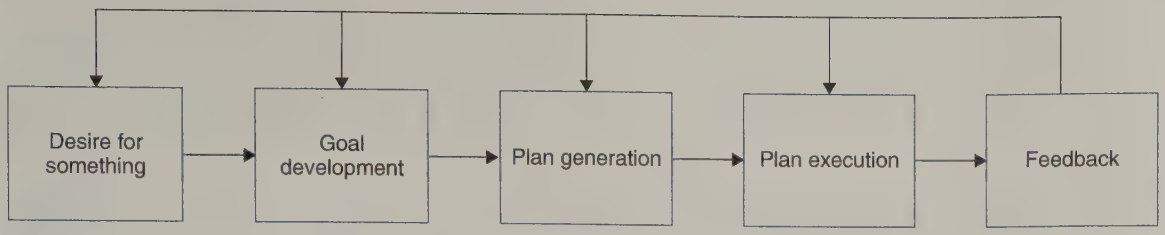


FIGURE 8-4 The action process from German action theory.

receives feedback either from the environment itself or from other people. This feedback informs the employee about whether progress is being made toward the goal. Positive feedback can help maintain actions that are part of plans, and negative feedback can lead to modification of goals, plans, or actions.

An example of the process would be the following. You want to make a lot of money, so you set the goal of landing a well-paying job when you graduate college. Your plan might be to major in a field in which such jobs are plentiful and to have a high GPA. Your actions will address these aspects of the plan, such as investigating job opportunities of various majors and studying for classes. Feedback is provided by grades, and if you find your GPA is not high enough, you might change your goal and decide to settle for a lower-paying job, change your plan and choose a different major, or change your actions and study harder.

Action theory also contains personality variables. One of the most important is **action versus state orientation**. A person who is action oriented is one who tends to follow the action process. He or she sets goals, formulates plans, and then sticks with them until the goals are achieved. State-oriented people are the opposite. They have difficulty committing to a course of action, are easily distracted, and give up when faced with setbacks (Kuhl & Beckmann, 1994). Research has shown that action-oriented people tend to perform better on the job (Diefendorff, Hall, Lord, & Strean, 2000; Jaramillo, Locander, Spector, & Harris, 2007), perhaps in part because state-oriented people have a tendency to procrastinate (Van Eerde, 2000). More details on the action-state orientation concept are provided in Blog 8-2.

BLOG 8-2 Overcome Barriers to Success

https://paulspector.com/overcome-barriers-to-success

Discussion Questions

1. Why do some people have difficulty in being action oriented?
2. What strategies have you found can help with the three challenges of state orientation?
3. When might a person be too action oriented?
4. How might you use rewards to help someone be more action oriented?

Research has also tended to support some of the predictions made from action theory. For example, Sonnentag (1998) studied the cognitive processes underlying the task behavior of high-performing and average-performing computer software programmers, making some predictions based on action theory. As expected, high performers were able to understand the problem more quickly so they could move on to the planning stage (step 3 of the action sequence) and to make better use of feedback (step 5). The study of

high-performing individuals within an action theory framework is useful in suggesting ways to train employees to be more effective.

Action theory has also proven useful in the design of an organizational intervention intended to enhance employee motivation. Raabe, Frese, and Beehr (2007) designed an intervention that was used in a German company to increase the extent to which employees enhanced their job skills and managed their own careers. Whereas a goal theory–based intervention would have focused only on goals, this action theory approach focused on helping employees devise plans that would enable them to meet goals. Raabe et al. found that this intervention was successful in increasing goal attainment.

Action theory is a complex cognitive-based theory that sees the individual as the initiator of action, or the cause of his or her own behavior, unlike reinforcement and other motivation theories, which emphasize how a person responds to the environment. It is an expanded form of both goal-setting and control theories. The American goal-setting theory we discussed above is mainly concerned with how the setting of goals translates into job performance (Farr, Hofmann, & Ringenbach, 1993). Control theory focuses on how feedback concerning goal progress affects behavior. Action theory goes further than each of these theories in examining the cognitive processes that intervene between goals and performance.

Chapter Summary

This chapter discussed nine theories that consider motivation from very different perspectives. The two *need* theories—need hierarchy and self-determination—view motivation as arising from internal needs. Need hierarchy theory classifies human needs into five categories. Needs are rather broad, and the theory's predictions are imprecise, as it cannot identify very well what specific behaviors are likely to arise. A person with a high level of achievement need, for example, might work hard on the job to achieve success. On the other hand, he or she might direct most of his or her efforts to achievement outside of work. Self-determination theory states that jobs that promote satisfaction of three basic needs (autonomy, competence, and relatedness) will lead to enhanced motivation.

Expectancy theory attempts to explain how rewards lead to behavior. It states that people will perform well if they believe that their efforts will lead to successful performance, that successful performance will lead to rewards and if they want the rewards.

Self-efficacy theory states that people's beliefs about their own capabilities are an important component of motivation. A person who believes that he or she is incapable of performing on the job is not likely even to try. A high level of self-efficacy or belief in one's own capability is a necessary component in work motivation and subsequent job performance.

Justice theories state that people value fair and equitable treatment by their organizations. Equity theory states that people compare themselves to others on the ratio of outcomes to inputs at work, and discrepancies in ratios can motivate people to take action. This might include changing the level of contribution to the organization, changing the rewards obtained from work, or quitting. More modern justice theories focus on both the distribution of rewards (distributive justice) and the fairness of procedures by which rewards are allocated among people (procedural justice). They also consider that organizations can differ in their justice climates, which are shared perceptions among employees about fair treatment.

Goal-setting theory posits that people's behaviors are directed by conscious goals and objectives. The theory underscores several factors that are important determinants of how well goal setting can improve job performance. Four are particularly important: goal commitment by employees, feedback about progress toward goals, goal difficulty, and specificity of goals.

Control theory extends goal-setting theory by focusing attention on feedback toward goal attainment. It suggests that people set goals and then seek information about how well they are progressing toward goal achievement. Discrepancies between expected and actual goal progress will motivate individuals to either reassess and modify their goals or change their behaviors to make better progress.

Action theory describes the process linking goals to behaviors that are called actions. The process begins with the desire to achieve something, and that desire is translated into a goal. Plans are generated to achieve the goal, and plan execution involves actions. Feedback occurs in response to actions and can result in modification of the prior steps.

Although these various theories view motivation from different perspectives, they are not necessarily incompatible, and in fact elements of various theories have been integrated. Locke and Latham (1990) discussed consistencies between features of expectancy theory, self-efficacy theory, and goal-setting theory. In particular, they saw self-efficacy as an important ingredient in goal commitment. A person with low self-efficacy concerning the achievement of a goal is not likely to become committed to that goal.

I-O Psychology in Practice

This case concerns a goal-based theft-control program that Dr. Lynn Summers helped design. Dr. Summers received his Ph.D. in I-O psychology in 1977 from the University of South Florida. He has worked for a variety of organizations and is currently a human resources specialist with the North Carolina Office of State Personnel. Prior to that, he was Vice President of Performaworks Corporation, a company that provides I-O services via the Internet. One of its specialties is 360-degree feedback (see Chapter 4) done online. The peers, subordinates, and supervisors of an employee can complete an assessment about him or her on a Web page. After viewing the feedback from these various perspectives, the employee prepares an improvement plan by interacting with an online program. Performaworks also does other types of assessments and opinion surveys using the Internet. It is one example of how I-O psychologists can use this new communication medium. Before helping to found the company, Dr. Summers had his own consulting practice. One of his projects was helping an organization deal with employee theft.

Dr. Summers was asked by a national fast-food chain to devise a program to control theft in its restaurants. In the restaurant industry, internal theft is a much larger problem than theft due to robbery. This chain wanted to do something about employees who were either stealing food for themselves or giving food to friends for free. Dr. Summers investigated the situation and helped a team of employees representing different restaurants come up with six different interventions. Of interest here is a goal-setting procedure, which turned out to be the most effective.

The goal-setting procedure was quite simple. In each restaurant, the manager assigned a small group of employees responsibility for control of the theft of a particular item, such as chicken breasts. The group was shown how to figure out the number of chicken breasts that were "missing" each day. It was also assigned a specific goal for reducing the number.

The company found that the goal-setting program was quite effective in that thefts were reduced. What no one is certain about is why it worked. The employees were not instructed in how they should go about reducing the theft—they were given only a goal. It is possible that members of the group had been stealing, and they merely stopped. It is also possible that the group members knew which people were stealing and put pressure on them to stop. At the very least, the program directed employee attention to the problem, and as we discussed previously, this is one of the ways goal setting enhances performance. No matter why it worked, this case illustrates that goal setting can be an effective means of changing behavior. Often managers need only set a goal and then allow their subordinates the latitude to figure out how to achieve it.

Discussion Questions

1. What factors cause employees to steal?
2. Why did the goal-setting program reduce stealing?
3. What other interventions might have reduced stealing?
4. How widespread do you think employee theft is in large organizations?

Learning by Doing

Motivation Case at Work

Find an example of motivation that relates to one of the theories discussed in the chapter. It could be an item from a newspaper or one of the online news services. Give the background for your case, explaining who the person is and what he or she did. Then explain how it relates to one of the theories in the chapter.

How Companies Motivate Their Employees

Find an example of how companies motivate their employees. This can be from your own work experience, the experience of someone you know, or something you found on the Internet. Explain the approach and how it relates to one or more of the theories in this chapter.

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CHAPTER 9

Feelings About Work: Job Attitudes and Emotions

OUTLINE

The Nature of Job Satisfaction
How People Feel About Their Jobs
The Assessment of Job Satisfaction
- Job Descriptive Index (JDI)
- Minnesota Satisfaction Questionnaire (MSQ)
- Job in General Scale (JIG)
- Michigan Organizational Assessment Questionnaire (MOAQ)
- Is Global Satisfaction the Sum of Facets?

Antecedents of Job Satisfaction
- Environmental Antecedents of Job Satisfaction
- Personal Antecedents of Job Satisfaction
- Person–Job Fit
- Underemployment

Potential Effects of Job Satisfaction
- Job Satisfaction and Job Performance
- Job Satisfaction and Turnover
- Job Satisfaction and Absence
- Health and Well-Being
- Job and Life Satisfaction

Organizational Commitment
- Assessment of Organizational Commitment
- Organizational Commitment and Other Variables

If you are working, how satisfied are you with your job? National polls of American workers have typically found that the majority are satisfied with their jobs. For example, the Gallup organization does an annual survey of American workers. In 2019, they found that 93% of Americans were completely (55%) or somewhat (38%) satisfied with their jobs (Gallup, 2020). Job satisfaction can be affected by many factors, as we will see in this chapter.

One of the major tasks I-O psychologists perform is assessing employee attitudes about their jobs, especially their job satisfaction, and determining ways to improve it. I-O researchers have extensively studied the causes and consequences of job satisfaction since the beginning of the I-O field itself. It is one of the two most studied variables in I-O psychology (the other one is job performance). Much of this popularity, as we will see, derives from the relative ease with which it can be assessed. Another reason for the popularity of the study of job satisfaction is that it is a central variable in many theories that deal with organizational phenomena, such as employee misbehavior (counterproductive work behavior Chapter 10), leadership, and stress. Job satisfaction has been posited as a cause of important employee and organizational outcomes ranging from job performance to health.

Job satisfaction, however, is not the only variable that reflects how people feel about work. Organizational commitment reflects people's attachment to their jobs and organizations. Feelings also include both negative and positive emotions that are experienced at work, such as anger over unfair treatment and joy over receiving a promotion.

In this chapter, we begin with a discussion of job satisfaction, including how it is measured, its potential causes, and its possible consequences. Job satisfaction is often included in studies of all sorts of organizational phenomena. You will

see it frequently mentioned throughout most of the remaining chapters of this book. We will also include a discussion of organizational commitment, which relates to many of the same variables as job satisfaction. Finally, we will discuss emotions in the workplace including potential causes and consequences.

Emotions at Work
Causes and Consequences of Emotions at Work
Emotional Labor
Chapter Summary
I-O Psychology in Practice
Learning by Doing
References

The Nature of Job Satisfaction

Job satisfaction is an attitudinal variable that reflects how people feel about their jobs overall, as well as various aspects of the jobs. In simple terms, job satisfaction is the extent to which people like their jobs; job dissatisfaction is the extent to which they dislike them.

There have been two approaches to the study of job satisfaction: the global approach and the facet approach. The *global approach* treats job satisfaction as a single, overall feeling toward the job. Many studies assess people's overall satisfaction, and many of the findings discussed in this chapter reflect that variable.

The alternative approach is to focus on job satisfaction **facets** or feelings about different aspects of the job, such as rewards (pay or fringe benefits), other people on the job (coworkers or supervisors), job conditions, and the nature of the work itself. A list of often-studied facets appears in Table 9-1. The facet approach permits a more complete picture of job satisfaction. An individual typically has different levels of satisfaction with the various facets. He or she might be very dissatisfied with pay and fringe benefits but at the same time be very satisfied with the nature of the work and supervisors. This is a typical pattern for Americans, as we will see in the next section.

OBJECTIVES

The student who studies this chapter should be able to

1. Define job satisfaction and organizational commitment.
2. Characterize the differences between job satisfaction and organizational commitment.
3. Explain how job satisfaction and organizational commitment are measured.
4. Summarize the findings on possible causes and effects of job satisfaction and organizational commitment.
5. Discuss how emotions are experienced by employees at work and how they impact organizations.

How People Feel About Their Jobs

As noted earlier, surveys show that the majority of Americans like their jobs, but this doesn't mean they like all facets of their jobs equally. The typical American pattern of facet satisfaction is shown in Figure 9-1, with data from the norms (Spector, 2020) of the Job Satisfaction Survey (JSS) (Spector, 1985). The JSS is a scale that assesses eight popular facets of job satisfaction. The norms are based on the job satisfaction scores of 36,380 employees from more than 100 organizations throughout the United States. The figure shows that Americans are typically very satisfied with their supervisors, coworkers, and nature of the work they do. They are less satisfied with rewards, such as pay, promotion opportunities, and fringe benefits.

TABLE 9-1

Common Job Satisfaction Facets

Pay	Job conditions
Promotion opportunities	Nature of the work itself
Fringe benefits	Communication
Supervision	Security
Coworkers	

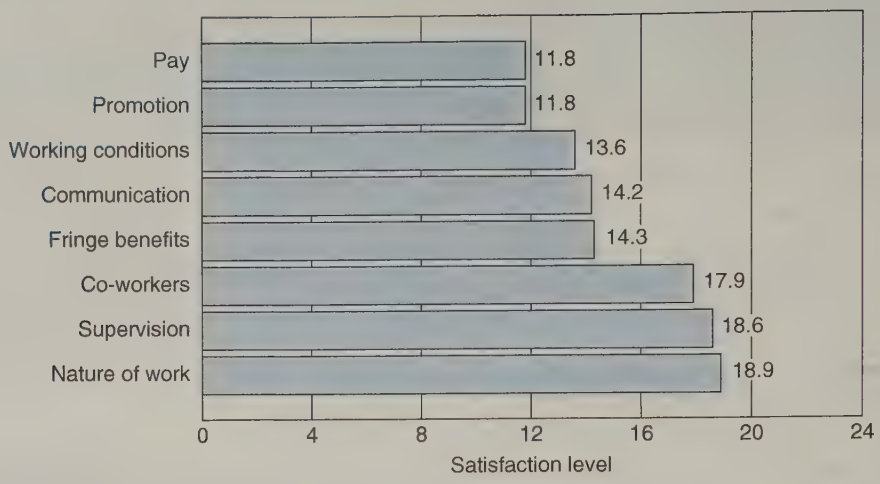


FIGURE 9-1 The mean satisfaction levels for various facets of the Job Satisfaction Survey. Satisfaction level is indicated on the horizontal axis. The numbers next to the bars are the means for each facet. They range from a low of 11.8 for pay and promotion to a high of 18.9 for nature of work.

Source: Adapted from "Measurement of Human Service Staff Satisfaction: Development of the Job Satisfaction Survey," by Spector, P. E. (2020). *Job satisfaction survey.* Retrieved from http://paulspector.com/scales/our-assessments/job-satisfaction-survey-jss/.

Multinational surveys have found that job satisfaction levels are not the same across countries. Pichler and Wallace (2009) compared mean job satisfaction among samples from 27 European countries. They found that satisfaction was highest in Scandinavia (Denmark, Finland, and Sweden), Germany, and Austria and was lowest in Eastern Europe (Bulgaria, Slovakia, Poland, and Latvia). Although these studies show that people in different countries may have different feelings about work, they do not shed much light on the reasons. One explanation for these job satisfaction differences involves basic values that vary across countries. Hofstede (2001) assessed four important cultural values in 50 countries. Although individuals differed on values within each country, there were mean differences that relate to important variables in the workplace. The culture values are

Individualism/collectivism
Masculinity
Power distance
Uncertainty avoidance

Individualism is the extent to which people see themselves as autonomous and focus on their own interests and needs rather than those of others. **Collectivism** is the opposite, where people see themselves as interconnected to others with a focus on the groups to which they belong. Western nations such as Australia, Canada, the United Kingdom, and the United States are high on individualism, while Asian countries (China and Korea) and Latin countries (Ecuador and Guatemala) tend to be high on collectivism.

Masculinity reflects the extent to which organizations focus on achievement and job performance as opposed to the health and well-being of employees. Scandinavian countries are low on this value, which is reflected in their strong emphasis on health and well-being at work, while high countries include Japan and Austria. The United States is in the upper third.

Power distance is the tolerance people have for power and status differences among levels of an organization and society. Countries with high power distance tend to produce managers who demand obedience from subordinates. Latin countries, such as Guatemala and Panama, tend to be high, while Austria and Israel are lowest. The United States is in the lower half of the scale.

Uncertainty avoidance reflects the level of comfort in situations that are unpredictable. In organizations, people can maintain predictability by adhering to formal procedures and rules; thus in countries high on this dimension, organizations tend to be very rule

oriented. Countries highest on this dimension are Greece and Portugal, while the lowest are Singapore and Jamaica. The United States is in the lower third on uncertainty avoidance.

These dimensions have been found to relate to many organizational variables. In the job satisfaction area, Hui, Yee, and Eastman (1995) showed that individualism/collectivism scores for a country significantly related to satisfaction with social aspects of work. People from collectivist countries were more satisfied with coworkers than were people from individualist countries. Similarly, Huang and Van de Vliert (2003) found that power distance relates to job satisfaction; people who are tolerant of large power distances are less satisfied with their jobs.

The Assessment of Job Satisfaction

Job satisfaction is almost always assessed by asking people how they feel about their jobs, either by questionnaire or by interview. Most of the time questionnaires are used because they are very easy to administer and require relatively little time and effort on the part of the researcher. They can also be done anonymously, which allows employees to be more candid in expressing their attitudes. Sometimes, more often in practice than in research, employees are interviewed about their satisfaction. A few cases can be found in which job satisfaction was assessed by asking supervisors (Spector, Dwyer, & Jex, 1988) or observers (Glick, Jenkins, & Gupta, 1986) to estimate another person's satisfaction, but such estimates are not likely to be completely accurate, since only the individual employees really knows their own attitudes.

Job Descriptive Index (JDI)

Of all the job satisfaction scales available, the **Job Descriptive Index (JDI)** (Smith, Kendall, & Hulin, 1969) has been the most popular with researchers. It is also the most thoroughly and carefully validated. This scale assesses five facets:

Work
Pay
Promotion opportunities
Supervision
Coworkers

Many users of the scale have summed the facet results into an overall job satisfaction score. However, this practice is not recommended by one of the scale's developers, Patricia Cain Smith (Ironson, Smith, Brannick, Gibson, & Paul, 1989), as we will discuss after we cover satisfaction scales.

Table 9-2 contains a sample of the scale's 72 items and their respective subscales. Each item is an adjective or short phrase that is descriptive of the job. Possible responses are "yes," "uncertain," and "no." For each subscale, a brief explanation of the facet is provided, followed by the items concerning that subscale.

The extensive body of research using the JDI scale provides extensive evidence for its validity. The biggest limitation of the scale is that it has only five subscales and might not cover all facets of the job that one might wish to study.

Minnesota Satisfaction Questionnaire (MSQ)

Another popular job satisfaction scale is the **Minnesota Satisfaction Questionnaire (MSQ)** (Weiss, Dawis, Lofquist, & England, 1966). This scale comes in two forms, a 100-item long version and a 20-item short version. Both versions have items that ask about 20 facets of job satisfaction, but facet scores are computed only for the long form. The short form is used to assess either global satisfaction or intrinsic and extrinsic satisfaction.

TABLE 9-2

Sample Items From the Job Descriptive Index (JDI)

Think of the opportunities for promotion that you have now. How well does each of the following words or phrases describe these? In the blank beside each word below, write

Y for "Yes" if it describes your opportunities for promotion
N for "No" if it does NOT describe them
? if you cannot decide

OPPORTUNITIES FOR PROMOTION

Dead-end job
Unfair promotion policy
Regular promotions

Think of the work you do at present. How well does each of the following words or phrases describe your work? In the blank beside each word below, write

Y for "Yes" if it describes your work
N for "No" if it does NOT describe it
? if you cannot decide

WORK ON PRESENT JOB

Routine
Satisfying
Good

Think of the pay you get now. How well does each of the following words or phrases describe your present pay? In the blank beside each word below, write

Y for "Yes" if it describes your pay
N for "No" if it does NOT describe it
? if you cannot decide

PRESENT PAY

Income adequate for normal expenses
Insecure
Less than I deserve

Think of the kind of supervision that you get on your job. How well does each of the following words or phrases describe this? In the blank beside each word below, write

Y for "Yes" if it describes the supervision you get on your job
N for "No" if it does NOT describe it
? if you cannot decide

SUPERVISION

Impolite
Praises good work
Doesn't supervise enough

Think of the majority of the people that you work with now or the people you meet in connection with your work. How well does each of the following words or phrases describe these people? In the blank beside each word below, write

Y for "Yes" if it describes the people you work with
N for "No" if it does NOT describe them
? if you cannot decide

COWORKERS (PEOPLE)

Boring
Responsible
Intelligent

Source: Adapted from the Job Descriptive Index, which is copyrighted by Bowling Green State University. The complete forms, scoring key, instructions, and norms can be obtained from Department of Psychology, Bowling Green State University, Bowling Green, OH.

Intrinsic satisfaction refers to the nature of the job tasks themselves and how people feel about the work they do. *Extrinsic satisfaction* concerns other aspects of the work situation, such as fringe benefits and pay. Both types of satisfaction are the combination of several facets.

The 20 facets of the MSQ are shown in Table 9-3. Each of the MSQ items is a statement that describes a facet. The employee is asked to indicate how satisfied he or she is with each one. For example, an item for the Activity facet is "Being able to keep busy all the time." The overall scale has been shown to have good reliability and evidence for validity. Several researchers, however, have questioned how the items have been classified into the intrinsic and extrinsic groups (Schriesheim, Powers, Scandura, Gardiner, & Lankau, 1993).

Job in General Scale (JIG)

Ironson et al. (1989) developed a scale of global job satisfaction that contains items that do not reflect the various facets of the job. The **Job in General Scale (JIG)** was patterned on the JDI. It contains 18 items that are adjectives or short phrases about the job in general. Three of the items are shown in Table 9-4. The scale has good reliability and correlates well with other scales of global job satisfaction.

TABLE 9-3

Dimensions From the Minnesota Satisfaction Questionnaire (MSQ)

Activity	Ability utilization
Independence	Company policies and practices
Variety	Compensation
Social status	Advancement
Supervision (human relations)	Responsibility
Supervision (technical)	Creativity
Moral values	Working conditions
Security	Coworkers
Social service	Recognition
Authority	Achievement

Source: Adapted from *Instrumentation for the Theory of Work Adjustment*, by D. J. Weiss, R. Dawis, L. H. Lofquist, and G. W. England (1966), Minnesota Studies in Vocational Rehabilitation, xxi, Minneapolis, MN: University of Minnesota.

TABLE 9-4

Three Items From the Job in General Scale (JIG)

Think of your job in general. All in all, what is it like most of the time? In the blank beside each word or phrase below, write

Y for "Yes" if it describes your job
N for "No" if it does NOT describe it
? if you cannot decide

JOB IN GENERAL

Undesirable
Better than most
Rotten

Source: Adapted from the Job in General Scale, which is copyrighted by Bowling Green State University. The complete forms, scoring key, instructions, and norms can be obtained from Department of Psychology, Bowling Green State University, Bowling Green, OH.

Michigan Organizational Assessment Questionnaire (MOAQ)

A short 3-item measure of global job satisfaction is the job satisfaction subscale of the Michigan Organizational Assessment Questionnaire or MOAQ (Cammann, Fichman, Jenkins, & Klesh, 1979). The scale contains statements (e.g., "In general, I like working here") with which the person indicates agreement. The MOAQ has been quite popular with I-O researchers due to its short length. It has been linked to dozens of organizational and personal variables summarized in a meta-analysis by Bowling and Hammond (2008).

Is Global Satisfaction the Sum of Facets?

Researchers have debated whether global job satisfaction is the sum of facets or something different. Patricia Cain Smith, the developer of the JDI and JIG, has argued that they are separate (Ironson et al., 1989). Many researchers, however, have treated the sum of facet scores as an indicator of overall job satisfaction. Each MSQ item reflects a specific facet, so that the total score is a sum of facets. This is justified by the fact that facets often correlate well with overall job satisfaction. For example, Ironson et al. (1989) found a .78 correlation of the JIG with the JDI Work scale. On the other hand, the summing of subscale scores presumes that all facets have been assessed and that each makes an equal contribution to global satisfaction. It seems unlikely that each facet has the same importance to every individual. Thus, the sum of facets is an approximation of overall job satisfaction, but it may not exactly match the global satisfaction of individuals.

Antecedents of Job Satisfaction

What makes people like or dislike their jobs? This question has been addressed in hundreds of research studies. Many of them have taken an environmental perspective. They have investigated features of jobs and organizations that lead employees to be satisfied or dissatisfied. Some studies have shown, however, that people with the same jobs and highly similar job conditions can vary considerably in their satisfaction. Findings such as these have led some researchers to take a personality perspective. Their purpose has been to show that certain types of people are inclined to like or dislike their jobs. Still other researchers have taken the interactionist perspective of person–job fit, which combines the environmental and personality approaches. Person–job fit recognizes that different people prefer different features of a job. It attempts to learn which sorts of people are satisfied with which sorts of job conditions. Job satisfaction, according to this view, is the product of appropriately matching the individual to the job. All three perspectives—environment, personality, and interactionist—are illustrated in Figure 9-2.

Environmental Antecedents of Job Satisfaction

There is plenty of research evidence showing that aspects of the job and job environment relate to job satisfaction. In other words, some situations will produce satisfaction and others will produce dissatisfaction. In this section, we will look at characteristics of job tasks, pay, justice in the workplace, and the impact of stressful job conditions.

Job Characteristics. Job characteristics refer to the content and nature of job tasks themselves. There are only a few characteristics studied as contributors to job satisfaction. Five are part of Hackman and Oldham's (1976) influential **job characteristics theory** (see Chapter 10 for additional details of the theory):

Skill variety: The number of different skills necessary to do a job
Task identity: Whether an employee does an entire job or a piece of a job.

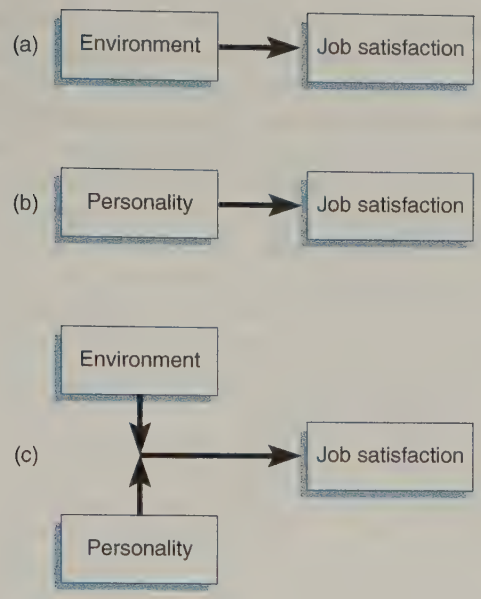


FIGURE 9-2 Three models illustrating (a) the impact of the job environment on job satisfaction, (b) the impact of personality on job satisfaction, and (c) the joint influence of the environment and personality on job satisfaction.

Task significance: The impact a job has on other people
Autonomy: The freedom employees have for doing their jobs as they see fit
Task feedback: The extent to which it is obvious to employees that they are doing their jobs correctly

Combined these five *core characteristics* define the **scope** or complexity and challenge of a job. It is assumed by job characteristics theory that high scope leads to job satisfaction and low scope leads to boredom and dissatisfaction.

Dozens of studies across many different types of jobs have shown that each of the five characteristics relates to job satisfaction. Wegman, Hoffman, Carter, Twenge, and Guenole (2018) conducted a meta-analysis of studies relating the Hackman and Oldham characteristics to global satisfaction. Table 9-5 contains the mean correlations they found for

TABLE 9-5

Dimensions of Job Characteristics and Their Mean Correlations With Job Satisfaction

Characteristic	Mean correlation	Description of characteristic
Skill variety	.33[1]	The number of different skills necessary to do a job
Task identity	.26[1]	Whether or not an employee does an entire job or a piece of a job
Task significance	.30[1]	The impact a job has on other people
Autonomy	.39[1]	The freedom employees have to do their jcobs as they see fit
Job feedback	.33[1]	The extent to which it is obvious to employees that they are doing their jobs correctly
Job scope	.45[2]	The overall complexity of a job, computed as a combination of all five individual characteristics

Sources: [1]Adapted from "Placing Job Characteristics in Context: Cross-Temporal Meta-Analysis of Changes in Job Characteristics since 1975," by L. A. Wegman, B. J. Hoffman, N. T. Carter, J. M. Twenge, & N. Guenole (2018), *Journal of Management, 44,* 352–386.
[2]From "The Validity of the Job Characteristics Model: A Review and Meta-Analysis," by Y. Fried and G. R. Ferris (1987), *Personnel Psychology, 40,* 287–322.

the five core characteristics. You can see that correlations ranged from .26 for task identity to .39 for autonomy. Overall job scope, which is the combination of all five characteristics, correlated even higher, with a mean of .45 found by Fried and Ferris (1987).

One limitation of most studies that have addressed the influence of job characteristics on job satisfaction is that the job characteristics were assessed with questionnaires given to the employees themselves. As discussed in Chapter 2, merely demonstrating that variables are correlated does not mean that one necessarily leads to the other. For example, people who like their jobs are likely to describe them in more favorable terms than people who dislike them, thereby reporting higher levels of job scope. Thus, job satisfaction might be the cause rather than the consequence of job characteristics as reported by employees on questionnaires. Although the Wegman et al. (2018) results are consistent with the view that certain job characteristics can lead to job satisfaction, more evidence is needed to give confidence to this conclusion.

Unfortunately, studies that have used different methodologies have not always been supportive of the idea that these five job characteristics lead to job satisfaction. For example, Spector and Jex (1991) used both questionnaires and job analysis techniques to assess job characteristics in a sample of employees who represented a wide range of jobs. Whereas the questionnaire measure of job characteristics correlated with job satisfaction, the job analysis data did not.

On the other hand, quasi-experimental field studies in which job characteristics were modified provide some support for at least a short-term effect of job characteristics on job satisfaction. Holman, Axtell, Sprigg, Totterdell, and Wall (2010) found that job satisfaction improved for individuals whose jobs had core characteristics increased over a period of 9 months. Griffin (1991) conducted a similar quasi-experiment that also showed that increasing levels of core characteristics resulted in increased job satisfaction. However, job satisfaction returned to the level found before the change in jobs by the time of a 2-year follow-up. His results suggest that changes in job satisfaction may be short-lived and that once people get used to job changes, job satisfaction returns to a baseline level; in other words, the job satisfaction change is due to the novelty of the situation.

Although the relation between employees' reports of their job characteristics and job satisfaction is consistent across samples in the United States and other Western countries, it might not be universal. Pearson and Chong (1997) were unable to find the same results in Malaysia. The five core characteristics were unrelated to job satisfaction in a sample of nurses. The researchers argued that in this collectivistic Asian culture, it might be more important to focus on relationships among coworkers and supervisors as a means of achieving high job satisfaction than on the nature of job tasks. However, a study conducted in more developed and Westernized Hong Kong found relations between job characteristics and job satisfaction quite similar to those found in the United States (Wong, Hui, & Law, 1998). Clearly, we need to be careful about generalizing results from one country to another and not assume that what works in one country will work in others.

Pay. Although pay itself is associated to some extent with global satisfaction, as might be expected it relates even more strongly with the facet of pay satisfaction. Brasher and Chen (1999) surveyed recent college graduates and found that their level of starting pay relates more strongly to pay satisfaction (correlation = .36) than to global satisfaction (correlation = .17). Furthermore, it is the fairness with which pay is distributed, or equity (see Chapter 8 for a discussion of equity and justice theories), that is a more important determinant of pay satisfaction than the actual level of pay itself (Williams, McDaniel, & Nguyen, 2006). You can find people making minimum wage who are satisfied with pay, whereas professional athletes and entertainers might be dissatisfied with six-figure and even seven-figure salaries.

All this leads to the hypothesis that if we compare the pay and pay satisfaction of people across different jobs, we will find little or no correlation. People who make more money are not necessarily more satisfied when they have different jobs. On the other hand, if we have a sample of people who all do the same job, those who make more money should be more satisfied. Research support for this hypothesis comes from two

studies. Spector (1985) found a mean correlation of only .17 between salary level and pay satisfaction in three heterogeneous samples in which employees held different jobs. Rice, Phillips, and McFarlin (1990), on the other hand, found a much larger .50 correlation between pay and job satisfaction in a sample of mental health professionals holding the same jobs. Pay satisfaction is affected by how an individual's salary compares to those of others in the same job rather than to those of people in general.

Justice. As noted in the Chapter 8 discussion of justice theories, perceptions of fairness are important determinants of people's behavior and reactions to work. Distributive justice is the extent to which people perceive the allotment of rewards at work to be fair, whereas procedural justice is the extent to which people perceive the process by which rewards at work are allocated to be fair. These two forms of justice have been linked to both global and facet job satisfaction in the Cohen-Charash and Spector (2001) meta-analysis. Overall job satisfaction and facet satisfactions of pay, supervision, and nature of work correlate significantly with both forms of justice (see Table 9-6). Note that for pay satisfaction, distributive justice has a larger correlation than procedural justice. This suggests that the distribution of pay is more important for satisfaction than the procedures for distribution, although both are certainly important. For supervision satisfaction, procedural justice is more important than distributive justice, perhaps because it is the supervisor who decides on the procedures by which assignments and rewards are allocated.

Personal Antecedents of Job Satisfaction

Most studies of the causes of job satisfaction have taken an environmental perspective. Some researchers, however, feel that personal characteristics are also important in determining job satisfaction (e.g., Staw & Cohen-Charash, 2005). Personal characteristics include demographics (e.g., age, gender, and race), as well as personality. In this section, we will discuss factors that may play a role in people's reactions to jobs and their job satisfaction.

Personality. The idea that job satisfaction may be caused in part by personality can be traced back to the Hawthorne studies of the 1920s. The Hawthorne researchers noticed that certain individuals, whom they called the *chronic kickers*, were continually complaining about the job (Roethlisberger, 1941). No matter what the researchers did for them, the chronic kickers always had new complaints. More recently, Bowling, Beehr, and Lepisto (2006) explored the stability of satisfaction by studying people who changed employers. They found that the job satisfaction of these individuals was correlated across a 5-year span of time. In other words, the job satisfaction of people on one job correlated with their satisfaction on another. Staw, Bell, and Clausen (1986) studied people's job satisfaction over the span of decades (see the Research in Detail box). They found that personality assessed

TABLE 9-6

Correlations of Distributive Justice and Procedural Justice With Job Satisfaction

Job satisfaction type	Distributive justice	Procedural justice
Global job satisfaction	.39	.40
Pay satisfaction	.58	.45
Supervisor satisfaction	.36	.47
Nature of work satisfaction	.32	.31

Source: Adapted from "The Role of Justice in Organizations: A Meta-Analysis," by Y. Cohen-Charash and P. E. Spector (2001), *Organizational Behavior and Human Decision Processes, 86,* 538–551.

in adolescents predicted job satisfaction up to 50 years later. These studies suggest that job satisfaction is caused in part by underlying personality. Some people are predisposed to like their jobs, whereas others are predisposed not to like them. However, personality is not entirely responsible for job satisfaction. T. Newton and Keenan (1991) did a study of job satisfaction over time and found evidence that job environment, as well as personality, is important. They studied a group of British engineers during their first 4 years on the job after college. They also found consistency in job satisfaction over time, but in addition they found that engineers who changed jobs increased their satisfaction. Dormann and Zapf (2001) conducted a meta-analysis of such studies showing that job satisfaction is far more stable over time when people remain on the same job (mean correlation = .42) than when they change jobs (mean correlation = .18).

Research in Detail

One of the limitations of many I-O studies is that data are collected at a single point in time. The study by Staw et al. (1986) stands out as a rare example of a long-term longitudinal study of job satisfaction. The study spanned 50 years, comparing the personality of adolescents with their later job satisfaction.

The study made use of data from the Intergenerational Studies begun at the University of California, Berkeley, during the 1920s. Three groups of subjects were assessed using interviews and questionnaires several times during their lives. Staw et al. (1986) had several judges, who were either clinical psychologists or psychiatric social workers, read the extensive material in each subject's file, and rate them on several personality characteristics. Scores on 17 characteristics were combined into affective disposition scores. Examples of the characteristics include thin-skinned, punitive, condescending, hostile, distrustful, irritable, and moody.

Results showed that affective disposition assessed as young as early adolescence correlated significantly with job satisfaction assessed up to 50 years later. For the 46 subjects who had data at adolescence and decades later on the job, the correlation between disposition and satisfaction was .37. This is larger than many of the correlations found between job conditions and job satisfaction.

There are several explanations for these results, as noted by Staw et al. First, it may be that affective disposition, as assessed here, relates to a person's view of the world. People with a negative disposition might perceive all aspects of their lives, including their jobs, as worse than people with a more positive disposition. Alternatively, disposition might lead to job choice, with negative people seeking out worse jobs than positive people. Although this study cannot answer these questions, it demonstrates that through some as-yet-to-be-determined mechanism, personality is a likely precursor to job satisfaction. These results suggest that organizations should carefully consider characteristics of individuals when implementing job changes intended to enhance job satisfaction.

Source: Adapted from "The Dispositional Approach to Job Attitudes: A Lifetime Longitudinal Test," by B. M. Staw, N. E. Bell, and J. A. Clausen (1986), *Administrative Science Quarterly, 31,* 56–77.

These studies showing consistency in job satisfaction over time support the idea that personality is important, but they do not shed much light on the nature of relevant personality characteristics. Quite a few have been studied; we focus on those that have been given the most attention.

Negative affectivity (NA) is the tendency for an individual to experience negative emotions, such as anxiety or depression, across a wide variety of situations. Watson, Pennebaker, and Folger (1986) extended the NA idea to the workplace, hypothesizing that high NA individuals would likely be dissatisfied because they tend to view all aspects of their world in a negative way. This is consistent with the idea of the chronic kicker, mentioned earlier, in that some people just dwell on negative aspects of life. This theoretical idea is supported by Connolly and Viswesvaran (2000), who conducted a meta-analysis of 27 studies that found a mean correlation between NA and job satisfaction of −.27, showing that individuals who are high on NA tend to score low on job satisfaction.

Positive affectivity (PA) is the tendency for an individual to experience positive emotions, such as enthusiasm or joy across situations. The individual high in PA tends to be optimistic and focuses on the bright side of life. His or her outlook on the job should also be positive, leading to high job satisfaction. In their meta-analysis of job satisfaction and personality, Bruk-Lee, Khoury, Nixon, Goh, and Spector (2009) found PA to be the best predictor of job satisfaction with a mean correlation of .41.

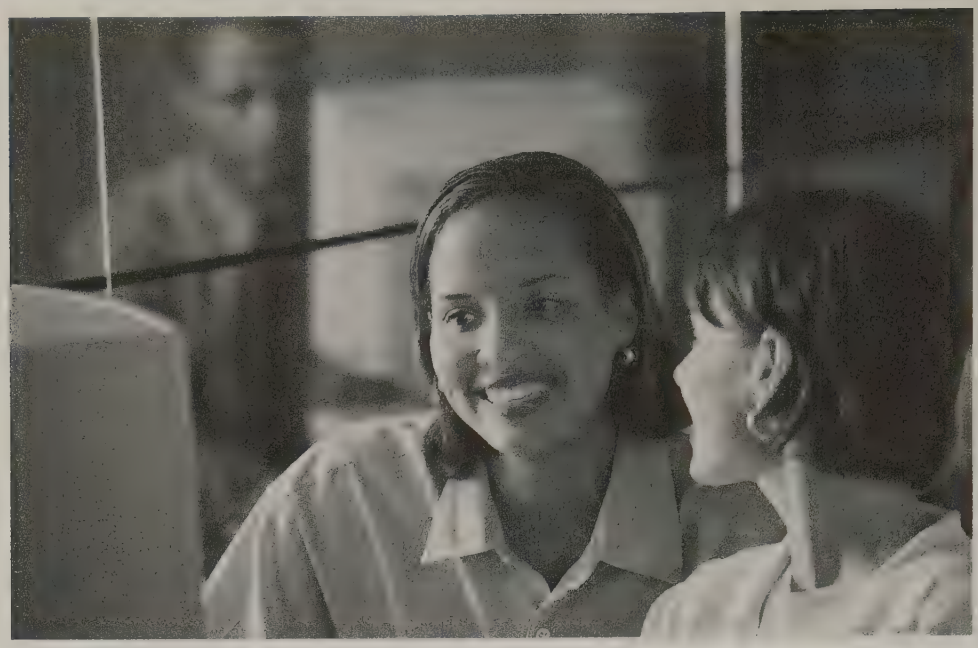
Locus of control refers to whether people believe they are in control of rewards in life. People who believe that they control rewards are termed *internals*. People who believe that fate, luck, or powerful others control rewards are termed *externals*. Internals have been found to be more satisfied with their jobs than externals (Ng, Sorensen, & Eby, 2006; Wang, Bowling, & Eschleman, 2010).

Although the research on these personality traits has shown a connection with job satisfaction, the reasons are not well understood. One line of research has investigated the extent to which job satisfaction might be affected by genetic factors. These studies involve comparisons of monozygotic (identical) twins with other types of siblings to estimate how much similarities in personality and job satisfaction are due to shared genetics. These studies suggest that genetic factors account for about a quarter of the variance in job satisfaction, which is mainly accounted for by similarities in personality (Hahn, Gottschling, König, & Spinath, 2016). Furthermore, the impact of genetics and personality tends to decline over time, being more important in young adults than in older workers, suggesting that the work environment takes on a greater role in job satisfaction over time (Li, Stanek, Zhang, Ones, & McGue, 2016).

We have seen that job satisfaction can be stable over time and that genetic factors and specific personality traits relate to job satisfaction. What are not entirely clear are the reasons. Are individuals with certain personality traits just more inclined to be happier and more satisfied than people with other traits? Perhaps but it is likely that the situation is more complex than that. For example, as we will see in Chapter 10, personality can relate to job performance. If individuals with certain personalities perform the job better, and thus get rewarded for that performance, they might also be more satisfied. That satisfaction might be due, not to personality itself, but to job performance. Furthermore, personality might also be related to job choice. Perhaps people with certain personality traits choose better jobs and therefore have higher satisfaction (Spector, Zapf, Chen, & Frese, 2000). Clearly, research is needed to determine why personality relates to job satisfaction.

Gender. Most studies that have compared men and women in their global job satisfaction have found few differences. A meta-analysis of 258 studies involving more than 150,000 employees failed to find that the job satisfaction of men and women differ (Batz-Barbarich, Tay, Kuykendall, & Cheung, 2018). Greenhaus, Parasuraman, and Wormley (1990) found no significant gender differences in their study even though the distribution of jobs was not the same in their sample for both genders—men were more likely to have managerial/professional jobs and women were more likely to have clerical jobs. This suggests that women may be happier with lower pay and less responsibility than men, perhaps because their expectations are lower about what they will receive or because they compare themselves to other women who are in similar circumstances.

Age. The workforces in many countries have been getting older because of both the changing demographic makeup of the population (there are more elderly people) and legislation that has made age discrimination illegal. A question that has been of interest to I-O psychologists concerns possible changes in job satisfaction over a person's life span. Two large sample surveys, one conducted in England (Clark, Oswald, & Warr, 1996) and the other in nine countries including the United States (Birdi, Warr, & Oswald, 1995), found a curvilinear relation between age and job satisfaction. In these studies, job satisfaction at first declines with age, reaching the lowest level at around age 26 to 31, and then increases through the rest of the working career. The initial decline can be explained by the honeymoon period; job satisfaction is high at the time of hiring as people are excited to



Stockbyte/Getty Images

Most Americans say that they like their jobs.

have a new job. As the novelty wears off, job satisfaction declines (Boswell, Shipp, Payne, & Culbertson, 2009).

Although some of the increase in job satisfaction over time might be due to age, it is also likely that other factors are important as well. One factor that has been identified is pay (Dobrow Riza, Ganzach, & Liu, 2018). As people get older, their pay generally increases, and that increase can positively affect their level of job satisfaction. Of course, pay cannot explain all the job satisfaction increase as people's careers evolve in many ways over time.

Ethnic Differences. Another trend in the composition of the workforce in the United States and other countries is that it is becoming increasingly diverse. If organizations are to deal appropriately with a diverse workforce, then they must understand how people of various ethnic, racial, and cultural backgrounds view and feel about their jobs. Within the United States several studies have compared the job satisfaction of Black and White employees. Some of these studies have found that Blacks have slightly lower job satisfaction (Greenhaus et al., 1990), but studies that have found differences in satisfaction have also noted differences in other variables, suggesting that job experiences might differ in these samples. Perhaps it is job differences and not race that account for the lower job satisfaction of Blacks. Somers and Birnbaum (2001) considered this possibility in their study of Black and White employees of a hospital, finding that there were no differences between them after demographic variables (e.g., age and education) and type of work were statistically controlled.

Person–Job Fit

Most researchers have tended to treat environmental and personal factors as independent influences on job satisfaction. In other words, they have studied characteristics of jobs or of individuals that may lead to satisfaction. Another approach, however, is to look at the interaction of both factors. The person–job fit approach states that job satisfaction will occur when there is a good match between the person and the job. There are many ways that people and jobs fit, however, including the correspondence between task demands and personal abilities (Greguras & Diefendorff, 2009).

Much of the research on person–job fit has looked at the correspondence between what people say they want on a job and what they say they have (e.g., Yang, Che, & Spector, 2008), with the difference between having and wanting representing the amount of fit. For example, Warr and Inceoglu (2012) found that misfit in autonomy, career progress, status, and support by others led to job dissatisfaction. Studies have been quite consistent in showing that the smaller the discrepancy between having and wanting, the greater the job satisfaction. Along this line, Verquer, Beehr, and Wagner (2003) conducted a meta-analysis of 21 person–job fit studies and found that various measures of fit were correlated with job satisfaction.

Another approach to studying the interplay of the job and person is to look at the interaction of specific person and job variables in predicting job satisfaction. That is, person variables are used as moderators of the relation between job variables and job satisfaction. A **moderator variable** affects the relation between two other variables. One might find that a particular job variable relates to job satisfaction for people at one level of a person (moderator) variable and not for people at another level. For example, men might react differently than women to a job condition. Thus, there might be a positive correlation between the job condition and job satisfaction for men and no correlation for women. We would say that gender has moderated the relation between the job condition and job satisfaction. It determines whether the two variables are correlated.

In the job characteristics area, many studies have attempted to find the sorts of people who would react most positively to high-scope jobs (i.e., those high on the Hackman & Oldham, 1976, five core job characteristics). One personality characteristic that comes from Hackman and Oldham's (1976) theory is **growth need strength (GNS)**. This characteristic refers to a person's desire for the satisfaction of higher-order needs, such as autonomy and achievement. Meta-analyses of studies that have addressed the effects of GNS have shown that it moderates the relation between job characteristics and job satisfaction (Loher, Noe, Moeller, & Fitzgerald, 1985). Correlations between these two variables are greater for individuals who are high in GNS than for individuals who are low.

This relation is illustrated in Figure 9-3. The horizontal axis of the graph represents the scope of the job; the vertical axis represents job satisfaction. One line is for high GNS people, and the other line is for low GNS people. As the graph shows, people who are high in GNS will be satisfied with high-scope jobs and not with low-scope jobs. The scope of the job is not important for people low in GNS. Their satisfaction stays constant, regardless of job scope.

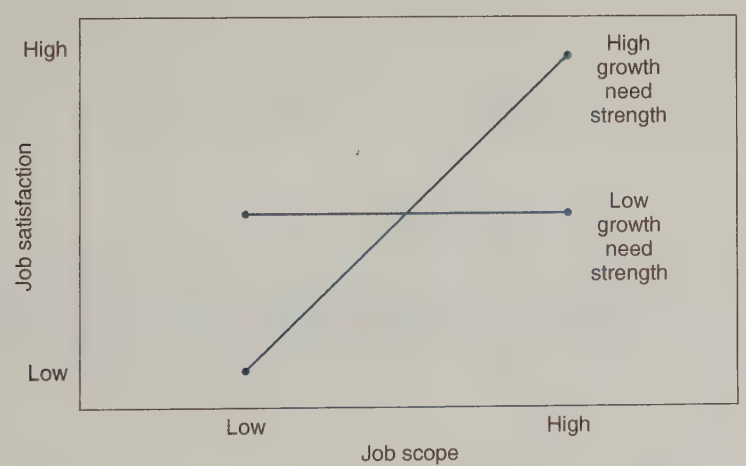


FIGURE 9-3 The moderating effect of growth need strength on the job scope–job satisfaction relation. Scope is represented by the horizontal axis of the graph. Job satisfaction is on the vertical axis. For people high in growth need strength, satisfaction is high when scope is high and low when scope is low. For people who are low in growth need strength, satisfaction is unaffected by the level of job scope.

Underemployment

An important form of person–job misfit is **underemployment**, the extent to which someone is working at a job that is of lower quality than he or she should have. There are two types of underemployment (Friedland & Price, 2003). *Economic underemployment* occurs when the individual's pay is insufficient to meet his or her economic needs. Individuals economically underemployed are often referred to in the United States as the working poor, who often have jobs that pay low wages, offer few fringe benefits (e.g., health insurance), and provide no job security (Jensen & Slack, 2003). *Skill underemployment* occurs when the employee is performing jobs that are below their skill level, for example, someone with a Master's degree in accounting is a custodian in a bank.

Economic changes affecting the labor market in industrialized countries has led to growing concern about underemployment. Rates of underemployment vary by country and employee background. For example, a national survey found that half of Americans are underemployed (Friedland & Price, 2003). The situation is worse in Ireland where according to one study three-fourths of college graduates are underemployed (Cassidy & Wright, 2008). The underemployment rate seems better in the United Kingdom, at least for business school graduates whose rate was found to be 37% (Nabi, 2003). The implications of so much underemployment are unclear. While studies have linked perceptions of underemployment to job dissatisfaction (Maynard, Mathieu, Rapp, & Gilson, 2012), it is not necessarily the case that being objectively underemployed would have the same impact. Arvan, Pindek, Andel, and Spector (2019) studied recent college graduates to assess perceptions of skill underemployment and objective skill underemployment (e.g., the extent to which their jobs required a college degree). Consistent with other studies, perceptions of being underemployed was associated with job dissatisfaction, but objective underemployment was not. In a second study using a longitudinal design, they found that it was more likely that being dissatisfied led to perceptions of underemployment than the reverse. As with job characteristics, we should not assume that if something is correlated with job satisfaction, it is necessarily an antecedent.

One group that is of particular concern with underemployment is new school graduates who take longer to find jobs and are more likely to experience underemployment (Koen, Klehe, & Van Vianen, 2012). One potential reason for the difficulty of new graduates to find suitable employment is their lack of job search skills due to inexperience. Koen et al. (2012) developed a career adaptability training program designed to enhance such skills to see if it would help college students find better jobs after graduation. Table 9-7 lists the topics that were covered in the training. In comparing the trained students with a control group of untrained students 6 months after the training, Koen et al. (2012) found that the training resulted in a higher rate of finding a job, higher-quality jobs, and higher job satisfaction.

TABLE 9-7

Topics Covered in Career Adaptability Training

Exploring one's own KSAs
Exploring career interests and options
Job information seeking strategies
Setting goals and making plans to achieve them
Overcoming obstacles in job searching

Source: Adapted from "Training Career Adaptability to Facilitate a Successful School-to-Work Transition," by J. Koen, U.-C. Klehe, and A. E. M. Van Vianen (2012), *Journal of Vocational Behavior, 81,* 395–408.

Potential Effects of Job Satisfaction

Many organizationally relevant variables are thought to be the result of job satisfaction or dissatisfaction. Some are behaviors that have an important impact on the well-being of organizations. Three of these are job performance, turnover, and employee absence. Job satisfaction is also linked to variables that are of direct relevance to the health and well-being of employees. These include physical health, psychological well-being, and life satisfaction. Blog 9-1 provides an overview of why we should be concerned about job satisfaction, and some of the things organizations can do to improve it.

BLOG 9-1 **Why Is Job Satisfaction Important?**

https://paulspector.com/why-is-job-satisfaction-important

Discussion Questions

1. Why do so many organizations fail to do even simple things to improve employee job satisfaction?
2. What do you consider the most satisfying aspects of a job?
3. Is it ethical to use personality tests to screen out from hiring individuals who have a tendency to be dissatisfied with work?
4. What are some actions an organization might try to improve employee job satisfaction?

Job Satisfaction and Job Performance

The idea that job satisfaction and job performance are related seems intuitively obvious. After all, shouldn't satisfied employees be productive employees? Judge, Thoresen, Bono, and Patton (2001) conducted a thorough meta-analysis of 312 studies and found that there is a modest relationship—the average correlation is .20 between job performance and global satisfaction. At least part of the reason for the relatively small mean correlation found in this meta-analysis may have to do with the measures of job performance available in many studies. Most studies rely on supervisor ratings of performance, which suffer from several limitations, as discussed in Chapter 4. Supervisors frequently exhibit rating errors, especially when ratings are for organizational purposes. This can produce inaccuracy in performance ratings, which introduces extra error into the statistics. Relations of satisfaction with performance would likely be stronger if more accurate measures of performance were used.

Although it is clear that performance and satisfaction are related (Schleicher, Watt, & Greguras, 2004), there are two opposite explanations. First, satisfaction might lead to performance. That is, people who like their jobs work harder and therefore perform better. Second, performance might lead to satisfaction. People who perform well are likely to benefit from that performance, and those benefits could enhance satisfaction. A well-performing person might receive more pay and recognition, which could increase job satisfaction. Both of these explanations are illustrated in Figure 9-4. In the top part of the figure, satisfaction leads to effort, which in turn leads to performance. In the bottom part, performance leads to rewards and rewards lead to satisfaction.

Jacobs and Solomon (1977) conducted a study that supports the second explanation. They hypothesized that satisfaction and performance are related more strongly when performance leads to rewards. The rationale is that employees who perform well will be more satisfied because they have received rewards. Jacobs and Solomon found support

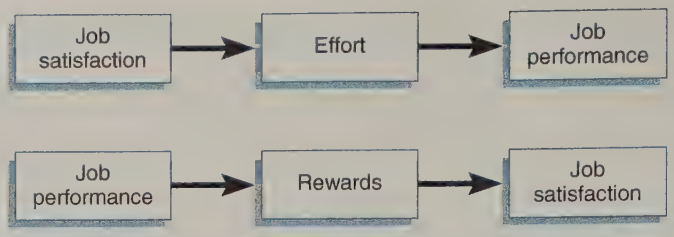


FIGURE 9-4 Two possible models illustrating why job performance relates to job satisfaction. In the first model, job satisfaction leads to increased effort on the job, which leads to job performance. In the second, job performance leads to rewards, which lead to job satisfaction. As noted in the text, evidence exists to support the second model.

for their hypothesis that a performance–reward linkage leads to stronger satisfaction–performance relationships.

One area in which job satisfaction can have a direct impact on performance is customer service. Studies have shown that high job satisfaction of customer service employees is linked to good customer service (Shen & Tang, 2018) and satisfied customers (Jung & Yoon, 2013). But the effect appears to not be in just one direction. Zablah, Carlson, Donavan, Maxham, and Brown (2016) found support for what they called the **satisfaction mirror** hypothesis. The satisfaction mirror is the idea that a customer service encounter involves an interaction in which both parties can engage in behaviors that the other might find pleasant and that the reciprocal back-and-forth can lead to satisfaction for both parties. An encounter might start when a satisfied employee, for example, greets a customer with a smile and pleasant demeanor, which will often be reciprocated, thus leading to more satisfaction on the part of the employee. The encounter can become increasingly friendly and pleasant over time. Thus, having satisfied employees can increase the chances that customer service interactions will begin and remain positive. The satisfaction mirror phenomenon is not limited to customer service, but can apply in interactions between employees and coworkers, supervisors, and others.

Job Satisfaction and Turnover

Quitting the job, or *turnover*, has been tied to job satisfaction. Many studies have shown that dissatisfied employees are more likely than satisfied employees to quit their jobs (Blau, 2007).

Correlations between job satisfaction and turnover have been interpreted as indicating the effects of satisfaction on behavior. One reason that it has been possible to demonstrate such a linkage between job satisfaction and turnover has to do with the designs of turnover studies and the nature of turnover. Most turnover studies are predictive, assessing job satisfaction in a sample of employees on one occasion and then waiting some period of months or years to see who quits. The predictive nature of these studies allows the conclusion that dissatisfaction is a factor that leads employees to quit their jobs.

Job Satisfaction and Absence

Conventional wisdom suggests that absence from work is the by-product of employee job dissatisfaction. People who dislike their jobs will be more likely to avoid work than people who like their jobs. Several meta-analyses have looked at this question, and they show that the connection between job satisfaction and absence is inconsistent and usually quite small. For example, Bowling and Hammond (2008) found a mean correlation of −.12 between absence and global job satisfaction. Tharenou (1993), on the other hand, found correlations as high as −.34 between absence and job satisfaction in a sample of Australian blue-collar workers. Why some studies find stronger absence–job satisfaction correlations than others is not entirely clear, but it seems that they can be related under some circumstances.

One reason is that people differ in their tendencies to avoid work when they are dissatisfied. Schaumberg and Flynn (2017) reasoned that people's tendency to experience guilt when they do something wrong might be the answer. They found that people who rarely felt guilty showed a relationship between dissatisfaction and absence, whereas people who tended to experience guilt did not. Another important factor is that people can be absent for many reasons, some of which are beyond their control (Kohler & Mathieu, 1993), including employee illness, family member illness (especially children), personal business, and fatigue. Uncontrollable absence is not likely to relate to job satisfaction, so studies that investigate overall absence are unlikely to find strong relatio0nships with job satisfaction.

Health and Well-Being

I-O psychologists have been concerned that job dissatisfaction might be an important factor in employee health and well-being. Correlational studies show that job satisfaction relates to a variety of health-related variables. For example, dissatisfied employees report more physical symptoms, such as sleep problems and upset stomach, than their satisfied counterparts (Bowling & Hammond, 2008). Dissatisfaction has also been found to correlate with negative emotions at work, such as anxiety and depression (Bowling & Hammond, 2008; Jex & Gudanowski, 1992). These negative emotional states could be considered indicators of psychological health or well-being at work. Evidence relating job satisfaction to more-serious health problems, such as heart disease, has been harder to produce (Heslop, Smith, Metcalfe, Macleod, & Hart, 2002).

Job and Life Satisfaction

Another important issue concerns the contribution of job satisfaction to overall **life satisfaction**—how satisfied a person is with his or her life circumstances. Life satisfaction is considered an indicator of overall happiness or emotional well-being. Studies of life satisfaction have found that it correlates with job satisfaction (Bowling & Hammond, 2008).

Three hypotheses have been proposed about how job and life satisfaction might affect each other (Rain, Lane, & Steiner, 1991). The *spillover hypothesis* suggests that satisfaction (or dissatisfaction) in one area of life affects or spills over to another. Thus, problems and dissatisfaction at home can affect satisfaction with work, whereas problems and dissatisfaction at work can affect satisfaction with home. The *compensation hypothesis* says that dissatisfaction in one area of life will be compensated for in another. A person with a dissatisfying job will seek satisfaction in other aspects of life. A person with a dissatisfying home life might seek satisfaction in work. The *segmentation hypothesis* states that people compartmentalize their lives and that satisfaction in one area of life has no relation to satisfaction in another.

The three hypotheses lead to contradictory predictions about the correlation between job and life satisfaction. Spillover predicts a positive correlation in that satisfaction at work will affect satisfaction in other areas of life. Compensation predicts a negative correlation because dissatisfaction in one area of life will be compensated for by satisfaction in another. Segmentation predicts no correlation because people keep satisfaction with different areas of life separated. Rain et al. (1991) pointed out that research has consistently found a positive correlation between job and life satisfaction. Thus, the spillover hypothesis is the only one supported by research.

Organizational Commitment

Organizational commitment is another popular attitudinal variable in the work domain. It is strongly related to job satisfaction, but it is distinctly different in focusing on

the attachment of the individual to the organization rather than on whether an individual likes or dislikes the job. There are three types of organizational commitment (Meyer, Allen, & Smith, 1993):

- **Affective commitment** occurs when the employee wishes to remain with the organization because of an emotional attachment.
- **Continuance commitment** exists when a person must remain with the organization because he or she needs the benefits and salary or cannot find another acceptable job.
- **Normative commitment** comes from the values of the employee. The person believes that he or she owes it to the organization to remain out of a sense that this is the right thing to do.

Meyer et al. (1993) discussed the nature and origins of the three types of commitment. Figure 9-5 shows the major influences on each. As you can see, there are different factors involved in each type. Affective commitment arises from job conditions and met expectations. That is, did the job provide the rewards that the employee expected? Continuance commitment is produced by the benefits accrued from working for the organization and by the lack of available alternative jobs. Normative commitment comes from the employee's personal values and from the obligations that the person feels toward the employer. These obligations come from investments that the organization has made in the employee, such as paying school expenses.

Assessment of Organizational Commitment

The three types in the Meyer et al. (1993) conception of commitment can be assessed with a scale they developed. Table 9-8 contains two of the items for each type. Thus, the scale yields three separate scores. Research with the scale has found support for the idea that the three types of commitment are separate variables (Dunham, Grube, & Castaneda, 1994), and in many studies researchers assess all three.

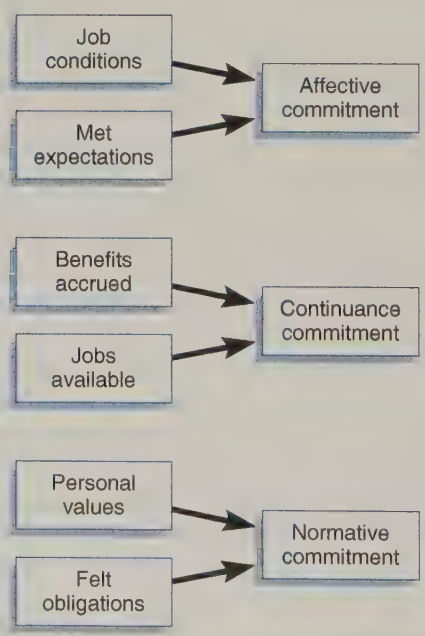


FIGURE 9-5 Antecedents of the three types of organizational commitment. Each type of commitment has different antecedents. Affective commitment arises from favorable experiences on the job. Continuance is produced by the investments in the job and the difficulty in finding another job. Normative commitment derives from a sense of obligation either because of the person's values or from favors done for the person by the organization.

TABLE 9-8

Six Items From the Meyer, Allen, and Smith (1993) Three-Type Organizational Commitment Scale

Affective Commitment

I would be very happy to spend the rest of my career with this organization.
I really feel as if this organization's problems are my own.

Continuance Commitment

Right now, staying with my organization is a matter of necessity as much as desire.
It would be very hard for me to leave my organization right now, even if I wanted to.

Normative Commitment

I do not feel any obligation to remain with my current employer.
Even if it were to my advantage, I do not feel it would be right to leave my organization now.

Source: Adapted from "Commitment to Organizations and Occupations: Extension and Test of a Three-Component Conceptualization," by J. P. Meyer, N. J. Allen, and C. A. Smith (1993), *Journal of Applied Psychology, 78,* 538–551.

Organizational Commitment and Other Variables

Organizational commitment has been included in studies involving many organizational variables. Cooper-Hakim and Viswesvaran (2005) conducted a meta-analysis of nearly 1,000 studies, relating commitment to several hypothesized variables proposed as consequences. Table 9-9 summarizes their results, relating the three types of commitment to four important variables. Job satisfaction relates most strongly to affective commitment, which is not surprising considering that both variables are attitudes about the job. Job performance also relates most strongly and positively to affective commitment, at about the same level as does job satisfaction. Continuance commitment relates negatively to job performance, although the relationship is rather small. These results suggest that people who are working because of an emotional attachment will tend to perform better, but those who are working because they have to will actually perform worse.

Turnover in particular has been a focus of much commitment research (Somers, 2009). Because commitment refers to the attachment of people to jobs, we would expect it to be related to turnover. Those with low commitment should be more likely to quit their job than those with high commitment. Cooper-Hakim and Viswesvaran (2005) found that turnover (last row of the table) correlates negatively with all three types, with continuance commitment relating most strongly. The pattern with turnover intentions is different in that continuance commitment has the weakest correlation of the three components. These results suggest that affective commitment relates most strongly to the desire to quit, as reflected in intentions, but it is the actual investments in the job, reflected in continuance commitment, that are most important in translating intentions to turnover itself.

TABLE 9-9

Mean Correlations of Organizational Commitment Types With Four Work Variables

Variable	Affective commitment	Continuance commitment	Normative commitment
Job satisfaction	.50	.09	.29
Job performance	.22	−.09	.06
Turnover intention	−.48	−.15	−.29
Turnover	−.17	−.20	−.13

Source: Adapted from "The Construct of Work Commitment: Testing an Integrative Framework," by A. Cooper-Hakim and C. Viswesvaran (2005), *Psychological Bulletin, 131,* 241–259.

Commitment has been studied in relation to potential antecedent variables as well. Meyer, Stanley, Herscovitch, and Topolnytsky (2002) conducted a meta-analysis of 155 studies showing that commitment is associated with job stress (people who perceive their jobs to be stressful have low commitment) and organizational justice (people who feel they have been unfairly treated have low commitment). However, relationships with these variables are stronger for affective commitment than either continuance or normative commitment. Continuance commitment is most strongly related to how well skills can transfer from the current job to another job, which makes sense, since lack of transferability would make it difficult for someone to switch jobs, thus producing a higher level of continuance commitment.

Individual differences have been studied as potential antecedents to commitment. In a meta-analysis, Choi, Oh, and Colbert (2015) found that all of the Big Five personality dimensions correlated significantly with affective commitment, whereas none of the dimensions correlated significantly with continuance commitment. Clearly, the role of personality is more important for affective than continuance commitment, perhaps because it is more tied to feelings. As with job satisfaction, there have been few gender or racial differences found with organizational commitment. For example, Ng, Butts, Vandenberg, DeJoy, and Wilson (2006) found that men and women, and Whites and non-Whites, have about the same level of organizational commitment.

One must be cautious in generalizing these organizational commitment findings to other countries. Robert, Probst, Martocchio, Drasgow, and Lawler (2000) surveyed employees of a multinational company in four countries: India, Mexico, Poland, and the United States. Organizational commitment correlated strongly with intent to quit in the United States (as expected) and Poland. However, the correlation was somewhat smaller in Mexico, and it was nonsignificant in India. Apparently, Indians and Mexicans who have low commitment are less inclined to quit their jobs than Americans and Poles who have low commitment.

Perhaps one reason for these cross-national differences has to do with culture values. As discussed earlier in the chapter, individualism–collectivism concerns whether people focus on themselves (individualism) or on others (collectivism). Being members of collectivist societies, Indians and Mexicans might display more loyalty to their employers and resist translating low commitment into turnover. Indeed, Cohen (2006) showed that collectivists in Israel have greater organizational commitment and are more likely to engage in behaviors to help their employers than are individualists.

The idea of commitment has been extended from the organization to other work-related domains. Vandenberghe, Bentein, and Stinglhamber (2004) developed scales to assess commitment to one's supervisor and to one's work group or peers. They showed that commitment to the group is a better predictor of turnover than commitment to the organization or supervisor. Group commitment has also been shown to relate to work group performance (Neininger, Lehmann-Willenbrock, Kauffeld, & Henschel, 2010). These findings illustrate how it can be relationships with one's work peers that matter most in deciding whether to remain with an employer, and it can affect how well coworkers work together.

Meyer et al. (1993) developed the idea of **occupational commitment**, which concerns the occupation or profession rather than a particular organization. People might be very committed to their occupation, such as accounting or law, and uncommitted to their current employer. The focus of a person's commitment is important in determining his or her responses. For example, Keller (1997) found that occupational commitment among engineers and scientists relates to an objective measure of performance (number of articles published), but organizational commitment does not. Success in publication may be relevant to how individuals view their occupations but not their organizations. On the other hand, Cropanzano, Howes, Grandey, and Toth (1997) found that occupational commitment is less strongly related than organizational commitment to intention of quitting the job. In their meta-analysis of occupational commitment studies, K. Lee, Carswell, and Allen (2000) found that the mean correlation with job satisfaction ($r = .37$) is smaller than is typically found for organizational commitment. We might expect that occupational

commitment will relate most strongly to behaviors relevant to success in that occupation. Organizational commitment will relate most strongly to behaviors and variables relevant to the present job.

Finally, in unionized occupations and workplaces, people can vary in the extent to which they are committed to their unions. Such commitment has been shown to relate to the time and effort one puts into union activities. For example, Fullagar, Gallagher, Clark, and Carroll (2004) showed that union commitment predicted participation in union activities over a span of 10 years. This suggests, as with job satisfaction, that some forms of commitment can be quite stable over a long period of time.

Emotions at Work

For most people, the job is an important component of life, providing not only resources (pay and fringe benefits) to acquire the necessities of life but a sense of purpose and social contact as well. It is inevitable that people will react emotionally to workplace events and situations. Accomplishment of a major work project will likely result in positive feelings, such as pride and joy, whereas a heated argument with a supervisor will certainly induce feelings of anger and annoyance. Furthermore, the expression of emotion at work can sometimes be an important part of the job. Salespeople are expected to smile and be friendly, whereas police officers often are expected to act stern in dealing with someone committing a crime.

It is important to distinguish emotional states and moods. An emotional state is the immediate experience of a particular emotion, such as anger or fear that is generally in response to a situation, such as being yelled at by your supervisor. A mood is a longer-term state that is less specific, with a positive or a negative direction (a good mood or a bad mood) rather than specific feelings such as joy or sadness (Fisher, 2000). Both emotional states and moods are important to study in the workplace.

Causes and Consequences of Emotions at Work

Brief and Weiss (2002) discussed how things that are stressful and aversive at work (including punishments) can produce negative emotional states and moods. This might include the need to juggle conflicting demands (e.g., having a child become ill the day of an important meeting at work), too much time pressure, and unfair treatment. They also discussed things that can induce positive emotions, which can be stimulated by the positive moods of coworkers and supervisors. Rewards at work can induce positive emotion—for example, a bonus or raise, as well as less tangible rewards such as recognition by supervisors.

Emotions are associated with employeé behavior and other variables that have implications for organizations. Ashkanasy, Hartel, and Daus (2002) compared the effects of positive and negative moods. They noted that positive mood is associated with greater creativity, higher job satisfaction, less turnover, more contextual performance (e.g., volunteering to do work that goes beyond the core tasks for a job; see Chapter 4), and better job performance. This can be particularly important for salespeople, as being in a positive mood has been linked to higher sales (Kim, Park, & Headrick, 2018). Negative moods, on the other hand, are associated with low job satisfaction and more absence and turnover. As we will see in Chapter 10, emotions have also been linked to counterproductive work behavior (e.g., directing verbal aggression toward coworkers and purposely withholding effort), with positive emotion leading to low levels of these harmful behaviors and negative emotion to high levels (Fox, Spector, & Miles, 2001).

Evidence linking mood to job satisfaction comes from a study by Fuller, Stanton, Fisher, Spitzmüller, Russell, and Smith (2003). They asked 14 employees to complete measures on more than 1,000 occasions of stressful events, their mood, and their job satisfaction.

Results showed, as expected, that stressful events lead to more negative mood and that positive moods are associated with greater job satisfaction.

Emotional Labor

It has long been recognized by private-sector companies that the emotional expressions by employees who deal with clients and customers is an important part of customer service (Grandey, Fisk, Mattila, Jansen, & Sideman, 2005). Such encounters can be difficult for employees who encounter a public that can be rude and even abusive at times (Grandey & Diamond, 2009). Many companies have emotion display rules requiring the expression of positive emotions such as smiling at customers and appearing to be enjoying work (Diefendorff, Richard, & Croyle, 2006), even if customers are not being nice. The required expression of certain emotions at work is called **emotional labor**, recognizing that it can take effort for employees to maintain the appearance of positive feelings (Glomb & Tews, 2004). Not only is emotional labor important when dealing with customers, it is also important to regulate emotions when dealing with work colleagues (Gabriel, Koopman, Rosen, Arnold, & Hochwarter, 2020) in order to maintain good working relationships.

Emotional labor has been shown to have both positive and negative effects on employees, depending on several factors. Perhaps the most important is how emotional labor is performed. As explained by Grandey and Melloy (2017), deep acting is a form of emotional labor in which the individual experiences the emotion he or she is trying to display. In other words, the employee regulates his or her own emotions to experience positive rather than negative emotions. Such regulation of emotions is a skill that organizations can train in employees who engage with the public (Buruck, Dörfel, Kugler, & Brom, 2016). Deep acting can have positive effects on job satisfaction, well-being (Judge, Woolf, & Hurst, 2009), and job performance (Kammeyer-Mueller et al., 2013). Surface acting, on the other hand, is a form of emotional labor in which the person fakes the emotions being expressed toward others, while hiding his or her real feelings. Surface acting, for example, pretending to be happy when experiencing the opposite emotion, leads to **emotional dissonance**, which is stressful and has been associated with negative effects, such as burnout (Yagil & Medler-Liraz, 2017), a topic discussed in Chapter 11, job dissatisfaction (Bhave & Glomb, 2016), and heavy consumption of alcohol (Grandey, Frone, Melloy, & Sayre, 2019) as a means of detaching from the stress of the job (Sayre, Grandey, & Chi, 2020). (See Blog 9-2 for a discussion of the Grandey alcohol study.)

BLOG 9-2 Emotional Labor and Alcohol Use

https://paulspector.com/emotional-labor-and-alcohol-use

Discussion Questions

1. How would you explain why employees who surface act might consume more alcohol than employees who do not?
2. What are the long-term health consequences of this study's findings?
3. What is the best way to combat the negative impact of surface acting?
4. Why do organizations require that employees express certain emotions at work?

There are both individual and organizational factors that affect emotional labor and its possible impact on employees. First, it has been found that women (Johnson & Spector, 2007) and older workers (Dahling & Perez, 2010) are more likely to engage in deep acting than men and younger workers. Furthermore, the relationship between acting and well-being differs by gender and personality. The negative effects of surface acting are greater for women than men (Johnson & Spector, 2007) and for introverts than extraverts (Judge et al., 2009). Furthermore, the negative effects of emotional labor are reduced when the employee has high levels of autonomy and control (Grandey, Fisk, & Steiner, 2005). Having control over the situation, such as being given latitude in how to deal with a rude customer, will tend to reduce negative effects, presumably because the employee does not have to fake being happy while being treated rudely by a customer.

The form of emotional labor performed can affect not only the employee but also customers who observe it. Groth, Thurau, and Walsh (2009) studied the reactions that customers have to the emotional labor of customer service employees. Subjects were students who were asked to complete a survey during a customer service encounter and to request that the customer service employee who waited on them complete a parallel survey asking about their emotional labor. Results showed that customers can detect whether the employee is engaging in deep or surface acting. More important is the finding that deep acting results in more positive perceptions of the service encounter. Other studies have found that clients (Drach-Zahavy, Yagil, & Cohen, 2017) and customers (Yagil & Medler-Liraz, 2017) have a negative reaction to surface acting. Thus, only deep acting can really accomplish the organizational purpose of emotional labor by enhancing the quality of the service encounter for the client or customer.

Chapter Summary

Job satisfaction is the extent to which people like or dislike their jobs (global satisfaction) or aspects of their jobs (facet satisfaction). It is usually measured with questionnaires administered to employees. Several popular job satisfaction scales are available:

Job Descriptive Index (JDI)
Minnesota Satisfaction Questionnaire (MSQ)
Job in General Scale (JIG)
Michigan Organizational Assessment Questionnaire (MOAQ)

Research has linked job satisfaction to several job environment variables. It has been shown to correlate with job characteristics, pay, and justice. Job satisfaction has also been found to correlate with personal characteristics, including age, and various personality variables, such as negative affectivity, positive affectivity, and locus of control. Job satisfaction is best understood as the interaction between characteristics of jobs and people. Poor person–job fit is associated with job dissatisfaction. Perceived underemployment, a form of person–job fit in which a person is working at a job that is beneath his or her skill level, has been linked to job dissatisfaction, although objective underemployment is not.

Research has also linked job satisfaction to several employee behaviors. Lack of satisfaction seems to be a cause of employee turnover. It is related modestly to job performance and slightly to absence, although it is not clear that satisfaction is the cause of either. There is evidence that performance may be the cause of satisfaction. Job satisfaction has been linked to employee health and well-being variables, but we will need future research to tell us specifically how job attitudes might affect disease.

Organizational commitment is another attitudinal variable that has been popular among I-O researchers. Commitment concerns the employee's attachment to the organization. It correlates strongly with job satisfaction, but it is conceptually different.

Three types of commitment have been identified as affective, continuance, and normative. Organizational commitment has many of the same correlates as job satisfaction, including job satisfaction, job performance, turnover, stress, and justice.

The experience of positive emotions by employees on the job can have positive effects on employees and organizations, whereas the experience of negative emotions can have the opposite effects. The requirement to engage in emotional labor can have positive effects on customers and employees if the emotions are experienced through deep acting, but negative effects on both if those emotions are faked through surface acting.

I-O Psychology in Practice

This case is a job satisfaction project carried out by Dr. Charles E. Michaels. Dr. Michaels received his Ph.D. in industrial/organizational psychology in 1983 from the University of South Florida. He is currently an associate professor of management at the University of South Florida. As a professor, he divides his time among teaching, research, and consulting for local and national organizations. Dr. Michaels is an expert in job satisfaction, and much of his consulting and research is in this area.

One consulting project was a job satisfaction survey done for a county fire department. What makes this project unusual is that Dr. Michaels was hired by the firefighters' union rather than by the management of the department. Although most I-O psychologists work for management, occasionally they work for unions as well. Union representatives approached Dr. Michaels to conduct a satisfaction survey because there was considerable unrest among the union's members. The combination of a new fire chief and a two-year wage freeze had led to widespread dissatisfaction among the firefighters. The union representatives were hopeful that a study would provide an impetus for change on the part of management.

Dr. Michaels began this project by interviewing several groups of employees. From the interviews, he was able to develop a satisfaction questionnaire appropriate to the issues of the organization. He surveyed all the firefighters using the questionnaire and found that satisfaction was quite low. In particular, there was dissatisfaction with both pay and communication. The results of the study were compiled into a report that was given to the union representatives. They used the report in a successful campaign for higher wages and improved communication. One year later Dr. Michaels repeated the survey and found that job satisfaction had significantly increased. Furthermore, the largest increases were in the facets of pay and communication satisfaction. This case illustrates that job satisfaction surveys can be used to improve the work conditions for employees.

Discussion Questions

1. What sorts of things would you expect to raise the job satisfaction of firefighters?
2. Do you think the results of this project would have been different if Dr. Michaels had been hired by management?
3. What effects would you expect if the city management had ignored the results of this study?
4. Can you think of another way Dr. Michaels could have assessed job satisfaction?

Learning by Doing

Job Satisfaction Facets

Take the list of common job satisfaction facets in Table 9-1. Ask at least five working people you know to indicate for each one whether they are satisfied or not on their current job. Then for each facet, compute the percentage of people who said they are satisfied. How does the pattern of satisfaction match with Figure 9-1? Note that security is not shown in the figure. If this is done in class, you could combine data with other students.

Observing Emotional Labor

Go to a store or restaurant and observe the interaction between sales clerks or servers and customers. Watch five different employees as they interact with a customer during the initial encounter. Record whether or not the employee expressed any form of emotion. Did the employee smile (or even laugh)? Did the customer return the smile? Did the employee make physical contact (e.g., shake hands or pat the customer's back)? As an alternative, try this in two or more organizations and see whether there are differences in the behavior of employees toward customers.

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CHAPTER 10

Productive and Counterproductive Employee Behavior

OUTLINE

Productive Behavior: Task Performance
- KSAOs and Task Performance
- Motivation and Task Performance
- Personal Characteristics and Task Performance

Environmental Conditions and Task Performance

Creativity and Innovation

Organizational Constraints

Organizational Citizenship Behavior (OCB)

Counterproductive Work Behavior: Withdrawal
- Absence
- Cyberloafing
- Lateness
- Turnover

Counterproductive Work Behavior: Aggression, Sabotage, and Theft

Chapter Summary

I-O Psychology in Practice

Learning by Doing

References

On February 26, 2020, Anthony Ferrill, an electrician who worked for more than 20 years at Molson Coors in Milwaukee came to work armed and opened fire on his coworkers, killing five of them and himself. He was engaged in a long-running conflict with a coworker that exploded into an extreme case of violence. Coworker homicide is quite rare, accounting for a handful of cases each year. However, fights among employees that do not result in homicide or serious injury are not unusual events, and most go unreported to police. Even more common is verbal aggression among employees. Aggression and other forms of counterproductive work behavior such as sabotage, theft, and withdrawal (absence, lateness, and turnover) are a tremendous problem for organizations.

Rotundo and Sackett (2002) distinguish three classes of performance-related behavior engaged in by employees. **Counterproductive work behavior** or **CWB** consists of acts that are harmful to organizations and people in organizations. Task performance concerns the core dimensions of performance that are described in a job analysis and are likely the focus of the performance appraisal system. For example, a customer service employee waits on customers, and a teacher conducts class. Organizational citizenship behavior (OCB) is similar to the contextual performance that we discussed in Chapter 4. It consists of activities that go beyond the core dimensions of a job but that support the performance of the organization. This might include volunteering to do extra work or helping a coworker with a task. The latter two areas of performance are beneficial to the organization. In this chapter, we will discuss all three of these performance-related areas.

OBJECTIVES

The student who studies this chapter should be able to

1. Discuss how environmental and personal characteristics impact job performance.
2. Explain how the principles of human factors can be used to enhance job performance.
3. Summarize the research on organizational citizenship behavior.
4. Summarize the research on the causes of employee withdrawal.
5. Discuss how counterproductive work behavior can result from environmental and personal factors.

Productive Behavior: Task Performance

For an organization to achieve its purposes, individual employees must perform their job tasks correctly and in a timely manner. This is as true for government organizations, in which poor performance means a failure to provide mandated public services, as it is for private companies, in which poor performance can mean bankruptcy. From a societal standpoint, it is in everyone's best interest for organizations to have employees who perform their jobs well. Good performance enhances organizational productivity, which makes for quality goods and services provided to the public, as well as the national and global economies.

People can perform their jobs well only if they have both the necessary ability and the necessary motivation. Organizational practices and job conditions can enhance these personal characteristics or serve as constraints that interfere with job performance. These three factors—ability, motivation, and organizational constraints—are illustrated in Figure 10-1 and discussed in Blog 10-1. The figure shows how ability and motivation lead to performance but can be blocked by constraints.

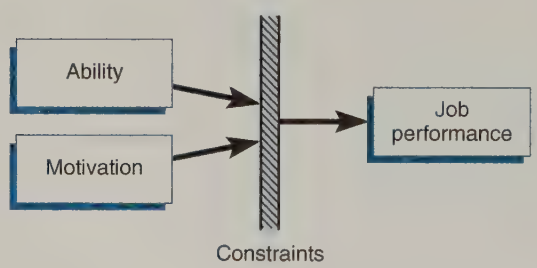


FIGURE 10-1 Good job performance requires both ability and motivation. Organizational constraints, such as inadequate training, can interfere with good performance.

BLOG 10-1 Leading to Maximize Performance

https://paulspector.com/leading-to-maximizeperformance

Discussion Questions

1. If you were a manager, which of the three pillars would you feel is easiest for you to strengthen?
2. Thinking back to Chapter 9, how would you go about motivating an employee to perform well?
3. Why is it that individuals who are capable and motivated do not always perform up to their potential?
4. What would motivate you the most to perform at work?

KSAOs and Task Performance

As discussed in Chapter 3, most selection efforts by I-O psychologists focus on identifying the necessary KSAOs (knowledge, skill, ability, and other personal characteristics) for specific jobs, and then finding people who have them. Once the KSAOs are identified, typically with a job analysis, selection procedures are implemented to find individuals who have the appropriate characteristics. Although KSAOs deal with a variety of attributes, most selection devices (see Chapter 5) are designed to assess the first three, or the KSAs. Finally, in addition to what employees bring with them, additional knowledge and skills can be developed through training. If an organization is to have a workforce with the necessary attributes for good job performance, all three steps—job analysis, selection, and training—must be followed.

It has been well established that various measures of ability and skill relate to job performance (see Chapters 5 and 6). As might be expected, the nature of the job determines the mix of specific abilities and skills necessary. For example, Gutenberg, Arvey, Osburn, and Jeanneret (1983) showed that cognitive ability predicts performance for most jobs. The more mentally demanding the job, however, the stronger was the relation between cognitive ability and job performance. In other words, cognitive ability is more important for mentally demanding jobs (e.g., engineer) than for simple jobs (e.g., file clerk). Caldwell and O'Reilly (1990) demonstrated that matching people's abilities to the KSAO requirements from a job analysis can be a useful strategy for enhancing job performance. They also found that employees whose abilities matched their jobs are more satisfied. These results are consistent with the notion that job performance might lead to satisfaction (see Chapter 9). Employees who have the characteristics necessary for good performance will be more successful on the job and will be more satisfied.

Motivation and Task Performance

Motivation is an individual characteristic, but it can arise from both within the worker (e.g., personality) and environmental conditions. Organizational attempts to enhance motivation in the workforce have focused more on environmental interventions than on individual selection. In theory, one might assess motivation in job applicants and hire those with the highest levels. I-O psychologists, however, have directed most of their selection attention to the assessment of ability and skill rather than of motivation. Attempts to enhance motivation have been concerned primarily with the structure of jobs, with incentive systems, or with the design of technology, all of which are discussed in this chapter.

Personal Characteristics and Task Performance

Several employee characteristics are relevant to job performance and may affect ability to do the job. Others affect employee motivation to work hard (Tett & Burnett, 2003). In most cases, it is difficult to disentangle the effects of ability from the effects of motivation on job performance. For example, people with high levels of ability can also have high levels of motivation. As their ability leads to good performance and associated rewards, their motivation to perform may be enhanced. High-ability people might perform better because they are more skilled or because they put forth more effort—or both.

Cognitive ability (mathematical and verbal reasoning) has been found to predict job performance over a wide variety of jobs (Schmitt, Gooding, Noe, & Kirsch, 1984). In Chapters 3 and 5, we discussed how specific measures of ability are related to job performance, so ability will not be discussed again here. This chapter is concerned with the "Big Five" personality characteristics, which many researchers believe represent the basic dimensions of human personality. We also discuss how locus of control and age relate to performance.

TABLE 10-1

Description of the "Big Five" Dimensions of Personality

Dimension	Description
Extraversion	Sociable, gregarious, assertive, talkative
Emotional stability	Low levels of anxiety, depression, anger, worry, insecurity
Agreeableness	Courteous, flexible, good-natured, cooperative
Conscientiousness	Dependable, responsible, hardworking, achievement oriented
Openness to experience	Imaginative, curious, broadminded, intelligent

Source: Adapted from "The Big Five Personality Dimensions and Job Performance: A Meta-Analysis," by M. R. Barrick and M. K. Mount (1991), *Personnel Psychology, 44*, 1–26.

The "Big Five" and Task Performance. Many psychologists today believe that human personality can be described by five dimensions, called the **Big Five:** extraversion, emotional stability, agreeableness, conscientiousness, and openness to experience (Barrick & Mount, 1991). Table 10-1 presents a brief description of each dimension.

Several meta-analyses have summarized relationships between each of the five dimensions and task performance (e.g., Hurtz & Donovan, 2000; Salgado, 2003). Both meta-analysis studies concluded that personality is associated with job performance, with conscientiousness being the best predictor. Furthermore, Hurtz and Donovan (2000) discovered that certain personality dimensions are correlated more strongly with performance for some jobs than others. Although mean correlations are not large, these studies provide evidence that personality is an important factor for job performance across different kinds of jobs. However, even stronger correlations can be found by closely matching the particular personality traits to the particular job and task (Hogan & Holland, 2003; Tett, Steele, & Beauregard, 2003). For example, one might expect that emotional stability would predict performance in a job that requires the ability to handle stress, such as a police officer. Extraversion would be relevant to salespeople who must deal one-on-one with potential customers.

Locus of Control and Task Performance. *Locus of control* concerns people's beliefs about their ability to control reinforcements in their environment (see Chapter 9). Research has shown that *internals*, those who believe they can control reinforcements, have higher levels of job motivation than *externals*, those who do not believe they can control reinforcements (Ng, Sorensen, & Eby, 2006; Wang, Bowling, & Eschleman, 2010). This higher level of motivation can translate into better job performance, and studies have shown that internals perform better overall (Malik, Butt, & Choi, 2015; Mulki & Lassk, 2019). However, internals do not necessarily perform better on all aspects of the job. Blau (1993) studied how locus of control related to two different task performance dimensions of bank tellers (see the Research in Detail box). Blau noted that internals have been shown to have higher levels of work motivation, which should lead them to display more initiative on the job. Externals, on the other hand, have been shown to be more conforming and would be expected to respond better to highly structured tasks that allow for little personal initiative. This is exactly what he found. Internals performed better in developing important job skills, whereas externals performed better on the routine clerical tasks that were highly structured. Blau's study suggests that relations between personality and job performance can depend on the dimension of performance in question.

Age and Task Performance. Many people assume that job performance declines with age. The stereotype of the nonproductive older worker probably has roots in the fact that many physical abilities decline with age. For example, professional athletes almost always retire before they reach 40 years of age. Research has shown that the

Research in Detail

Most of the research on job performance has failed to consider that different aspects of performance might be influenced by different factors. Blau's (1993) study is an exception in that it looked at the relation of locus of control with three different measures of performance. Blau hypothesized that internals would do better in some areas of performance, but externals would do better in others. Specifically, internals would perform better at tasks requiring independence and initiative, and externals would perform better at tasks requiring compliance with rules and supervisory directives.

Subjects for this study were 146 bank tellers. Locus of control in the work domain and three performance measures (productivity, dollar shortages, and self-development) were assessed. Productivity was an objective measure of the volume of work processed by each teller, and it represents a highly structured part of the job. Dollar shortage was an objective measure of accuracy in accounting, which is also a highly structured part of the job. Self-development, assessed by supervisors, was the extent to which employees enhanced their skills through their own initiative and independent action.

As Blau predicted, the correlations with locus of control differed across the different performance measures. The correlations were .27, .05, and –.30 for productivity, dollar shortages, and self-development, respectively. Externals performed significantly better than internals in productivity, but internals performed significantly better in self-development. The correlation between locus of control and dollar shortages was not significant. The correlation between productivity and self-development was negative, suggesting that the employees who had the highest levels of productivity had the lowest levels of self-development.

These results suggest that different people can do well at different aspects of the same job. The tellers who were the most productive were the poorest at self-development. Perhaps this shows that individuals differed in how much time and effort they put into different aspects of the job. Externals may have focused on the day-to-day requirements for productivity. Internals, on the other hand, may have put effort into learning new tasks, perhaps with the personal objective of receiving future promotions. This study emphasizes that job performance can be quite complex. Organizations should recognize that there can be more than one way to be a productive employee.

Source: Adapted from "Testing the Relationship of Locus of Control to Different Performance Dimensions," by G. Blau (1993), *Journal of Occupational and Organizational Psychology, 66,* 125–138.

stereotype is incorrect, however. Older workers in many jobs are as productive as their younger coworkers.

Ng and Feldman (2008) conducted a meta-analysis of 280 studies relating age to task performance, as well as other performance-related variables. Rather than finding that job task performance declines with age, their study found little to no relationship. If anything, older workers perform tasks slightly better than younger workers, engage in more OCB, have fewer accidents, and are less likely to be absent from or late to work. Furthermore, Ng and Feldman (2012) found in another meta-analysis that older workers can be more motivated than younger workers. Although some abilities might decline with age, other skills, job wisdom that may lead to greater efficiency, and motivation, may increase with experience (Warr, 2001). What older workers lack in physical ability they may more than compensate for by better task strategies, better management of time, and more efficient approaches. The physical demands of the majority of jobs are well within the ability range of most older workers.

A better way to think about age and job performance is captured in the concept of **workability**, which is the ability a person has to perform his or her job. Although workability has been shown to relate somewhat with age, far more important is a person's mental and physical health (Brady et al., 2020). In most jobs older workers in good health are perfectly capable of performing their jobs.

Environmental Conditions and Task Performance

The job environment can affect task performance in many ways. The environment can have a positive or negative influence on employee motivation, leading to an increase or decrease in employee efforts. Similarly, the environment can be structured to facilitate performance by making it easier for individuals to accomplish their jobs, or it can contain constraints that interfere with performance. Research has shown that something as simple as allowing employees to listen to music can improve task performance, apparently by improving moods (Landay & Harms, 2019). In this chapter, we will look at more complex factors of job characteristics, incentive systems, technology design, and organizational constraints.

Job Characteristics and Task Performance. One of the most influential theories that relate the nature of jobs to performance is Hackman and Oldham's (1976, 1980) job characteristics theory. This theory is based on the presumption that people are motivated by the intrinsic nature of job tasks. When work is interesting and enjoyable, people will like their jobs (as discussed in Chapter 9), be highly motivated, and perform well.

Job characteristics theory is illustrated in Figure 10-2. This theory states that features of jobs induce psychological states that lead to satisfaction, motivation, and task performance. The job features, or core characteristics (described in Table 9-6), lead to three psychological states. Skill variety, task identity, and task significance lead to experienced meaningfulness of work; autonomy leads to feelings of responsibility; and feedback leads to knowledge of results. These three states are critical to the satisfaction and motivation of employees. When jobs induce them, individuals will be motivated and satisfied and will perform better.

The levels of the core characteristics determine how motivating a job is likely to be. Hackman and Oldham (1976) noted that the **Motivation Potential Score (MPS)** of a job can be calculated by combining scores on the core characteristics. Specifically, the following formula is used:

$$\text{MPS} = (\text{Skill Variety} + \text{Task Significance} + \text{Task Identity})/3 \times \text{Autonomy} \times \text{Feedback}$$

Note that the three characteristics leading to experienced meaningfulness are averaged. The average is multiplied by autonomy and feedback, which lead to experienced responsibility and knowledge of results, respectively. The multiplicative nature of the formula

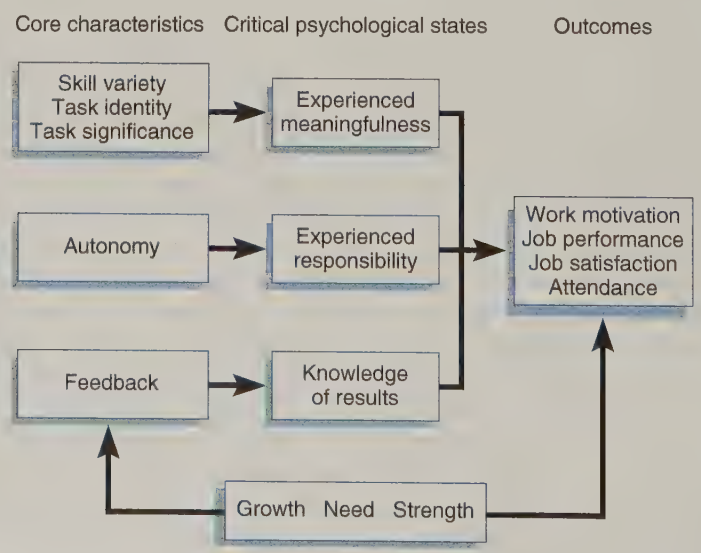


FIGURE 10-2 Hackman and Oldham's (1976) job characteristics model.
Source: Adapted from "Motivation Through the Design of Work: Test of a Theory," by J. R. Hackman and G. R. Oldham (1976), *Organizational Behavior and Human Performance, 16*, 250–279.

implies that a job cannot be motivating if it has low levels of even one of the three psychological states. If one of the three multiplied terms equals zero, the MPS will be zero.

There is one last piece of the theory: the moderator effect of growth need strength (GNS). As noted in Chapter 9, GNS is a personality variable that concerns the need for fulfillment of higher-order needs, such as achievement, autonomy, and personal growth. According to Hackman and Oldham (1976), the connection from job characteristics to psychological states to outcomes holds mainly for individuals who are high on GNS. This means that this is a person–job fit theory, in which only certain types of people will respond well to high MPS jobs. Hackman and Oldham had little to say about low GNS people and what might motivate them.

Studies that used employee self-reports as measures of the core characteristics have supported their relation with motivation and performance (Fried & Ferris, 1987), as well as the moderating effect of GNS (Loher, Noe, Moeller, & Fitzgerald, 1985). Research using other methods has been more equivocal. Although studies can be found demonstrating that changing or redesigning jobs to be higher in MPS results in better job performance, other studies show no effect from job redesign. An interesting longitudinal study by Griffin (1991) showed that the effects of job redesign are a temporary increase in job satisfaction and a delayed increase in task performance. These results suggest that the connection among job conditions, satisfaction, and performance is more complex than the job characteristics theory would lead us to expect.

Incentive Systems and Performance. A possible way of increasing task performance, at least performance quantity, is incentive systems that reward employees for each unit of work performed. Such systems are common with salespeople who receive commissions and with factory workers who are on **piece-rate systems** that pay them for each unit of production. Incentive systems work through motivation by rewarding employees for behavior beneficial to the organization. Most such systems reward task performance, although examples can be found that reward employees for other behaviors such as attendance.

Although incentive systems can increase productivity, they have not been universally successful. Yukl and Latham (1975), for example, found that a piece-rate system increased the productivity of only two of three groups with which it was implemented. In their classic study of factory workers, Coch and French (1948) documented how peer pressure within work groups could undermine the effects of a piece-rate system. They gave as an example how the productivity of one factory worker was cut in half by pressure from coworkers.

For an incentive system to be effective, three elements must be in place. First, the employees must have the ability to increase productivity. If they are working at the limit of their capability, introducing an incentive system will not improve performance. Second, employees must want the incentives. Not everyone is willing to work harder for money or other rewards. For an incentive system to work, the incentive must be something that people want. Finally, an incentive system will not work if there are physical or psychological constraints on performance. A salesperson in a store cannot sell if there are no customers. Figure 10-3 shows how the three elements combine to determine the effectiveness of an incentive system.

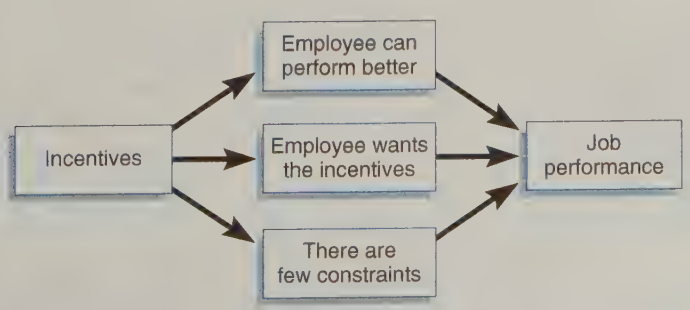


FIGURE 10-3 Incentives can lead to improved performance if employees are able to perform better, if they want the incentives, and if there are few constraints.

Design of Technology. The Hawthorne studies showed that social factors can be more important than the physical environment to job performance. There is no doubt, however, that the physical features of job settings can affect performance. The field of **human factors** (also called **ergonomics** or **engineering psychology**) is concerned with the interface between people and the physical environment, including tools, equipment, and technology. Human factors psychologists are involved in the design of the physical environment to make jobs safer and easier to accomplish. Through their work over the past century, human factors psychologists have developed sound design principles and procedures. The influence of the field can be found in the design of everything from automobiles and consumer appliances to military aircraft and nuclear power plants.

Displays and Controls. The major focus of human factors is on the interaction between people and tools, machines, or technology. Two major areas of concern are the presentation of information to the person and the manipulation of tools or machines by the person.

In an automobile, the driver must be given information about speed. He or she also must control the speed and direction of the vehicle. Human factors principles tell engineers how best to present information and design controls that maximize precision and reduce human error.

A machine can provide information to a person in many ways. The nature and use of the information determine how it should best be presented. Most machine information is provided through either the visual or the auditory channel, or sometimes both. For danger or warning signals, such as at a railway crossing, it is best to use both, such as a bell and flashing lights. It is also possible to use tactile cues as well. Cell phones can be placed on vibrate to signal an incoming call or text. The game controllers from console games such as the Microsoft Xbox and Sony Play Station will vibrate to signal that something dangerous is happening in the game, such as a character is under attack, or an explosion has occurred nearby.

With machines, information is most often provided in a visual display. Two different types of visual displays for quantitative information (airplane altitude) are shown in Figure 10-4. The upper display in the figure is a two-point style, which is like a traditional clock with the shorter and heavier hand representing altitude in thousands of feet and the longer and thinner hand representing hundreds of feet. The lower display is a digital display, which indicates the altitude by showing the numerals. Obviously, in an airplane there is a need to be able to determine altitude both quickly and accurately because errors can lead to disaster. The digital display is superior to the two-point because it is easy to mix up the two hands (Buck, 1983). For example, 2,100 feet can be misread as 1,200 feet, which could present a problem for anyone attempting to fly over a 1,500-foot-high mountain.

The manipulation of the machine by the person, often in response to information provided by a display, is accomplished through controls. The design of the best control is also determined by the particular purpose and situation. Most controls are worked with either the hand or the foot, although other possibilities can be found (e.g., the knee

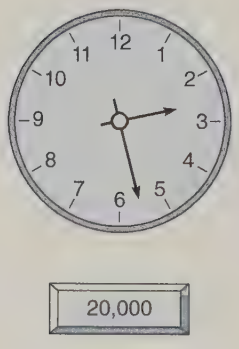


FIGURE 10-4 Types of altitude displays for an aircraft.
Source: Adapted from "Control and Tools" (p. 214), by J. R. Buck (1983), in B. H. Kantowitz and R. D. Sorkin (Eds.), *Human Factors: Understanding People-System Relationships*, New York, NY: John Wiley.

or elbow). Hand controls are best when fine or precise motions are necessary, such as for steering an automobile. Foot controls are best when force is more important than precision, such as with a brake pedal for an automobile.

There are several important design considerations pertaining to controls. First, they should be located in a logical place, with controls for the same function together. A well-designed automobile console, for example, will place the lighting controls together, the windshield wiper and washer controls together, the heater and air conditioner controls together, and so on. A control to work a front window should be in front of a control to work a back window, and a control to work a feature on the right side of the car should be to the right of a control to work the same feature on the left side.

Second, vital controls that can produce important consequences should be recognizable by touch. This is not important for the volume control on a car radio, but it is vital for the landing gear on an airplane. Figure 10-5 illustrates several different knobs for stick-type levers, such as the shift lever of an automobile. Each of these can be discriminated by touch alone. Knobs such as these are used in airplanes.

Third, controls should provide appropriate feedback so that the person knows that the function has been accomplished (Wickens, Lee, Liu, & Becker, 2004). With an on/off switch, the person might hear a click and feel a tactile sensation indicating that the switch has been activated or deactivated. Some switches use springs so that the person can feel the lever lock into place. Finally, the directions in which controls are moved should logically match the directions in which the machine will move. For example, an increase in some factor should involve moving a switch either clockwise, up, or to the right as opposed to counterclockwise, down, or to the left. This is the general rule followed with most equipment with volume controls, such as radios and televisions. Levers to move a device to the right should move clockwise or to the right, as in most vehicles.

Human-Technology Interaction. These principles of displays and controls have been available for many years, so there is not much need to conduct research on them today. Instead, human-factors psychologists have turned their attention to more complex aspects of human-technology interaction. *Human-technology interaction* is the interplay of people with computers and other electronic technologies that have led to tremendous changes



FIGURE 10-5 Examples of shift knobs that can be discriminated by touch alone.
Source: From *Human Factors: Understanding People-System Relationships* (p. 311), edited by B. H. Kantowitz and R. D. Sorkin (1983), New York, NY: John Wiley.

in the workplace for both blue- and white-collar work. Automation and computerization have changed the nature of many jobs, so that individuals must use technology-based systems to accomplish a growing number of tasks. Web-based systems are rapidly replacing physical paper and pencil systems for many written tasks, such as paying bills.

A major issue for human-technology interaction is communication between human and machine. That is, how best should computers and other electronic devices provide information to people, and how best can people tell devices what they wish done? In order for people to communicate effectively with electronic devices, they must develop a conceptual understanding or **mental model** of how the system operates (Wickens et al., 2004). A person who knows how to drive an automobile, for example, has a mental model of how the operation of the controls results in the appropriate movement of the vehicle. That sort of mental model will enhance a person's ability to use any kind of electronic device such as a cell phone or laptop.

Frese (1987) noted that efficient use of computers by people can arise by focusing on two essential elements: training people and appropriate system design. Training is necessary because in many jobs people are hired without all the necessary skills for the computer system they must use. Even when people do have the necessary skills, computer systems and software are constantly changing, requiring a continued training effort to maintain proficiency. Research on computer training has suggested ways in which it can enhance performance. Augustine and Coovert (1991), for example, have shown that the use of animated models can be quite effective in enhancing performance of computer tasks. Animated models show the computer system in action rather than giving a written description or instructions. YouTube videos are available to show how to use many computer applications both on and off the job.

Attention to system design is essential because many existing systems are poorly designed and inefficient. Research on human-technology interaction has provided many insights about how best to design systems that people can learn and use efficiently. Coovert (1990) argued that the best systems represent problems in a way that matches how people who use them represent problems. Systems that require people to adopt new ways of looking at familiar problems are difficult to learn.

Although this was not always the case, today's electronic devices, such as smart phones, are designed with the user in mind. Information is displayed on a touch screen that makes it easy to interact with the device. Icons (small pictures on the screen) and gadgets (icons that display information that is continually updated) are used that represent the functions you wish to use. For example, on an Android phone if you touch the icon that looks like a telephone handset, it brings up the dial screen. Touch the icon of a person, and it takes you to your personal phone book. Icons at the top of the screen provide important information, such as a picture of a battery that shows how much battery power is left, and a picture of an antenna to indicate signal strength. The use of icons that are easy to learn and intuitively obvious makes it possible to use a complex smart phone that is a handheld computer, without extensive computer training.

So far, we have discussed the interaction of individual people with technology, but technology can also be used to facilitate collaboration among employees working together. **Computer-supported cooperative work** or CSCW is the study of how technology can be used to help people work together on tasks (Coovert & Thompson, 2001). Computer-based technologies allow people in remote locations to send almost instantaneous messages (e-mail or texting) or to see and hear one another (videoconferencing). People can work in virtual teams that meet only electronically. Research on the effects and effectiveness of such technologies compared to live communication is new, but already we know there are differences. For example, people working together via e-mail, compared to live interaction, are less inhibited (are more likely to make hostile comments and insult one another), are less likely to conform to one another's opinions, have more trouble reaching decisions, and have more trouble coordinating their efforts (Coovert & Thompson, 2001). Some of the extra hostility and rudeness can be unintentional, as people are not always aware of how their words might come across in electronic form (Howard & Spector, 2020). Research needs to be done in this area to figure out how to overcome these

problems, either by better design of the technology or by better training of people to be more effective users of CSCW.

The principles of human factors can be used to design tools and equipment so that people can perform their tasks more easily and efficiently. Whether or not this translates into better overall task performance depends on many other factors. If employees are not motivated to perform well, making their job tasks easier through better equipment design might mean that they do the same work with less effort. Furthermore, constraints in the work environment, which we discuss later, may prevent better performance, even though certain tasks might be accomplished more efficiently.

From a human factors perspective, the goal is to design technology that will be helpful to people. However, technology can come with a price, and not all effects are positive. The introduction of computers in manufacturing has changed jobs but not always for the better. Although new factory systems might be more efficient, they can increase employee boredom and stress (Wall & Davids, 1992). Often the person who used to be an active participant on the assembly line is relegated to passively watching a machine operate on its own. The loss of control over tasks to the machine can be associated with job dissatisfaction and poor emotional well-being (Mullarkey, Jackson, Wall, Wilson, & Grey-Taylor, 1997).

Creativity and Innovation

Creativity and innovation have to do with the introduction of new ideas, such as practices or products into organizations, and can be the lifeblood of organizational survival. It has been estimated that about two-thirds of private companies take innovation so seriously that they have created the position of Chief Innovation Officer as one of the top positions in their organizations (Forbes Coaches Council, 2017). To remain competitive and effective in a rapidly changing world, organizations need their employees to be creative and innovative in doing their jobs.

Creativity refers to the invention of something new, and **innovation** is the introduction of a new way of doing things into an organization whether it was invented for that purpose (creativity) or borrowed from somewhere else (Acar, Tarakci, & van Knippenberg, 2019). Thus, creativity has to do with merely coming up with something new even if no one ever makes use of it, whereas innovation has to do with the application of something that is new to the particular organization.

For employees to perform well at creativity and innovation, several factors need to be in place. First, employees need the proper KSAs to be successful in these areas (Marshall, Davis, Dibrell, & Ammeter, 2019). This means learning how to come up with ideas and how to experiment with them to figure out what does and does not work. Second, creativity is often driven by curiosity and learning of new things, which can be encouraged by supervisors (Chang & Shih, 2019). Third, supervisors need to encourage employees to explore ideas, which can mean a blurring of the lines between work and nonwork. Often creative ideas come from people who spend time thinking about problems and the best ways to solve them (Vahle-Hinz, Mauno, de Bloom, & Kinnunen, 2017).

Organizational Constraints

Organizational constraints are aspects of the work environment that interfere with or prevent good task performance. They can arise from any aspect of the job, including the physical environment; supervisory practices; and the lack of needed training, tools, equipment, or time. Peters and O'Connor (1980) outlined eight different areas of constraints, which they derived from critical incidents. They asked 62 employed people to describe an incident in which something at work interfered with their job performance. From an analysis of the incidents, they came up with the constraint areas. Each is shown in Table 10-2, along with a brief description.

TABLE 10-2

Eight Organizational Constraint Areas

Job-related information: For example, data and information needed for the job.
Tools and equipment: Tools, equipment, instruments, and machinery necessary for the job, such as computers or trucks.
Materials and supplies: Materials and supplies necessary for the job, such as lumber or paper.
Budgetary support: Money necessary to acquire resources to do the job.
Required services and help from others: Help available from other people.
Task preparation: Whether or not the employee has the KSAOs necessary for the job.
Time availability: The amount of time available for doing job tasks.
Work environment: The physical features of the job environment, such as buildings or weather.

Source: Adapted from "Situational Constraints and Work Outcomes: The Influences of a Frequently Overlooked Construct," by L. H. Peters and E. J. O'Connor (1980), *Academy of Management Review, 5,* 391–397.

According to Hochwarter, Witt, Treadway, and Ferris (2006), organizational constraints have a detrimental effect on job performance, preventing employees from adequately using their skills to perform job tasks. H. J. Klein and Kim (1998) found that salespeople's reports of constraints were correlated with their objective sales performance. Individuals who scored highest on constraints sold the least amount. Tesluk and Mathieu (1999) reported similar findings for the performance of road maintenance and construction crews. Higher levels of constraints led to lower levels of performance for crews as rated by managers. It should be kept in mind that performance is not the only potential outcome of excessive organizational constraints. In their meta-analysis, Pindek and Spector (2016) found that organizational constraints were associated with absenteeism, burnout, counterproductive work behavior (to be discussed later in this chapter), frustration at work, job dissatisfaction, and stress among other things. By interfering with job performance, constraints at work can be stressful, a topic we return to in Chapter 11.

Organizational Citizenship Behavior (OCB)

Organizational citizenship behavior (OCB) is behavior that goes beyond the core task requirements of the job (tasks listed in a job description) and is typically beneficial to the organization. OCB is usually assessed by having supervisors rate their subordinates on OCB behaviors. Sample items from C, Smith, Organ, and Near's (1983) popular OCB scale are shown in Table 10-3. Note that although some of these items fit the definition of going beyond requirements (e.g., making suggestions), others do not (e.g., being punctual).

Organ and Konovsky (1989) divided OCB into two categories of behaviors: those that are specifically required and those that are not. *Altruism* is helping another employee or supervisor with a problem, even though it is not required. It might involve helping a coworker who has been absent or making suggestions to improve conditions. *Compliance*

TABLE 10-3

Four Items From the Organizational Citizenship Behavior Scale

Assists supervisor with his or her work
Makes innovative suggestions to improve department
Is punctual
Gives advance notice if unable to come to work

Source: Adapted from "Cognitive Versus Affective Determinants of Organizational Citizenship Behavior," by D. W. Organ and M. Konovsky (1989), *Journal of Applied Psychology, 74,* 157–164.

is doing what needs to be done and following rules, such as coming to work on time and not wasting time.

OCB can be an important aspect of an employee's behavior that contributes to overall organizational effectiveness. Individuals who are high on OCB are not necessarily the best performers in other areas, however. MacKenzie, Podsakoff, and Fetter (1991) assessed OCB and objective sales performance of salespeople. They found little relation between the two types of behavior. Employees who had the best sales records were no different in terms of their OCB from those who had the poorest records. In some cases, salespeople who performed poorly in sales may have made significant contributions to the organization through their OCB. P. M. Podsakoff, Ahearne, and MacKenzie (1997) studied 40 work crews in a paper mill, assessing the OCBs of individual members in relation to the crew's overall performance rather than individual employee performance. Results showed that higher levels of OCB among crew members are associated with higher total crew productivity and fewer defects. Likewise, N. P. Podsakoff, Whiting, Podsakoff, and Blume's (2009) meta-analysis showed that high levels of OCB among people in work groups is associated with organization profitability and customer satisfaction.

Several factors have been suggested as antecedents of OCB. A meta-analysis of OCB studies by Hoffman, Blair, Meriac, and Woehr (2007) suggested that OCB is most likely when employees are satisfied with their jobs, have high levels of affective commitment, feel they are treated fairly, and have good relations with their supervisors. OCB is also more likely to occur when employees are in a good mood (Yang, Simon, Wang, & Zheng, 2016). On the other hand, Eatough, Chang, Miloslavic, and Johnson (2011) found that high levels of stress at work inhibited OCB, and this might be at least in part because stress tends to put people in a bad mood. There are also personality characteristics that relate to OCB, with agreeableness and conscientiousness from the Big Five (Chiaburu, Oh, Berry, Li, & Gardner, 2011), and positive affectivity (Kaplan, Bradley, Luchman, & Haynes, 2009), being the best predictors. In addition, OCB may be contagious—people who work in groups where people tend to perform OCB are likely to perform it themselves (Bommer, Miles, & Grover, 2003). Some of these results, found initially in North America, have been shown to hold in a variety of countries. Farh, Podsakoff, and Organ (1990) found that OCB correlated with job satisfaction and employee perceptions of supervisor supportive behavior in Taiwan. Munene (1995) found OCB related to job satisfaction and organizational commitment in Nigeria.

McNeely and Meglino (1994) divided OCB into acts that help other employees (OCBI) and acts that benefit the organization (OCBO). They found that different types of OCB are related to different variables; for example, OCBI correlates with the individual's concern for others, whereas OCBO correlates with employees' perceived equity, and both correlate with job satisfaction. Similarly, organizational commitment has been linked to both types of OCB, with it being more strongly related to OCBO than OCBI in the United States (Lavelle et al., 2009) and Turkey (Wasti, 2005). However, OCB is related to affective and not continuance commitment (Johnson & Chang, 2006). Furthermore, K. Lee and Allen (2002) reported that both OCBI and OCBO relate to positive mood at work, but only OCBO relates to procedural justice. The results of all these studies suggest that the two types of OCB have different combinations of potential antecedents, with some shared and some unique.

Although OCB is often thought of as altruistic acts that individuals do for selfless reasons, in at least some instances, OCB can be a strategy for getting ahead at work. Hui, Lam, and Law (2000), in a study conducted in a multinational bank among tellers, assessed levels of OCB in employees before and after receiving a promotion. In addition, before promotion employees were asked if they believed engaging in OCB would improve chances of promotion. For those who thought it would, OCB levels were high before promotion and declined after promotion, suggesting these employees increased their OCB as a tactic for obtaining a desired promotion but then reduced their OCB once their goal had been achieved.

Counterproductive Work Behavior: Withdrawal

On any given day in almost any large organization, some people will come to work late (lateness), some people will miss the entire workday (absence), and some people will quit the job permanently (turnover). These *withdrawal* behaviors involve employees not being at work when scheduled or needed, either temporarily (absence and lateness) or permanently (turnover). Most of the research on withdrawal behaviors has considered them to be related phenomena, and models of withdrawal consider each form a response to job dissatisfaction. Indeed research shows that absence relates to both lateness and turnover (Rubenstein, Eberly, Lee, & Mitchell, 2018), although lateness and turnover are not related to one another (Berry, Lelchook, & Clark, 2012). One reason turnover related to absence and lateness is that once a person decides to quit a job, he or she might take time off for job search activities (e.g., interviews with other employers), and he or she might be sure to use up sick leave that will be lost upon leaving the job.

Absence

Absence, employees not showing up for work when scheduled, can be a major problem for organizations. Many jobs require someone's presence even when the scheduled person is not there. In such cases, absence requires that organizations either overstaff so that enough people will be available each day or have substitutes on call. Whereas the idea of substitutes for teachers is undoubtedly familiar to everyone, many organizations, especially factories, have substitutes available for other types of work, as well. Often the on-call substitutes are regular employees who may be asked to work an extra shift to fill in, frequently at higher overtime salary rates.

The major approach to understanding why absence occurs has focused on withdrawal as a response to dissatisfying jobs and job conditions. Absence and job satisfaction are related, but research has found quite small correlations between them. As noted in Chapter 9, Bowling and Hammond's (2008) meta-analysis found a −.10 correlation between absence and job satisfaction. Farrell and Stamm (1988) conducted a meta-analysis of 72 absence studies and noted that the two best predictors are prior absence history and the organization's absence policy rather than job satisfaction. People who have frequently been absent in the past are likely to be absent in the future. Organizations that have policies designed to control absence by either rewarding attendance or punishing absence have less absence.

Although it seems obvious that absence might arise from an employee being ill or being unmotivated to go to work, family responsibilities can be another major factor. Goff, Mount, and Jamison (1990) found that having primary responsibility for child care predicted absence with a correlation considerably higher than that typically found with job satisfaction. Erickson, Nichols, and Ritter (2000) found that absence was associated with the number of children under six years old. In a study conducted in Finland, absence rates were highest for young women who were of childbearing age (Elovainio, Kivimaki, Vahtera, Virtanen, & Keltikangas-Jarvinen, 2003). Taken together, these studies support the idea that absence can be caused by having to take care of children, a form of work–family conflict (see Chapter 11), whether or not the employee likes his or her job.

Dalton and Mesch (1991) asked subjects to classify their absence into one of two categories: due to illness or due to other circumstances. They found that the two types of absence had different correlates. Absence due to illness, but not due to other circumstances, was related to job satisfaction and gender. The dissatisfied and women were ill more frequently. Absence due to other circumstances was related to job tenure and absence policy. Organizations with longer-tenured employees and less-restrictive policies had more absence. These results suggest that the different types of absences have different causes that might be reduced with different approaches.

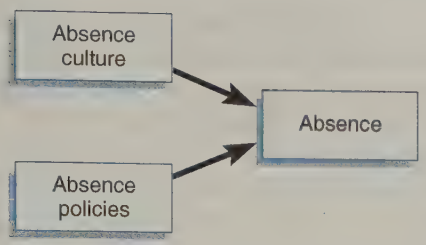


FIGURE 10-6 Both the absence culture of the work group and organizational absence policies contribute to employee absence.

Nicholson and Johns (1985) have taken a different approach to the explanation of absence. They noted that absence can be caused by the absence culture of a work group or organization. That is, in any work group or organization there will be accepted social rules governing the appropriate amount of and reasons for absence. One organization might have a culture that encourages absence whenever an employee does not feel like coming to work. Another might encourage employees to come to work unless it is impossible for them to do so. In support of this idea, Biron and Bamberger (2012) showed that norms for absence, whether coworkers feel absence is acceptable or not, predicted absence, especially when there were unpleasant working conditions such as heat or noise. When conditions were aversive, employees working in groups that found absence acceptable were more likely to be absent.

Figure 10-6 illustrates that absence culture and absence policies are the two biggest factors in absence. Although job satisfaction has been the focus of most absence research, it seems that its potential effects are overshadowed by culture and policies. A dissatisfied individual who might want to escape work by calling in sick is not likely to do so if absence is punished or is viewed by coworkers as unacceptable. Organizations can reduce absence by changing policies to encourage attendance and discourage absence. A simple procedure found in one study was merely to mail each employee a letter indicating the number of days he or she had been absent (Gaudine & Saks, 2001). Just knowing that management was concerned about absence was enough to convince employees to reduce it.

So far, we have discussed the negative effects of absence on organizations, and how organizations can take steps to reduce it. Those steps, however, can have the unintended consequence of encouraging people to engage in **presenteeism**—coming to work when ill (Collins, Cartwright, & Cowlishaw, 2018). Working while ill risks accidents, performance errors, and spreading disease, which can be a problem for employees, anyone who comes in contact with employees, and the organization itself (Lohaus & Habermann, 2019). Organizations need to balance the need to discourage unnecessary absenteeism with the need to support employees who become ill through sensible policies. The COVID pandemic has made very clear why it is not a good idea for people to come to work when ill.

Cyberloafing

Technology has provided a new means for people to avoid work. **Cyberloafing** occurs when an employee spends working time using electronic devices such as cell phones, computers, or tablets to engage in leisure or personal activities at work. It has become one of the major ways in which employees waste time while on the job, so there is a concern that it can hurt productivity (Askew et al., 2014). Although it makes sense that cyberloafing reduces work time and thus should lower productivity, but a meta-analysis found that cyberloafing was unrelated to job performance (Mercado Brittany, Giordano, & Dilchert, 2017). How could it be that people who spend time cyberloafing do not perform worse than people who do not? To understand that, we should look more carefully at people's use of cyberloafing.

People might cyberloaf for a variety of reasons. In some cases, it might be a form of CWB where the individual is purposely avoiding work. In other cases, however, employees might use cyberloafing as a form of microbreak that can help them detach from work for a few minutes (Liu, Ji, & Dust, 2020). They might do this in order to cope with the stress of work (Andel, Kessler, Pindek, Kleinman, & Spector, 2019) or to cope with boredom (Pindek, Krajcevska, & Spector, 2018). A few minutes engaged in cyberloafing can leave a person feeling refreshed and better able to focus on job tasks. So whatever work time is lost in cyberloafing might be gained in greater efficiency. Of course, this assumes that the microbreaks are occasional and short in duration so the employee is not neglecting the job.

Lateness

For many jobs, employees are on fixed work schedules, but often employees will fail to get to work on time. Some employees might be able to make up the time by skipping breaks, taking a short lunch, or staying late. However, often employees fail to make up the time, or the time cannot be made up; for example, if a professor is late for class, the time will not be rescheduled. Lateness produces costs for organizations that call in substitutes and can put an unfair burden on coworkers who might have to take up the slack.

Lateness, like absence, can have many causes. Koslowsky (2000) noted that although attitudes, such as job dissatisfaction, have been linked to lateness, other important causes are commuting distance and ease, and work–family conflict, which we discuss in Chapter 11. People who have long commutes can get stuck in traffic. Individuals with children might be late because a child is sick and must be taken to the doctor. Another important factor is national culture. Promptness is considered more important in some countries than in others; for example, Americans value it more than Brazilians do. Organizations also have their own lateness cultures, just as they have absence cultures (Elicker, Foust, O'Malley, & Levy, 2008).

Foust, Elicker, and Levy (2006) argued that attitudes about lateness itself are more important determinants of lateness behavior than other, more general job attitudes. They developed a lateness attitude scale that asked about both one's own behavior (feeling guilty for being late) and coworkers' behavior (being let down when coworkers are late). They administered their new scale as part of a survey of employees. It was a better predictor of lateness than was either job satisfaction or organizational commitment. Finally, Iverson and Deery (2001) investigated both lateness and leaving early from work, which they found were related. Coming late and leaving early were associated with perceptions of injustice (see Chapter 8) and job dissatisfaction.

Turnover

In every organization, employees will quit their jobs from time to time. The quitting of employees is called **turnover**. The percentage of the workforce that quits is called the *turnover rate*, and many organizations will track their rates on an annual basis. When the rate becomes excessive, the organization's workforce can become too inexperienced and untrained, resulting in inefficiency and difficulties in achieving the organization's objectives, and recruitment costs to replace quitters can be significant. Thus it is not surprising that organizations with high turnover rates perform more poorly than organizations with low rates (Hancock, Allen, & Soelberg, 2017).

Not all turnover is detrimental to organizations, as the effects are determined by who quits. Turnover is a problem if good performers quit but not if the quitters are people who perform poorly. Becton, Carr, Mossholder, and Walker (2017) studied the relation between task performance and turnover, finding that the most likely quitters were both high and low performers. Turnover can have beneficial results when poor performers leave, assuming replacements will be better, but often conditions that lead the poor performers to quit also lead good performers to quit.

High performers are likely to quit because they feel their performance is not sufficiently rewarded, and they are able to find better opportunities outside of the organization. Poor performers will quit for several reasons. When pay and other rewards are contingent on performance, they may quit because rewards are low (Williams, 1999). Furthermore, if they know they are not doing well on the job, they may attempt to find jobs for which they are better suited. Alternatively, it is not uncommon for supervisors to "encourage" turnover by targeting individuals for harassment. Poor performers might be denied rewards, given distasteful work assignments, and treated unkindly to get them to quit. Unfortunately, taking actions to encourage turnover can have serious side effects by affecting employees who are not the intended targets. The harassment of one employee can create a hostile and uncomfortable work environment for everyone. Legal ramifications are also possible, for harassed employees might file lawsuits. If the supervisor and target of harassment are of a different gender or from different ethnic backgrounds, a discrimination case might be filed. Finally, harassment is an unethical behavior, and even poorly performing employees should be dealt with in a fair and honest manner.

For many jobs, the replacement costs for recruiting, hiring, and training can be quite high. Hiring top-level executives can take months of searching for applicants, conducting extensive and expensive out-of-town interviews, and offering expensive bonuses and benefits. For other jobs, a long period of training might be required before an employee is able to be fully productive. In the armed services, it can take more than a year to fully train a fighter pilot. If there is a high level of pilot turnover, the cost to the government will be great.

Job satisfaction has been a central variable in the research on turnover as it has consistently been shown to predict it (Li, McCauley, & Shaffer, 2017). Figure 10-7 illustrates how the turnover process is thought to work. It shows that job satisfaction leads to intention to quit, which leads to turnover. Furthermore, the relation between intention to quit and turnover is moderated by the unemployment rate. People who are dissatisfied with their jobs are likely to intend to quit them. Intentions are often precursors to behavior that leads to quitting. It is unlikely, however, that people will quit their jobs unless they have another job available. As shown in the model, the unemployment rate, which reflects the availability of alternative employment, affects whether dissatisfaction and intentions are translated into turnover.

There is good support for the propositions in this model. First, job satisfaction and intention of quitting correlate with one another (Bowling & Hammond, 2008), which is consistent with the idea that satisfaction leads to intention. Second, Swider, Boswell, and Zimmerman (2011) found that job satisfaction related to job search, and that job search was related to turnover. Third, Jiang, Liu, McKay, Lee, and Mitchell (2012) found in their meta-analysis that both job satisfaction and intention to quit predict future turnover. The predictive nature of turnover studies supports the idea that job satisfaction, job search, and intention are precursors of turnover. Finally, studies have shown that the unemployment rate moderates the relations between job satisfaction and turnover and between intention and turnover (e.g., Trevor, 2001). These studies show that when the unemployment rate is low and alternative job opportunities are plentiful, there is a strong relation of satisfaction and intention with turnover. When

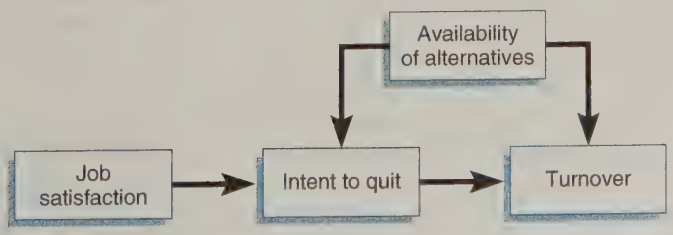


FIGURE 10-7 Employee turnover as a function of job satisfaction and unemployment rate.

the unemployment rate is high and alternative job opportunities are scarce, however, there is little predictability of turnover by intention and job satisfaction. In other words, dissatisfied people may wish to quit their jobs, but they can do so only when alternative employment is available.

Dickter, Roznowski, and Harrison (1996) tracked the quitting of individuals who either liked or disliked their jobs over several years. For both groups, likelihood of turnover increased from the time of hiring until about 2 years on the job, after which it declined. Dissatisfied individuals were more likely to quit than their satisfied counterparts until about 4 years on the job. After 4 years, differences disappeared. Apparently, the effects of job satisfaction on turnover are time limited, as perhaps those who dislike their jobs and wish to quit eventually give up and make the best of the situation.

Although many employees quit their jobs because they are unhappy with them, there are other reasons for turnover (Maertz & Griffeth, 2004).

- A person might quit for health reasons. Heart attack survivors will often make drastic changes in their lifestyles, which can include quitting their jobs.
- A person might become disabled on a job due to an accident that prevents him or her from continuing to perform essential tasks on the job. As noted in Chapter 11, motor vehicle accidents are a common source of serious injury on the job.
- People will sometimes quit jobs they like to pursue other life interests. These might include continuing their education or training for athletic pursuits such as the Olympics.
- People might quit because of family reasons, such as pregnancy (H. Lee, Wilbur, Kim, & Miller, 2008).
- People might quit because their spouse has been offered a better job in another location.

Some of these reasons go beyond the workplace, but organizations can do a great deal to address other of these causes of turnover. An organization can create a safer work environment to reduce injuries and can encourage healthy behavior to reduce illness. Many organizations have instituted employee wellness programs, which can include exercise programs, smoking and weight control classes, and stress management workshops. Organizational policies and practices can help employees pursue other interests while continuing to work. For example, on-site childcare and flexible work schedules can make it easier for employees with young children to continue their jobs. With on-site childcare programs, childcare is provided at the place of employment so that employees can take their children to work and spend breaks and lunch periods with them. Having their children nearby can provide peace of mind that makes it easier for employees to focus attention on work. Flexible work schedules that allow employees to work at times that do not interfere with other interests can keep some employees from quitting their jobs.

Counterproductive Work Behavior: Aggression, Mistreatment, Sabotage, and Theft

As we discussed in the opening of this chapter, instances of irate employees shooting their coworkers and often themselves have brought national attention to the issue of employee aggression. Although these relatively rare (Neuman & Baron, 1997), but extreme, examples fall more within the domain of clinical psychology or criminology, the issue of less extreme employee behavior that is damaging to organizations is an important one for the I-O field. **Counterproductive work behavior** or CWB refers to behaviors that harm the organization and other people at work, such as coworkers, supervisors, and customers. CWB can consist of engaging in physical and verbal aggression, directing hostile and nasty behavior at a coworker, destroying organizational property, purposely doing work incorrectly, stealing, and withholding task performance.

Sabotage and theft have been recognized as major problems for organizations. Sabotage, the destruction of property or intentional withholding of performance, results in both direct costs from the damage to property and indirect costs from the loss of productivity while property needed for work is being repaired. Although many acts of sabotage are blatant, such as burning down a building, most are surreptitious and difficult to prove. It is often impossible to determine if an equipment-damaging accident was accidental. For example, an employee might purposely ignore warning signals on a piece of equipment, such as the indicator light that a truck is low on oil or water. In some cases, employees might remove the oil or water, knowing that it will damage the equipment. If the employee is careful, it will be difficult to prove that he or she purposely sabotaged the equipment.

Employee theft has been estimated to cost U.S. businesses billions of dollars per year (Greenberg, 2002). In a national survey of retailers, employees were found to be responsible for more theft than shoplifters (Hollinger et al., 1996). Organizations spend considerable money and resources to control theft. Many organizations have tried to weed out potential thieves with the use of paper-and-pencil integrity tests to assess honesty (see Chapter 5). Others have resorted to lie detector tests, either for job applicants or for current employees.

Bennett and Robinson (2000) conducted an anonymous mail survey of Toledo, Ohio residents chosen at random from the telephone book. They asked about a long list of CWBs that went well beyond just sabotage and theft and found that many were quite common. For example, a quarter of people admitted to falsifying a receipt to get reimbursed for money they didn't spend, a third of people said they played a mean prank on someone at work, 52% of people said they took property from work without permission, 61% neglected to follow instructions, and 78% made fun of someone at work.

Figure 10-8 is a model of the causes of CWB. It begins with stressful job conditions, such as organizational constraints (as discussed earlier in this chapter), or injustice. Stressful conditions and injustice induce negative emotions, such as anger or fear. These feelings in turn lead to behaviors that can be constructive, such as developing more effective strategies to overcome the conditions or injustice, or destructive, such as CWB. Beliefs about control determine in part whether individuals choose constructive or destructive responses. An employee who believes that constructive efforts can be effective is likely to attempt them. An employee who believes that he or she cannot control the situation might resort to CWB as a means of coping with the negative emotion.

The illegal nature of many counterproductive behaviors has made research difficult to conduct with other than anonymous surveys. Support for the model presented earlier comes mainly from questionnaire studies that ask employees to report about their jobs and reactions. These studies have shown that employee reports of stressful job conditions and injustice relate to CWB (M. Hershcovis et al., 2007). Furthermore, CWB can also be a reaction to receiving uncivil and unkind treatment from others (Mao, Chang, Johnson, & Sun, 2019). In a longitudinal study, however, Meier and Spector (2013) showed that not only did stressful job conditions and poor treatment lead to CWB over time, but engaging in CWB also led to future stressful job conditions and poor treatment. This idea is further discussed in Blog 10-2.

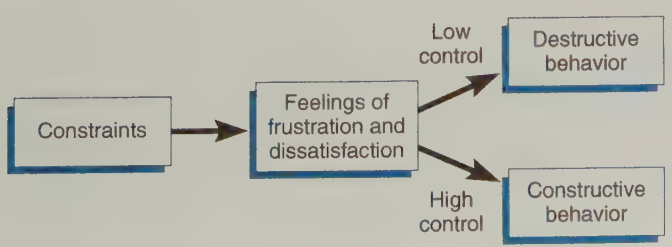


FIGURE 10-8 A model of the causes of counterproductive work behavior, or CWB.

BLOG 10-2 Bad Behavior Toward Customers

https://paulspector.com/bad-behavior-toward-customers

Discussion Questions

1. Why do some servers act rudely to customers?
2. What is the impact on an organization of having a rude customer service worker?
3. How would you explain the results of the Arvan study on the connection between rude customers and rude customer service employees?
4. If you were a manager, how would you handle an employee who was rude to a customer?

In addition to workplace factors, CWB has been shown to relate to personality, such as agreeableness and conscientiousness from the Big Five (Berry, Carpenter, & Barratt, 2012; Iliescu, Ispas, Sulea, & Ilie, 2015), with individuals low on these characteristics being more likely to engage in CWB. Perhaps the best personality predictor of CWB is trait anger, which is the tendency to experience anger even from minor provocations (Spielberger, 1996). Not surprisingly, individuals who are high on trait anger are more likely to engage in CWB (M. S. Hershcovis et al., 2007). However, it is not just the tendency to experience anger that relates to CWB but the tendency to experience other negative emotions as well. Individuals who are high on the trait of negative affectivity (see Chapter 9) are more likely to engage in CWB (Penney & Spector, 2005). The correct (or perhaps it is best to say incorrect) combination of individual personality and workplace factors will maximize the likelihood than an employee will engage in CWB.

Unfortunately, almost all studies of CWB have been conducted in North America, so little is known about CWB in countries that are culturally dissimilar to Canada and the United States. Exceptions are studies of CWB and stress conducted in China (Ju, Xu, Qin, & Spector, 2019) and Turkey (Bayram, Gursakal, & Bilgel, 2009) that showed relationships similar to those in North America.

Chapter Summary

The productive and counterproductive behavior of employees at work is a vital area of concern to the I-O field. Three areas of performance are task performance, organizational citizenship behavior (OCB), and counterproductive work behavior (CWB).

Task performance is a central variable for the I-O field. Much of the research and practice of I-O psychologists is concerned with understanding, assessing, or enhancing task performance. Performance results from the interplay of ability and motivation. Both environmental and personal factors are important influences. Personality characteristics, such as the Big Five and locus of control, have been shown to relate to performance. Job characteristics, incentive systems, and technology are important environmental influences.

One of the major objectives of the human factors field is to enhance task performance through the design of tools and equipment. Although the Hawthorne studies suggested that the social environment could be more important than the physical, the physical environment can still influence task performance. Physical aspects, such as how controls are designed and information is presented, have important influences on performance.

Creativity and innovation are vital to continued organizational success. Employees need to develop appropriate skills in these areas and need the encouragement of supervisors to apply them at work.

Organizational constraints are features of the work environment that interfere with good task performance. Such conditions can lead to lower job satisfaction and employee turnover.

Organizational citizenship behavior (OCB) is behavior that goes beyond the core task requirements of the job and is beneficial to the organization. It involves both altruistic behavior (helping others) and compliance behavior (following rules). OCB is important because it can contribute to organizational well-being. Both job satisfaction and supportive supervisory behavior are correlated with how much employees engage in OCB.

Withdrawal behavior—absence, lateness, and turnover—are forms of CWB that can create problems for organizations. Most of the research on these variables has considered them to be reactions to job dissatisfaction. This seems to be true more for turnover, at least during times of plentiful jobs, than for absence and lateness, which correlate only slightly with job satisfaction. Furthermore, withdrawal can arise from many causes, with only some related to job attitudes.

More serious forms of CWB (e.g., aggression at work, hostility toward others, sabotage, and theft) can produce tremendous costs to organizations. The research conducted on these behaviors suggests that they can be reactions to stressful job conditions and injustice that produce negative emotions. Furthermore, employees who believe they have little control at work are more likely to engage in destructive behavior. Personality characteristics of agreeableness, conscientiousness, and trait anger have been linked to CWB.

I-O Psychology in Practice

This case concerns a turnover project carried out by Dr. Jeanne M. Carsten. Dr. Carsten received her Ph.D. in I-O psychology in 1987 from the University of South Florida. Since then, she has been employed by JP Morgan Chase in New York City, one of the largest financial institutions in the world. Her current job title is Manager of Strategic Planning and Implementation. In her work for the company, she has covered many areas of I-O, including attitude surveys, employee development, selection, and training. One of her major functions is to carry out projects designed to address specific organizational problems.

The first major project she was assigned when she was newly hired was to find a solution to an excessive turnover rate among bank tellers. Although high turnover is normal and expected with these employees, the management of the bank believed that its rate had become excessive. Dr. Carsten was charged with finding out why and suggesting solutions.

The first phase of this project was to collect information. Interviews were conducted with tellers and their supervisors to find out why they were quitting. Tellers were asked about problems they encountered on the job. In addition, a **salary survey** was conducted to see if other banks were paying their tellers more, which they were.

The second phase was to prepare and present an action plan to the management of the bank. There were 12 recommendations, including raising salaries, training teller supervisors to provide better assistance to their subordinates, clarifying job performance standards, and offering additional teller training.

During the final phase of the project, almost all of the recommendations were implemented. Afterward, the turnover rate declined by almost 50%. Without a control group, one cannot be certain what caused improvement in the turnover rate. During the course of the project, the national unemployment rate increased, which would have reduced turnover. Dr. Carsten points out that the turnover rate became lower than that at other banks, however, lending support to the idea that the changes were effective. Furthermore, many of the changes, such as improving supervisory practices and clarifying performance standards, may have been of benefit for reasons other than turnover reduction. This case illustrates how an I-O psychologist who works for an organization can help improve working conditions for employees.

Discussion Questions

1. Why do you think the bank tellers quit their jobs?
2. What factors would encourage you to stay on a job that you did not like?
3. Do you think that Dr. Carsten's interventions did anything else besides reduce turnover?
4. Do you think that employees at this bank might have engaged in other forms of withdrawal behavior?

Learning by Doing

Human Factors Design of Automobiles

Inspect an automobile for examples of human factors that have been incorporated into the design. Make a list of features involving displays (e.g., instrument panel) and controls. How many examples of the principles discussed in the chapter can you find?

Organizational Citizenship Behavior

Ask at least five employed friends or family members to provide examples of OCB they have seen at work. First, give each person a definition of OCB (behavior that helps the organization but goes beyond the core tasks required for the job). Then record the examples that they give you. How many of these examples benefit the organization, how many benefit other people, and how many benefit both?

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CHAPTER 11

Occupational Health Psychology

OUTLINE

Occupational Health and Safety
- Accidents and Safety
- Infectious Disease Exposure
- Musculoskeletal Disorders (MSDs)
- Harmful Substance Exposure
- Workplace Violence

Work Schedules
- Night Shifts
- Long Shifts
- Flexible Work Schedules

Occupational Stress
- The Occupational Stress Process
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- Alcohol as a Coping Mechanism
- Recovery

Work–family Conflict

Burnout

Chapter Summary

I-O Psychology in Practice

Learning by Doing

References

Movies and television programs like *Chicago Fire* and *9-1-1* have underscored the dramatic and often dangerous aspects of a firefighter's job. Having to go into burning buildings that might collapse at any moment and to deal with the injured and dying is clearly stressful. Does performing such jobs have an adverse impact on firefighters' health and well-being? Del Ben, Scotti, Chen, and Fortson (2006) surveyed firefighters from one U.S. state and found that about 5% showed all the signs of a posttraumatic stress disorder (PTSD), whereas 22% showed some symptoms. Their study did not include firefighters who might have quit their jobs due to PTSD or other health-related problems, so likely the percentage of cases is even higher. As this study illustrates, characteristics of jobs and job-related experiences have an important impact on health and well-being. In this study, the firefighters noted that having to deal with someone's death and being injured or nearly killed were the most traumatic events they encountered. This is not the only occupation that deals with these issues. People in health professions, such as nurses and paramedics, deal with injury and death, whereas police officers and individuals in dangerous occupations deal with the possibility of being injured or even killed on the job.

Table 11-1 lists some frequent sources of workplace illness and injury, along with some common occupations for which each is particularly problematic. These sources represent concrete physical conditions at work, such as dangerous equipment or toxic substances, likely to affect physical health. The effects of these sources tend to be direct, although for some people exposure over a long period of time must occur for illness or injury to develop. For example, it can take years to become injured or develop a disability from repetitive motions, such as typing. Certain occupations are more likely than others to exhibit each of these sources, although employees on most jobs might encounter any of them. Those who work outdoors, such as park rangers and roofers, are most likely to encounter either extremely hot or extremely cold conditions, but even office workers might encounter extremes of temperature if their buildings do not have adequate air conditioning or heating. Whereas police officers and taxi drivers are among the most likely to be

TABLE 11-1

Frequent Sources of Illness and Injury for Workers in Some Common Occupations

Source	Occupation
Infectious disease	Dentist, nurse
Loud noise	Airline baggage handler, musician
Physical assault (fatal)	Police officer, taxi driver
Physical assault (nonfatal)	Nursing home aide, psychiatric nurse
Repetitive actions and lifting	Data entry clerk, nurse
Toxic substances	Exterminator, farmer

victims of assault, virtually anyone might be assaulted at work, although for most jobs the chances are remote.

In addition to the physical conditions listed in Table 11-1, certain nonphysical conditions might affect physical health and emotional well-being. Nonstandard work schedules, such as night-shift work, have been implicated as causes of both physical and psychological problems. Several nonphysical work conditions are frequently discussed in the literature under the general topic of occupational stress. Such conditions as interpersonal conflict, lack of control, organizational constraints, and workload have all been associated with physical health or emotional well-being.

In this chapter, we are concerned with both physical and psychological aspects of employee health, safety, and well-being at work that comprise **occupational health psychology**, or OHP. This emerging subfield of psychology (and other disciplines such as medicine and public health) overlaps with I-O and is concerned with psychological factors that contribute to occupational health and well-being. It deals with psychological reactions to physical and nonphysical work conditions, as well as behavior that has implications for health. Included in this chapter will be discussion of physical conditions that affect health, occupational stress, occupational accidents, the interplay between work and family, and burnout.

Occupational Health and Safety

OBJECTIVES

The student who studies this chapter should be able to

1. Describe the causes of accidents and the steps that can be taken to prevent them.
2. List the major physical work conditions that affect employee health.
3. Explain how work schedules can affect employee health and well-being.
4. Discuss the nature of occupational stress, including its causes and effects.
5. Define burnout and state how it relates to employee health and well-being.

Physical work conditions can have direct physical effects on people. Sometimes the effects are immediate, as when an employee is injured in an automobile accident. Other times illness or injury may develop after exposure to a harmful condition (e.g., loud noise) or toxic substance at work for many years. There are steps that can be taken to avoid or minimize accidents and exposures to harmful conditions through the adoption of safe workplace design and safe procedures for doing the job. In addition to physical effects, illness and injury can have psychological consequences that are detrimental to emotional well-being. Serious illness and injury are almost certainly associated with psychological distress and trauma, particularly when they result in disability.

In this section, we first discuss accidents and safety-related behavior. Accidents are events that occur at work that cause immediate injury, such as getting a hand caught in a machine or cutting a finger with a knife. As we will see, accidents are a major

problem in the workplace that have tremendous costs for both employees and organizations. Next, we will cover four common exposures that can produce injury and illness at work:

Infectious disease
Repetitive actions or lifting
Toxic substances
Workplace violence

Often exposure is the result of unsafe behavior or poor workplace design that places an employee in a position to be harmed but could have been avoided.

Accidents and Safety

Accidents are the fifth leading cause of death among Americans after heart disease, cancer, stroke, and respiratory disease (National Safety Council, 2005–2006). One of the major accomplishments of the 20th century in the United States was reducing the workplace accident rate by 90% to the point where today most workers are safer at work than anywhere else, with only 10% of accidental deaths occurring on the job for workers. However, in 2018 there were still 5,250 workplace fatalities in the United States (U.S. Department of Labor, 2019a), which exceeds the total casualty count for the entire Iraq war of 4,422 (U.S. Department of Defense, 2013). Furthermore, the number of nonfatal accidents far exceeds the number of workplace fatalities. For example, Glasscock, Rasmussen, Carstensen, and Hansen (2006) found in a Danish study that 36% of farm workers reported being injured in the prior year, and about a third of them required medical attention. Accident rates can be even higher for young farmworkers who are inexperienced and more prone to take risks than older workers (Cigularov, Chen, & Stallones, 2009).

Preventing accidents has been a major concern because of both employee and organization costs. Taken together, nonfatal accidents have been estimated to cost more than one billion dollars per week in the United States alone (Liberty Mutual Insurance, 2020), much of which is paid by employers and their insurance companies. Many different approaches have been tried to prevent accidents. Some involve design of equipment, whereas others focus on people. The best strategy depends on the situation and an analysis of accident causes. Often solutions can be simple, such as having employees wear protective goggles to prevent eye injuries. The application of human factors (ergonomics) can be effective by designing equipment and the physical workplace from a safety standpoint. An example is the push lawnmower, which can be a dangerous device. At one time, the design allowed an operator to get a hand or foot caught in the revolving blade. All new lawnmowers sold in the United States must be designed with a handle release or dead man switch that turns off the engine (or blade) when the operator lets go of the handle. Such a system makes it difficult for a person to accidentally stick a hand or foot into a moving blade. Better design can be quite effective in reducing accidents and injuries, and as an additional benefit, it can reduce strains for the employee as well (Kompier, Aust, van den Berg, & Siegrist, 2000).

A major difficulty in preventing workplace accidents is getting the cooperation of employees in using the appropriate safety equipment and engaging in safe behaviors. People can often find safety devices inconvenient and safety equipment uncomfortable. For example, some people tape down the handle release switch on a lawnmower because they find it annoying. Accepted workplace practices among employees might preclude the use of some safety practices because they are thought to waste time, take too much effort, or even reflect a person's lack of courage in facing dangerous situations. Factors relating to accidents are listed in Table 11-2.

Safety climate is the shared perception by employees that safe procedures, practices, and behaviors are encouraged and rewarded by the organization (Hofmann, Burke, & Zohar, 2017). Climate is reflected in both the policies of the organization and the practices relevant to safety, such as the use of safety equipment (see a more detailed discussion of

TABLE 11-2

Factors Associated With Work Accidents and Safety

Design of the physical workplace
Management commitment to safety
Personality characteristics
Production rather than safety emphasis by management
Safety climate
Safety training
Stress at work and home
Workplace norms that encourage safety

climate in Chapter 14). It is also reflected in the norms for safe behavior among employees and supervisors (Fugas, Melia, & Silva, 2011). Climate filters from the top of the organization to the front lines where employees work together in environments where safety is a concern (Tucker, Ogunfowora, & Ehr, 2016). Employees are likely to follow safe procedures when it is encouraged from the top and when their coworkers are doing the same (McGonagle, Walsh, Kath, & Morrow, 2014). Studies have clearly shown a link between safety climate and safety behavior (Jiang, Lavaysse, & Probst, 2019), and between safety behavior and injuries on the job (Beus, Payne, Bergman, & Arthur, 2010; Kao, Spitzmueller, Cigularov, & Wu, 2015). Those organizations that are high on safety climate have employees who behave more safely and have fewer accidents than employees in organizations that are low on safety climate (Kessler, Lucianetti, Pindek, & Spector, 2020).

Accidents can also be affected by the balance in emphasis between productivity and safety (Humphrey, Moon, Conlon, & Hofmann, 2004). For example, Kaminski (2001) studied accidents in 86 small manufacturing plants in the United States. She found that pay incentive systems were associated with injuries on the job. Jobs were safer if assembly-line workers were paid per hour rather than based on productivity, since the latter encouraged working fast to the detriment of safety.

Stress both on and off the job can be another important factor. For example, Savery and Wooden (1994) surveyed Australian workers from 61 different organizations. They found that frequency of stressful events (e.g., divorce) is related to work accidents. How people feel about their jobs and their attitudes about safety also affect accidents and injuries. Individuals who are satisfied with their jobs (Barling, Kelloway, & Iverson, 2003) and those who have positive attitudes about safety (Newnam, Griffin, & Mason, 2008) are less likely to have accidents at work.

Finally, individual differences are also a factor in accidents and injuries. Christian, Bradley, Wallace, and Burke (2009) conducted a meta-analysis that summarized studies relating personality to workplace accidents. They found that the Big Five dimensions of conscientiousness and emotional stability both related negatively to accidents: Individuals who are high on both traits are less likely to have accidents than individuals who score low. Conscientious people tend to carefully follow rules, so one would expect that conscientious employees would follow safety rules and therefore avoid accidents (Beus, Dhanani, & McCord, 2014). The reason that individuals high in emotional stability are able to avoid accidents is less clear, but perhaps it is because they are less prone to experience stress, and as noted earlier, such experiences are linked to accidents.

There are many things organizations can do to encourage safety. Perhaps the easiest is to provide safety training. Studies have clearly shown that safety training can enhance employee knowledge about safety, and encourages safe behavior (Burke et al., 2011; Robson et al., 2012). Zohar and Polachek (2014) showed in a field experiment that training supervisors can be an effective way to enhance safety. They randomly assigned supervisors of a manufacturing company to one of two groups: a training group that received instruction in how to provide safety messages to subordinates or a control group. They

found that the subordinates of the trained supervisors perceived a better safety climate and engaged in safer behavior at work as well. Blog 11-1 explains further how supervisors' own behavior can affect their employees.

BLOG 11-1 Modeling Workplace Safety

https://paulspector.com/modeling-workplace-safety

Discussion Questions

1. Why does supervisor behavior affect the behavior of employees?
2. What are the main reasons that employees take risks with their safety?
3. What things other than supervisor modeling can organizations do to keep employees safe?
4. Are there things that organizations do that make employees less safe?

Safety from accidents and injuries is just one component in an organization's efforts to maintain the health and well-being of its workforce (National Safety Council, 2019). This means not only protecting workers from physical hazards but protecting them from psychological hazards as well. The approach is reflected in the U.S. National Institute of Occupational Safety and Health's **Total Worker Health** program that focuses not only on the prevention of disease and injury, but on the promotion of positive health of workers (Punnett et al., 2020). There is a business case to be made for Total Worker Health as a focus on the well-being of employees is vital, not only to the health of employees, but to the health of organizations, as well.

Infectious Disease Exposure

Employees who must deal with the public (e.g., hairstylist, police officer, sales clerk, and teacher) may be exposed to infectious disease. Although most such cases result in relatively minor illnesses, such as a cold or flu, serious illness is also possible, as occurred during the worldwide COVID19 pandemic. Exposure to serious infectious diseases is of particular concern to people in the health care professions who must deal with seriously ill patients. Two diseases that stand out due to their potential for infecting healthcare workers are hepatitis B (HBV) and HIV, both of which can be fatal. A protocol has been adopted globally that all health care workers are expected to comply with. **Universal Precautions** is a set of safety procedures designed to help health care professionals avoid contact with patient bodily fluids. They include actions such as

Disposing of sharp objects (e.g., needles) in a special *sharps* container
Wearing disposable gloves when handling blood or body fluids
Immediately cleaning all bodily fluid spills with disinfectant
Wearing aprons and masks

Unfortunately, large numbers of health care workers fail to follow universal precautions even though research shows that these procedures are highly effective. Gammon, Morgan-Samuel, and Gould (2008) summarized results of 37 studies of universal precautions conducted throughout the world. They found that compliance was rather disappointing. Although compliance is quite high for some acts, such as disposing of sharp objects properly (91%), it is low for others, such as wearing masks (30%). The proper handling of sharp objects is of particular concern for nurses, for whom accidental needle sticks and other sharps injuries are common. Talas (2009) noted that 4% of hospital

nurses receive a sharps injury each year, whereas injury rates for nursing students, who are inexperienced, are almost 10 times as high. Clearly there is a great deal of work to be done to reduce infectious disease exposure in health care workers and others. Likely the same factors that are important with accidents in general would hold for infectious disease exposure as well, such as a safety climate that encourages following the Universal Precautions and other safety measures.

Musculoskeletal Disorders (MSDs)

Many jobs require physical actions of various body parts that can become injured. Some injuries might occur through repeated motions, such as on a traditional assembly-line where an employee performs the same operation over and over. Other jobs require the lifting of heavy objects or people, such as warehouse workers who load trucks or nurses who lift patients. Repetitive actions can result in **repetitive strain injuries**, in which the body parts involved can become inflamed and sometimes permanently damaged. Lifting can result in acute injury, often to the lower back. Both kinds of injuries are forms of **musculoskeletal disorder (MSD)**. Regardless of the type, such injuries are an important issue for organizations, as they result in employee absence and inefficiency, which can adversely affect organizational productivity (Escorpizo, 2008).

As noted by Faucett (2005), MSDs are related to both the biomechanics of job tasks and employee psychological factors. On the biomechanical side, injuries can occur due to repetition of motion, excessive force on the body, and improper posture. Thus, a back injury can occur when lifting something that is too heavy while bending the back in the wrong way. On the psychological side, MSDs are related to job stress (which we will discuss later in the chapter). Individuals are more likely to have an MSD if they have low autonomy and control (Larsman & Hanse, 2009), high demands (Hauke, Flintrop, Brun, & Rugulies, 2011), get into arguments with others at work (Nixon, Mazzola, Bauer, Krueger, & Spector, 2011), and are dissatisfied with work (Sobeih, Salem, Daraiseh, Genaidy, & Shell, 2006).

Jobs vary in both their incidence of MSDs and where in the body employees experience injury (Nordander et al., 2009). For example, urban transit workers who drive buses or trains are most at risk for back or neck pain (Greiner & Krause, 2006). Nurses are subject to back injury from lifting patients (Rickett, Orbell, & Sheeran, 2006). Dentists also tend to have neck and back injuries, but they experience shoulder and wrist/hand problems, as well (Palliser, Firth, Feyer, & Paulin, 2005). Salespeople who are on their feet all day are at risk for leg and lower-back pain (Pensri, Janwantanakul, & Chaikumarn, 2009). Workers who do a lot of keyboard work or typing are at risk for **carpal tunnel syndrome**, which is a wrist injury that causes pain, numbness, and weakness in the fingers and hands. It is brought on by repeated use of the fingers and wrist.

MSDs can be reduced with relatively inexpensive strategies. First, the proper design of tools and equipment can go a long way to reducing the strain on the body that can result in these injuries. Split keyboards (shown in Figure 11-1) that have keys placed at an angle so the wrists can remain straight are helpful in reducing injury. Acute lifting injuries can be reduced by the use of mechanical devices that take the heavy load (Rickett et al., 2006), such as a patient lifting device as shown in Figure 11-2.

A second strategy is to allow employees to take frequent rest breaks. In Sweden, there are laws governing the maximum amount of time an employee can be asked to use a computer keyboard without a break and the maximum amount of time he or she can type in a day. In the United States, similar legislation has been debated but not enacted. A combination of both equipment design and rest breaks can be successful in reducing the likelihood that employees will contract potentially debilitating MSDs.

Harmful Substance Exposure

The exposure of employees to harmful and toxic substances has been given more and more attention as research has shown how such substances can affect health. The problem with exposure to many substances is that adverse health effects such as cancer can take

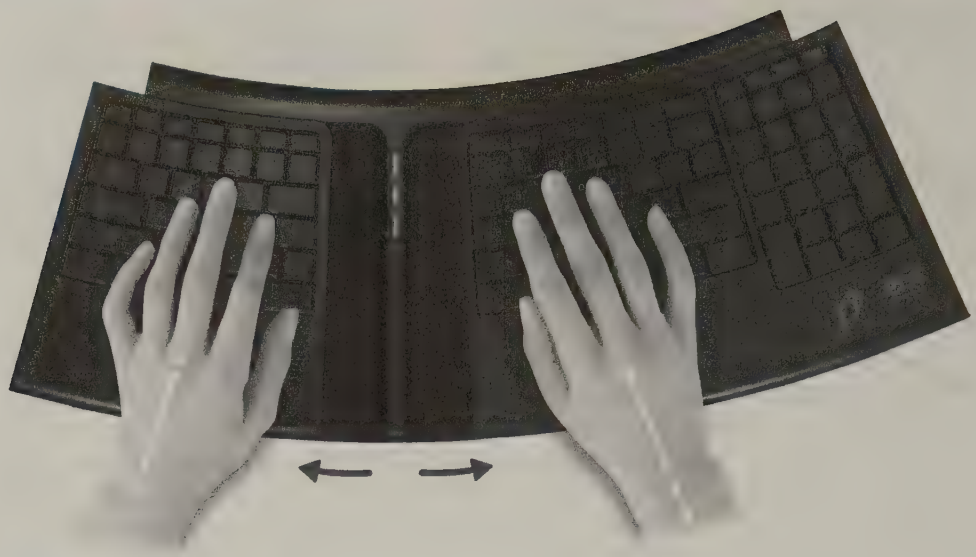


FIGURE 11-1 A device that helps reduce strain on a person's wrist when using a computer keyboard.
Source: Picture courtesy of Fellowes, Inc.



Art Directors & TRIP/Alamy Stock Photo

FIGURE 11-2 A patient lifting device that can help healthcare workers such as nurses avoid back injuries.

years or decades to develop. Furthermore, not every person exposed will develop symptoms. This makes it difficult to determine the effects of exposure because many things might contribute to a particular person contracting an illness.

Employees in many jobs can be exposed to harmful substances, often in unexpected places. It would not be surprising if employees in chemical plants or farmworkers who use insecticides are exposed. Office workers in enclosed buildings do not expect to be, but they can be exposed to various chemicals, such as toners from copying machines and solvents that might be used to clean ink. Furthermore, people vary in sensitivity to a variety

of substances. Reactions to exposure can range from non-life-threatening symptoms such as headaches or nausea to serious conditions that can permanently damage vital organs such as the kidneys or liver. At times, only a few sensitive individuals will exhibit symptoms, but it is not unusual for most of the individuals in an office to become ill, leading to what has been termed the *sick building* phenomenon, which can arise from harmful substances or microorganisms.

Another issue concerns allergy to various substances, most commonly dust, mold, and pollen. This has become an increasing problem in the United States, where buildings are completely sealed and the same air is recirculated, allowing the concentration of allergens to build up over time. Common allergic reactions include nasal congestion, coughing, watery eyes, and skin rash, but employees with asthma and other respiratory illnesses can experience serious and even fatal medical conditions.

Organizations that expose their employees to harmful substances run the risk of having them become ill and in the extreme develop a disability. In the United States, the Occupational Safety and Health Administration (OSHA) is charged with seeing that workplace safeguards are used to protect workers. Many countries have laws to protect employees from harmful substances and other conditions that affect health.

Workplace Violence

When you mention workplace violence, many people think of the dramatic mass shootings that we see from time to time in the news media. Such prominence in the media undoubtedly gives an erroneous impression that the workplace is dangerous and that coworkers are a significant threat. Although homicide does occur in the workplace, it is not the setting in which most homicides occur. The Bureau of Labor Statistics (2010) reported that there were 526 workplace homicides in the United States in 2008, which is about 3% of the U.S. homicide total of 16,272 that year (Federal Bureau of Investigation, 2010). However, coworker homicide is quite unusual, with approximately 15% of workplace homicide being due to coworkers (Sygnatur & Toscano, 2000). Even more rare is for a homicide victim of a coworker to be a woman. Although women are 43% of the U.S. workforce (according to hours worked), they comprise only 19% of homicide victims (Bureau of Labor Statistics, 2010).

There are four types of workplace violence depending on the relationship between the perpetrator and the workplace (Merchant & Lundell, 2001). Type 1 is violence by individuals with no business relationship with the organization, such as someone committing an armed robbery. Type 2 is violence by clients, customers, or patients of the organization. Type 3 is performed by other employees. Type 4 is relationship (e.g., intimate partner) violence that spills over to the workplace. The nature of the job determines in large part whether these different types are likely. Table 11-3 lists occupations most at risk for the various types.

For most occupations, fatal assaults are extremely rare, with employees being safer at work than almost anywhere else they can be. However, there are a few occupations for

TABLE 11-3

Occupations Associated With Four Types of Workplace Violence

Violence type	Definition	Occupation likely to experience it
Type 1	Strangers committing a crime	Convenience store clerk Taxi driver
Type 2	Client/customer/patient	Nurse Social worker
Type 3	Other employees	Any job with coworker contact
Type 4	Relationship	Any job

which homicide is a more significant risk. Whereas the national average workplace homicide rate is 0.70 cases per 100,000 employees, the risk is far greater for taxi drivers (41.4), liquor store clerks (7.5), police officers (7.0), and gas station attendants (4.8) (National Institute for Occupational Safety and Health, 1996). In the United States, there were 49 law enforcement officers who were homicide victims in 2019 (National Law Enforcement Officers Memorial Fund, 2019).

Of course, nonfatal assault is a far more common occupational hazard, especially for those who work with the public. A national survey of American workers found that 6% indicated having been the target of physical violence in the prior year, with almost 1% having been attacked with a weapon (Schat, Frone, & Kelloway, 2006). People who work in health care settings, such as nurses, are at particular risk of Type 2 violence, mostly from patients (Gillespie, Gates, Miller, & Howard, 2010). In healthcare most cases are not life threatening, but employees can still be subject to psychological trauma (Walsh & Clarke, 2003).

There are many job and organizational factors that can contribute to being a target of physical violence. Some have to do with the nature of the work itself and how employees are exposed to potentially violent situations. LeBlanc and Kelloway (2002) analyzed the nature of jobs that were particularly prone to violence exposure. Jobs in which employees had physical control over others (e.g., prison staff), handle weapons (e.g., police officer), have contact with individuals taking medication (e.g., nurse), and exercise security functions (e.g., security guard) are particularly at risk. At the organization level, workplaces differ in the extent to which they reward and support employee actions that help avoid violence. Just as with safety climate, **violence prevention climate** (Kessler, Spector, Chang, & Parr, 2008) can be encouraged by supervisors in order to minimize employee risk of being assaulted (Yang & Caughlin, 2017).

Work Schedules

Whereas most employed people work standard schedules of approximately 8 daylight hours per day during weekdays, the use of nonstandard schedules involving longer work shifts, nights, and weekends has become commonplace. Of particular interest to I-O psychologists interested in employee health and well-being are night shifts, long work shifts, and flextime.

Night Shifts

Many organizations, such as hospitals and police departments, run 24 hours per day, requiring the use of two or three shifts of workers to cover the entire day. A typical three-shift sequence is

8 A.M. to 4 P.M.
4 P.M. to 12 A.M.
12 A.M. to 8 A.M.

referred to as the day, evening, and night or graveyard shifts, respectively. Some organizations hire people to work a fixed shift; that is, they work the same shift every workday. Other organizations use rotating shifts: Employees work one shift for a limited length of time—say, a month—and then switch or rotate to another shift. If the organization has a three-shift sequence, each employee works each shift a third of the time.

The most obvious problem in working night shifts is sleep disturbance—either being unable to fall asleep or having a poor quality of sleep (Daus, Sanders, & Campbell, 1998). The disruption of an individual's normal sleep/waking cycle affects the **circadian rhythms** of physiological changes that occur throughout the day. These include body temperature changes and changes in hormone levels in the bloodstream. The disruption

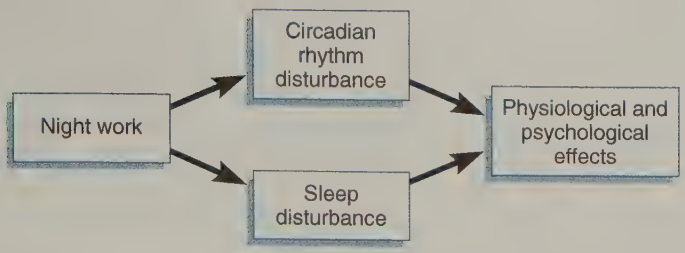
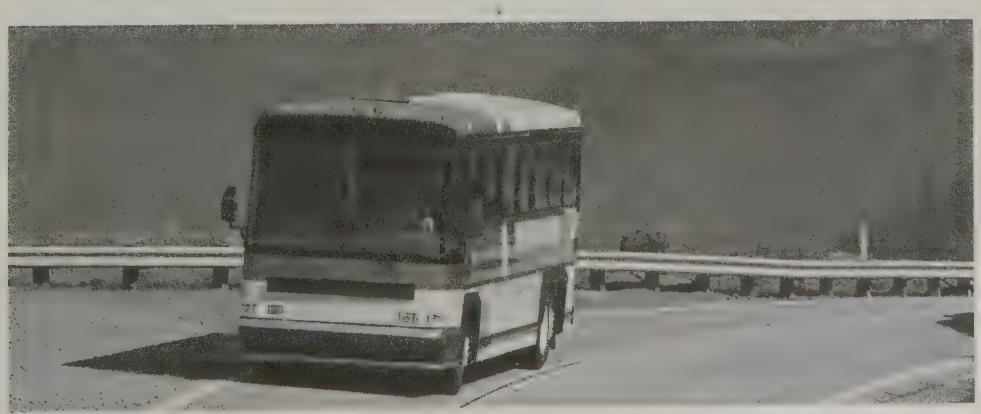


FIGURE 11-3 Night work leads to both circadian rhythm disturbance and sleep problems. These in turn lead to physical problems such as stomach upset and psychological problems such as anxiety.

of circadian rhythms and sleep/waking cycles are likely a factor in the health problems people experience with night shifts. Night shift workers can experience more mental health problems, such as anxiety or depression (von Treuer, Fuller-Tyszkiewicz, & Little, 2014), as well as physical health problems (Figure 11-3). Perhaps the most frequent physical health problems affect the digestive system (Koller, Kundi, & Cervinka, 1978). Akerstedt and Theorell (1976) studied physiological changes in workers before, during, and after a period of night-shift work. In this study, the blood levels of the hormone gastrin, which is related to stomach acid secretion, was assessed twice a day over a period of 5 weeks. Results showed a decrease in gastrin during the time the workers were on the night shift, and this was likely a major factor in digestive problems.

In addition to health problems, shift work can cause social disruption. Having to work nights and sleep days can isolate a person from family and friends. Bohle and Tilley (1998) surveyed hospital nurses concerning their feelings about shiftwork. The best predictor of dissatisfaction was conflict between work and nonwork activities. Individuals who reported high levels of conflict tended to report the greatest dissatisfaction with shiftwork.

There are ways to minimize the negative effects of night shifts. Barton and Folkard (1991) found that employees on temporary night shifts have greater sleep problems than employees who work permanent night shifts, but that permanent night-shift workers are no more likely to have sleep problems than day-shift workers. These results suggest that permanent shifts cause fewer problems than rotating shifts. Another aspect of the Barton and Folkard study is that their nurses volunteered for the shifts they worked. Given that people vary in their ability to adapt to night work (Saksvik-Lehouillier et al., 2012), it is likely that volunteers would consist of people who are able to tolerate working at night. For organizations that use rotating shifts, there is a way to reduce negative effects. Karlson, Eek, Orbaek, and Osterberg (2009) showed that the negative effects of rotating shifts can be minimized by rotating backward (day to night to evening) and keeping people on each shift for several weeks at a time.



VisionsofAmerica/Joe Sohm/Getty Images

Long-distance drivers sometimes work long shifts that can interrupt sleep patterns.

Long Shifts

The typical full-time work shift is 8 hours. Many organizations, however, have implemented longer shifts, and many employees have jobs that do not have fixed shifts but can require long workdays. For example, truck and bus drivers may have routes that cannot be completed in an 8-hour day. The most popular alternative long work schedule is the 4-day 10-hour shift, or 4/40. Some organizations that operate 24 hours per day, like hospitals, have gone to two 12-hour shifts per day.

One important difficulty with the long workday is fatigue (Bendak, 2003). A 10- to 12-hour day can be quite tiring if the work is mentally or physically demanding. On the other hand, many employees like the longer days because it gives them more days off to recover from work and more usable free time per week (Bendak, 2003), and long shifts can result in both better job performance and job satisfaction (Baltes, Briggs, Huff, Wright, & Neuman, 1999). On the other hand, long shifts can have detrimental effects on employees. Raggatt (1991) conducted a study of Australian bus drivers that showed how long shifts can have serious health effects (see the Research in Detail box). The length of work shift was associated with sleep problems, alcohol consumption, and use of stimulants. These outcomes were also associated with job dissatisfaction and poor health. Thus, long work shifts can have detrimental effects for some jobs. For other jobs, long shifts can be beneficial.

Research in Detail

One of the limitations associated with questionnaire studies of job conditions and job stress is that most of the variables assessed are rather abstract theoretical constructs such as autonomy and role ambiguity. The present study (Raggatt, 1991) is somewhat different. The major job condition variable is the number of hours worked over the past month. The study was designed to determine if working long hours would be associated with a number of psychological, physical, and behavioral strains, as well as accidents.

Subjects for this study were 93 Australian bus drivers. Each driver was asked to complete a questionnaire that asked about job satisfaction, psychological distress, health symptoms, sleeping problems, speeding, pill taking, alcohol consumption, and number of prior accidents. They were asked to indicate the number of hours they had worked over the prior 4 weeks. Many of the drivers worked very long shifts, with most exceeding 40-hour workweeks; 12- to 14-hour workdays were not unusual.

Results indicated that working long shifts was associated with taking pills (e.g., stimulants), drinking alcohol, and having difficulty sleeping. These strains were associated with health symptoms, psychological distress, job dissatisfaction, and accidents. The drivers also reported significantly more health symptoms, depression, anxiety, and fatigue than people in general.

Raggatt presented a model suggesting that the demands of the job, particularly long driving shifts, resulted in fatigue and sleep disturbance. The coping strategies used by the drivers often involved the use of stimulants to stay awake and depressants and alcohol to sleep. The combination of fatigue brought on by driving and poor sleep and the use of pills and alcohol contributed to psychological and physical strains. Raggatt recommended that many of these important health-related problems could probably be reduced by giving drivers more rest breaks and shorter work shifts. Organizations need to pay attention to the health consequences of requiring long work shifts.

Source: Adapted from "Work Stress Among Long-Distance Coach Drivers: A Survey and Correlational Study," by P. T. Raggatt, *Journal of Organizational Behavior, 12,* 565–579.

It is not only long shifts, however, that can have detrimental effects on people. The number of hours worked per week can expose employees to higher work demands and other stressful conditions at work (Ng & Feldman, 2008). Although the effect is small, long workweeks can raise a person's chances for cardiovascular disease, such as having a

stroke (Ganster, Rosen, & Fisher, 2018). This detrimental effect seems to occur primarily in people who work long hours nonvoluntarily, which is often the case in organizations that have downsized or reduced their number of employees (Sparks, Cooper, Fried, & Shirom, 1997). Survivors usually wind up working more hours to cover tasks of colleagues who have been laid off. The European Union adopted rules for member countries that employees should not work more than an average of 48 hours per week and must be given at least 11 hours of continuous daily rest. Working two 8-hour shifts in one day, not uncommon in the United States, would not be allowed. Such restrictions have not been implemented in the United States and many other non-European industrialized countries.

Flexible Work Schedules

Fixed daily work schedules are still the norm, but many employees have flexible schedules, known as **flextime**, that allow them to determine, at least in part, the hours of the day that they work. In 2017-18, about 57% of U.S. workers did not work a fixed schedule (U.S. Department of Labor, 2019b), and many of them enjoy flextime. There are many varieties, from systems requiring only that employees work their allotted hours per day to systems that allow employees the option of starting their shift an hour early or an hour late. As we note in the discussion of work–family issues later in the chapter, flextime can be part of a family-friendly policy that allows working parents more flexibility to fulfill child-care responsibilities.

From the organization's perspective, an advantage of a flexible work schedule is that it allows employees to take care of personal business on their own time rather than on work time. Thus, an employee could have a doctor's visit in the morning and begin the shift late. In their meta-analysis, Baltes et al. (1999) confirmed that there is less absence, and Ralston (1989) found less tardiness with flextime than with fixed work schedules, as might be expected. Relations with job performance and satisfaction have been less consistent. Baltes et al. (1999) found that objective measures of productivity are higher with flextime but that supervisor ratings of performance are not. Job satisfaction is higher with flextime, but the magnitude of effect is small.

Occupational Stress

Everyone has experienced **stress** at one time or another. Taking an exam is a situation that is stressful for most students, particularly for those who want good grades. On all jobs, there are situations that employees find stressful from time to time. Being reprimanded by a supervisor, having too little time to complete an important assignment, and being told that you might be fired are all situations that almost anyone would find stressful. In this section, we review what is known about the effects of occupational stress.

The Occupational Stress Process

To understand occupational stress, you must first understand several concepts that are involved in the stress process. A **job stressor** is a condition or situation at work that requires an adaptive response on the part of the employee (Jex & Beehr, 1991). Being told by your boss that you are stupid, being given more work than you are able to accomplish, and being expected to do two things at once are all examples of job stressors. A **job strain** is a negative reaction by an employee to a stressor. Jex and Beehr (1991) categorize strains into the following. (See Table 11-4.)

Psychological reactions,
Physical reactions,
Behavioral reactions.

TABLE 11-4

Examples of Job Strains From Each of the Three Categories of Job Strains

Job strain	Examples of specific outcomes
Psychological reactions	Anger
	Anxiety
	Frustration
	Job dissatisfaction
Physical reactions	Physical symptoms
	Dizziness
	Headache
	Heart pounding
	Stomach distress
	Illness
	Cancer
	Heart disease
Behavioral reactions	Accidents
	Smoking
	Substance use
	Turnover

Source: From "Emerging Theoretical and Methodological Issues in the Study of Work-Related Stress," by S. M. Jex and T. A. Beehr (1991), *Research in* Personnel and Human Resources Management, 9, 311–365.

- Psychological reactions involve emotional responses such as anxiety and frustration.
- Physical reactions include symptoms such as headaches and stomach distress and illnesses such as heart disease.
- Behavioral reactions are responses to job stressors and include substance use (e.g., alcohol), smoking, accidents, and counterproductive work behavior (CWB).

Models of the occupational stress process presume that job stressors lead to job strains. It is generally recognized, however, that the process is not automatic and that the employee's perception and appraisal of the stressor are essential parts of the process. Appraisal is the extent to which a person interprets an event or situation to be personally threatening. Not everyone will see the same situation as a job stressor. One person who is given an extra work assignment sees it as an opportunity to make a good impression on the supervisor, while another sees it as an unfair imposition on his or her free time.

Figure 11-4 (based on Frese & Zapf, 1988) illustrates how job stressors lead to job strains. In this model, job stressors (step 1) are objective conditions or situations in 333the work environment. For example, there might be a fire at work. For the fire to become a stressor, the employee must be aware of its existence. This leads to step 2, which is perception of

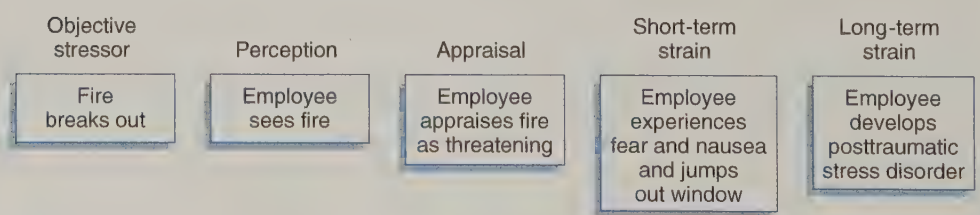


FIGURE 11-4 A five-step model of the job stress process. An objective stressor (step 1) leads to its perception (step 2), and it is appraised by the individual (step 3). If it is appraised to be a challenge or threat, it can lead to short-term strains (step 4) and eventually to long-term strains (step 5).

Source: Adapted from "Methodological Issues in the Study of Work Stress: Objective vs Subjective Measurement of Work Stress and the Questions of Longitudinal Studies" (pp. 375–411), by M. Frese and D. Zapf (1988), in C. L. Cooper and R. Payne (Eds.), *Causes, Coping and Consequences of Stress at Work*, Oxford, England: John Wiley.

the stressor. Perception alone, however, is not sufficient to lead to strain. The employee must appraise the stressor as aversive or threatening (step 3). If a building is on fire, virtually anyone would appraise the situation as threatening. If it is only a garbage can that is on fire, it is doubtful that many would find it to be much of a threat. If the location is filled with flammable materials, however, even a lit match would be dangerous. It is the interpretation or appraisal of the situation that determines if it will lead to the next steps, which involve strain. Strains in this model are divided into short term (step 4) and long term (step 5). Short-term strains occur immediately. Upon seeing a fire, an employee might experience fear (psychological reaction), become nauseated (physical reaction), and jump out a window (behavioral reaction). If the person experienced a severe enough trauma from the experience, he or she might develop a posttraumatic stress disorder (PTSD), which would be a long-term strain.

Job Stressors

There are many things in the work environment that can be stressful. Some are conditions that can occur across most jobs, such as conflicts with coworkers or heavy workloads. Others can be specific to occupations. For example, Parasuraman and Purohit (2000) found that a major stressor for orchestra musicians is being asked to do something that violates their sense of artistic integrity. This situation could not exist for a nurse who must instead deal with the stress of dying patients. Although many different conditions at work might serve as job stressors, relatively few have been studied.

Role Ambiguity and Role Conflict.

Role ambiguity and role conflict are often studied together as role stressors. **Role ambiguity** is the extent to which employees are uncertain about what their job functions and responsibilities are. Many supervisors fail to provide clear guidelines and directions for their subordinates, leading to ambiguity about what the employee is supposed to do.

Role conflict arises when people experience incompatible demands either at work (intrarole) or between work and nonwork (extrarole). *Intrarole conflict* arises from multiple demands on the job. For example, two supervisors might ask the person to do incompatible tasks. One might ask the person to take more care in doing the work, and the other might ask the person to work faster. These demands are incompatible in that the employee would have to work more slowly to be more careful. The incompatibility would be reflected in role conflict.

Extrarole conflict occurs between demands from work and nonwork domains. Such conflict commonly occurs when employees have children and the needs of children conflict with the demands of the job. When a child is sick, a parent may have to stay home from work, thus experiencing role conflict. This type of role conflict is discussed later in the section on work–family conflict.

The research on role ambiguity and role conflict has linked both to strains of emotional distress, job dissatisfaction, and physical health symptoms.(Bowling et al., 2017) Glazer and Beehr (2005) showed that role variables relate to psychological strains not only in the United States but in Hungary, Italy, and the United Kingdom as well. Most of the research on role stressors, however, has used self-report scales completed by employees. This means that in the five-step model, role stressors were assessed at the level of appraisal (step 3). It is unclear whether objective job conditions were responsible for these appraisals or whether those conditions resulted in psychological strains. Jex and Beehr (1991) wondered if role ambiguity and role conflict are perhaps not very important stressors. Their lack of importance is underscored by studies in which employees are asked to relate the most stressful thing that has happened to them in the recent past. Incidents that reflect role ambiguity or role conflict are seldom mentioned (C. Liu, Spector, & Shi, 2007).

Workload.

Workload concerns the work demands that the job places on an employee, and it can be of two types: quantitative and qualitative. *Quantitative workload* is the

amount of work that a person has. A heavy quantitative workload means that a person has a lot to do. *Qualitative workload* is the difficulty of work relative to a person's capabilities. A heavy qualitative workload means that the employee cannot easily do job tasks because they are difficult for him or her. It is possible for a person to experience only one type of workload in a job. He or she might have a lot of work to do that is not necessarily difficult, or difficult work to do that is not necessarily plentiful. A third aspect of workload is the extent to which a person is continuously connected to work through communication technology. Barber and Santuzzi (2015) showed that people can experience **workplace telepressure**, which is the need to continually check and respond to work e-mail, texts, and other messages when not working.

Research has found that workload relates to all three types of strains—psychological, physical, and behavioral (Jex & Beehr, 1991). This research has involved a variety of methodologies that allow us to draw more definitive conclusions about the possible outcomes of this stressor.

Questionnaire studies have shown that employee reports of their workloads correlate with a variety of strains. Spector, Dwyer, and Jex (1988) found significant correlations of workload with the psychological strains of anxiety, frustration, job dissatisfaction, and intention of quitting and the physical strains of health symptoms. Karasek, Gardell, and Lindell (1987) found that workload is associated with the strains of depression, exhaustion, job dissatisfaction, health symptoms, and heart disease. Blog 11-2 discusses how overwork at Uber has contributed to mental health problems for some of their employees.

BLOG 11-2 Job Stress From Workload

https://paulspector.com/job-stress-from-workload



Discussion Questions

1. Why can excessive workloads lead to mental health problems?
2. How might heavy workloads increase the impact of other stressors?
3. What is the most effective way for employees to manage heavy workloads?
4. What is the most effective way for supervisors to help employees deal with heavy workloads?

Illegitimate Tasks. Norbert Semmer and his colleagues in Switzerland noticed that sometimes employees are asked to do tasks that they feel are inappropriate for them to do, such as a nurse being asked to do custodial duties (Semmer, Tschan, Meier, Facchin, & Jacobshagen, 2010). They explain that **illegitimate tasks** are tasks that violate the norms of what is acceptable to ask of an employee. There are two types of illegitimate tasks, *unreasonable* tasks that are important, but should be done by someone else, and *unnecessary tasks* that don't need to be done at all. Asking employees to perform what they consider to be illegitimate tasks can have detrimental effects on them and their organizations. Employees asked to perform such tasks are likely to experience negative emotions like anger (Sonnentag & Lischetzke, 2018), which can result in them resorting to CWB (Semmer et al., 2010).

Social Stressors. When asked to relate the most stressful incidents that happened recently at work, employees frequently mention those that involve relationships with people (C. Liu et al., 2007). Being able to get along well with people is an important element in well-being. Failing to get along can be a serious source of strain. Because

employed individuals spend so much of their time at work, social relationships with coworkers, supervisors, and others can be some of the most important in their lives. Stressful incidents concerning other people are considered **social stressors**. They include having interpersonal conflicts, as well as being mistreated by others, including organization members such as coworkers, supervisors or subordinates, and nonmembers such as clients or customers (Park & Kim, 2019). In addition to direct acts of mistreatment by others, passive acts of ostracism (being excluded and ignored) can have similar detrimental effects (M. C. Howard, Cogswell, & Smith, 2020).

Interpersonal conflicts occur when people get into arguments and disputes with others. Conflicts can range from mild disagreements to heated and nasty exchanges that can even become physical. C. Liu, Yang, and Nauta (2013) surveyed employees of three universities and found that those who had conflicts with others were more likely to report feeling anxious and depressed. Bowling and Beehr (2006) conducted a meta-analysis of 28 studies relating interpersonal conflict at work to job strains. They found that conflict relates to both physical strains (e.g., headache and stomach distress) and psychological strains (e.g., job dissatisfaction).

Whereas interpersonal conflict assumes a two-way interaction among two or more people, some social stressors are mainly unidirectional, with one or more individual targets being mistreated in some way by one or more actors. Such stressors can range from rather mild forms of *incivility* to more intense forms of verbal abuse and bullying. Sometimes such incidents can escalate into physical confrontations and even violence. Regardless of whether the actor is an organization member, such as a coworker or supervisor (Hershcovis, 2010), or a nonmember, such as a customer (Milam, Spitzmueller, & Penney, 2009), being a target of mistreatment can be stressful.

As explained by S. Lim, Cortina, and Magley (2008), **incivility** consists of low-intensity verbal acts of rudeness and insensitivity that are not always clearly intended to harm someone else. This might consist of making disparaging comments or sarcastic remarks, giving hostile looks, or ignoring someone. The common element is that the target feels that he or she was treated disrespectfully, even though the actor might not have intended offense. Regardless of intent, it has been shown that individuals who feel they were targets of incivility will report symptoms of strain, such as emotional distress, job dissatisfaction (Lim & Lee, 2011; Zhou, Yan, Che, & Meier, 2015) and trouble sleeping (Demsky, Fritz, Hammer, & Black, 2019). Incivility can have detrimental effects on organizations as well as employees, as studies show that incivility can adversely affect job performance (Schilpzand, De Pater, & Erez, 2016; Sliter, Sliter, & Jex, 2012), and that employees exposed to incivility are more likely to engage in CWB (Sakurai & Jex, 2012).

More extreme forms of mistreatment can involve clear cases of employee abuse that in the extreme rises to the level of bullying (Rayner & Keashly, 2005). **Bullying** is a repeated pattern of abusive behavior directed toward someone over time. It can consist of both verbal and physical acts, with some bullies resorting to physical aggression and threats of violence. Although it is often thought that bullying involves a single actor who might single out one or more individuals as targets, bullying in the workplace can involve multiple actors targeting a single person, sometimes termed **mobbing** (Zapf & Einarsen, 2005), which is more prevalent in Europe than North America. Zapf and Einarsen (2005) referred to bullying and mobbing as extreme forms of social stressors than can have serious effects on targets. In their meta-analysis of bullying studies, Nielsen and Einarsen (2012) showed that bullied victims are likely to experience anxiety, depression, physical health problems, and posttraumatic stress disorder symptoms.

As more and more communication occurs electronically, social stressors occurring virtually has become an issue (D. J. Howard & Spector, 2020). Both **cyber incivility** (Park, Fritz, & Jex, 2018) and **cyberbullying** have been found to have similar effects on people as face-to-face forms of mistreatment. It is important that supervisors do what they can to minimize all forms of mistreatment, whether they occur online or in person.

Organizational Politics. Organizational politics is the perception by employees that coworkers and supervisors engage in self-serving behavior in which they put their own

interests above those of the organization and other people. Furthermore, rewards are perceived to be based on favoritism rather than merit (Kacmar & Carlson, 1997). Organizational politics can be considered a stressor in that it leads to strains. For example, Hochwarter, Kacmar, Perrewé, and Johnson (2003) surveyed 311 employees from a variety of organizations. They found that perceptions of organizational politics are associated with both physical and psychological strains. Similarly, Vigoda (2002) in a series of three Israeli studies found that politics is associated with physical and psychological strains, as well as low organizational commitment and low job satisfaction.

Control. Control is the extent to which employees are allowed to make decisions about their own work. Such decisions involve all aspects of work, including how to work, what tasks to do, when to work, and where to work. Employees with a high level of control can set their own work schedules, choose their own tasks, and decide how to complete those tasks. In a low-control job, the work schedule is set, tasks are assigned, and often even the procedures for accomplishing tasks are specified. College professors have a high level of control because they decide what courses they teach, how they will teach them, and often even when and where their classes will be held. Factory workers usually have little control because they work a fixed schedule, are given a specific task to do, and may be told exactly how to do that task. In many factories, the work is paced by machine. In other words, the work comes down a conveyor belt at a fixed rate, and the worker must keep up with the machine, thus having very little control over work pacing.

Control is an extremely important component of the occupational stress process, and its lack can be a stressor. Called autonomy, it is also a component of job characteristics theory (see Chapters 9 and 10). Studies have found that employee perceptions of control are associated with all three categories of strain, although results are most consistent with psychological strain. Table 11-5 shows the mean correlations of perceived employee control with several strains reported in Spector's (1986) meta-analysis. As you can see from the table, high levels of control are associated with high levels of job satisfaction, organizational commitment, job involvement, and performance. Low levels of control are associated with high levels of emotional distress, intent to quit the job, health symptoms, absence, and turnover.

The control studies summarized in Spector's (1986) meta-analysis concern employee perceptions about how much control they have at work. In most of these studies, control and strains were assessed with questionnaires given to employees. This sort of study makes it difficult to know if job strains are the result of perceived control or if perceived control is the result of strains. Perhaps employees who dislike their jobs, employees who have low commitment, or employees who are in poor health perceive their jobs to be low

TABLE 11-5

Mean Correlations of Perceived Control with Job Strains

Stressor	Mean correlation
Job satisfaction	.30
Organizational commitment	.26
Job involvement	.41
Emotional distress	−.25
Intent to quit	−.17
Health symptoms	−.25
Absence	−.19
Job performance	.20
Turnover likelihood	−.22

Source: Adapted from "Perceived Control by Employees: A Meta-Analysis of Studies Concerning Autonomy and Participation at Work," by P. E. Spector (1986), *Human* Relations, *11*, 1005–1016.

in control, even though the job may not be. As noted previously, there is evidence that how people feel about work affects their perception of the job, including the amount of control they have (Spector, 1992). In other words, the supposed strain might cause the supposed stressor rather than the reverse. To make things even more complicated, it has been found that employees who perform well on the job are given more control (Dansereau, Graen, & Haga, 1975), suggesting that performance affects the amount of control the employee has. Perhaps the extra control given to good performers raises their job satisfaction. Rather than the strain being caused by the stressor, the stressor is caused by the strain. However, there have been some studies of objective control that allow us to draw more firm conclusions about its role in occupational stress.

Studies of objective or actual control help solve the problem of inferring the effects of control on strains because they do not rely on employee reports about control. That is, they allow us to draw conclusions about the effects of low control assessed independently of the employee's perception or appraisal, or at step 1 of the occupational stress model in Figure 11-6. Results with objective measures are not always the same as results with reports of control. For example, C. Liu, Spector, and Jex (2005) showed that O*NET (see Chapter 3) scores for control are associated with absence and illness but not with psychological strains. Employee perceptions of control, on the other hand, are associated with illness and psychological strains but not absence.

The Demand/Control Model

The **demand/control model** (Karasek, 1979) states that the effects of job stressors are a complex interplay of demands and employee control. Demands are stressors such as workload that require adaptation. Put another way, a demand taxes an employee's ability to cope with the environment. According to the theory, demands lead to strain only when there is insufficient control. Stated another way, having control reduces the negative effects of demands; that is, it serves as a *stress buffer*. Figure 11-5 illustrates how control affects the relation between demands and strain. It shows that when control is high, demands (stressors) do not lead to strain. When control is low, however, strains increase as stressors increase. The model implies that giving people control at work can be a successful strategy for reducing or buffering the negative effects of job stressors.

Research clearly shows that control and demands relate to strains, such as burnout and job dissatisfaction (Fila, Purl, & Griffeth, 2017). Support for the buffering effect of control on the impact of demands has been mixed, with only some studies finding the hypothesized effect (Häusser, Mojzisch, Niesel, & Schulz-Hardt, 2010). At least some of the reason for the inconsistent results may concern the measures of demands and control,

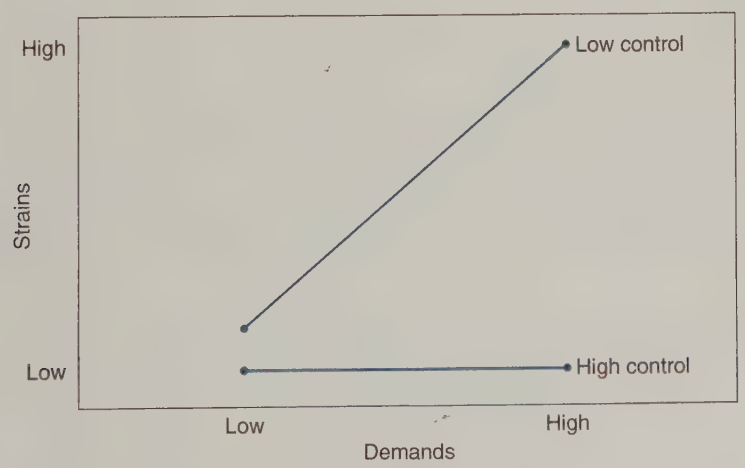


FIGURE 11-5 The demands/control model. When control is high, there is no relation between demands and strain. When control is low, strain increases as demands increase.

which have differed across studies. Wall, Jackson, Mullarkey, and Parker (1996) showed that the nature of control matters in their test of the model. They found support for the model with a measure that focuses on control over employees' immediate tasks but not with a measure of more general control. Another possible factor is that most studies measure the general or typical levels of demands, control, and strain. When Bishop et al. (2003) assessed control, demands, and blood pressure repeatedly over the day, they found that high demand–low control events were associated with elevated pressure, just as the theory predicts.

Alcohol as a Coping Mechanism

Employees can engage in a variety of behaviors to cope with workplace stressors. Some of those behaviors can be directed toward elimination or reduction of stressors, such as figuring out more efficient ways to cope with heavy workloads. Others can involve finding ways to cope with the strains produced by stressors. The consumption of alcohol can be a means of coping with stressful job conditions (Frone, 2016). For example, Biron, Bamberger and Noyman (2011) surveyed 569 Israeli factory workers, finding that alcohol consumption is related to working in unpleasant physical conditions such as air pollution and heat and having heavy workloads. Similarly (Shepherd, Fritz, Hammer, Guros, & Meier, 2019) found in their study of correctional officers working in prisons that alcohol is used as a means of coping with distress on the job, such as having to deal with violent encounters among inmates.

The use of alcohol to cope with stressors can be affected by both individual and organizational factors. For example, M. Wang and colleagues studied alcohol use among employees in China. They found that individuals who are high in negative affectivity (the tendency to experience negative emotions; see Chapter 9) are more likely than those who are low to use alcohol to cope with stressful job conditions (S. Liu, Wang, Zhan, & Shi, 2009). Furthermore, peer norms are an influence on drinking behavior, as people are more likely to drink if their coworkers see drinking as being acceptable (Wang, Liu, Zhan, & Shi, 2010).

Although the moderate use of alcohol likely has little or no effect on organizations, heavy drinking can be a significant issue. Drinking at work can create obvious problems, as workplace intoxication can reduce job performance and increase the risk of accidents and injuries on the job. However, drinking off the job can create problems for the organization as well. Heavy drinking at home, for example, has been related to absence (Bacharach, Bamberger, & Biron, 2010), perhaps due to hangover-related illness.

Recovery

For better or worse, stress is part of everyday life, both on and off the job. Employees even in relatively low stress jobs can become fatigued and strained just by performing everyday job tasks. In order to avoid excessive strain and maintain job performance, employees need time for recovery that allows for unwinding and reducing strain (Sonnentag, Venz, & Casper, 2017). A **respite** from work is a break that allows one to psychologically detach from or forget about work (Fritz, Yankelevich, Zarubin, & Barger, 2010). Respites can be of any length:

- A few minutes, referred to as a **micro-break** (Kim, Park, & Headrick, 2018) that involves a short distracting and fun activity, like watching a funny cat video.
- A meal break that might involve exercise or going for a walk (Sianoja, Syrek, de Bloom, Korpela, & Kinnunen, 2018).
- The time between the end of a workday and the beginning of the next—an evening or a weekend.
- A vacation that could last one or more weeks.

Regardless of the length, a respite can be effective in accomplishing recovery. Both psychological strains such as burnout and physical health symptoms can be reduced by respites (Bennett, Gabriel, Calderwood, Dahling, & Trougakos, 2016). However, the effectiveness of a break from work (whether an evening or an entire vacation) is determined by the sort of activities in which the person engages (Chawla, MacGowan, Gabriel, & Podsakoff, 2020). For example, Sawhney, Jennings, Britt, and Sliter (2018) studied the impact of respites on firefighter mental health. This is important because firefighters are frequently exposed to traumatic events that can result in post-traumatic stress symptoms. The most effective respite activity was talking about stressful experiences with coworkers, supervisors, or a therapist. Other effective activities included spending recreational time with coworkers at work and engaging in relaxing activities.

Although respites are important for recovery, not everyone has the necessary skills to navigate work and recovery. Such skills can be trained, however. Smit and Barber (2016) developed a training intervention in which employees were taught how to create an end-of-the-day plan to complete future work tasks that enabled them to psychologically detach because they had a plan in place for the next workday.

Work–Family Conflict

Work–family conflict is a form of extrarole conflict (see the role conflict discussion earlier in the chapter) in which the demands of work interfere with those of the family (Carlson, Thompson, & Kacmar, 2019); for example, when one member of a couple checks emails during family time at home (Carlson, Thompson, Crawford, Boswell, & Whitten, 2018), or the demands of the family interfere with those of work; for example, having to leave work early to take care of a family matter (Clark, Early, Baltes, & Krenn, 2019). In the 2018 American Psychological Association survey of working Americans, one-third of respondents reported experiencing significant work–family conflict (American Psychological Association, 2018). This form of role conflict can be particularly acute for two-career couples with children and for single parents. With both parents working or with single parents, conflicts are certain to arise over issues such as staying home with sick children and participating in school functions.

There are several factors that contribute to the experience of work–family conflict. On the organization side, having to work many hours (Ford, Heinen, & Langkamer, 2007) and lack of schedule flexibility (Major, Klein, & Ehrhart, 2002) can lead to conflict. On the employee side, personality can be a factor; for example, research has shown that individuals who are high on negative affectivity (the tendency to experience negative emotions) report more work–family conflict (Wayne, Musisca, & Fleeson, 2004). Of course, such individuals have a tendency to experience high levels of various strains, and the experience of psychological strain can exacerbate work–family conflict (Nohe, Meier, Sonntag, & Michel, 2015). This is likely because an individual who is emotionally upset, perhaps from a difficult day at work, will be less able to handle the family role (e.g., playing with children) after work.

Work–family conflict can have several negative effects on both men and women. Work–family conflict has been linked to job dissatisfaction (Allen, French, Dumani, & Shockley, 2020; Casper, Vaziri, Wayne, DeHauw, & Greenhaus, 2018), low organizational commitment (Crain & Stevens, 2018), emotional distress (Ford et al., 2007), and fatigue (French & Allen, 2020).

Although having both parent and work roles can have detrimental effects, particularly for women who usually assume the major responsibility for children, dual roles can have positive effects as well (Langan-Fox, 1998). Work can provide enhanced self-esteem and social support from others, which for some people counteracts the more negative effects of dual roles. Likewise, there can be a positive impact of work on the family and family on work. This can be seen in couples who work in a family business, as the work and family roles can become integrated in a way that one supports the other (Sprung & Jex, 2017).

Organizations that are concerned with work–family conflict have taken steps to help their employees by providing family-friendly benefits. Two of the most frequently used benefits are flexible work schedules and on-site childcare in the workplace. Both can make it easier for employees with children to manage family and work responsibilities. Flexible schedules allow an individual to take time off to deal with nonwork demands, such as taking a sick child to the doctor. Scandura and Lankau (1997) surveyed male and female managers about flexible hours and their job attitudes. Flexible hours were associated with greater job satisfaction for both men and women who had children living with them. On-site childcare makes it easier for parents by enabling them to take their children with them to work. Unfortunately, despite the potential benefits of family-friendly benefits designed to reduce work–family conflict, merely having them is not always effective at reducing work–family conflict (Butts, Casper, & Yang, 2013). In order to have an impact, the policies have to be used, and that means making sure that the supervisor is supportive of people with families (Crain & Stevens, 2018). For supervisors who are not naturally supportive, training can be effective in helping them learn to better support their employees (Odle-Dusseau, Hammer, Crain, & Bodner, 2016).

Burnout

Burnout is a distressed psychological state that an employee might experience after being on the job for a period of time. A person suffering from burnout is emotionally exhausted and has low work motivation with little energy and enthusiasm for the job. Originally, the concept was developed to explain the reactions of employees in the helping professions, such as psychotherapists and social workers. The early burnout researchers believed that burnout is the result of working intensely with other people, and there is research to support that idea. For example, Bakker, Schaufeli, Sixma, Bosveld, and Van Dierendonck (2000) found that patient demands are associated with burnout in physicians. More recently, however, the idea has been extended to workers in all sorts of jobs, even those who have little contact with others.

Burnout is assessed with scales administered to employees. The most popular scale, the Maslach Burnout Inventory (MBI) (Maslach, 1998), measures three components of burnout:

1. *Emotional exhaustion* is the feeling of tiredness and fatigue at work.
2. *Depersonalization* is the development of a cynical and callous feeling toward others.
3. *Reduced personal accomplishment* is the feeling that the employee is not accomplishing anything worthwhile at work.

Table 11-6 lists some of the by-products of each burnout component. For example, emotional exhaustion should lead to absence and fatigue.

Feelings of burnout have been found to correlate with many job stressor and job strain variables and might be considered a type of strain. Burnout has been associated with

TABLE 11-6

The Three Burnout Components and Expected Results of Each

Component	Results
Emotional exhaustion	Absence
	Fatigue
Depersonalization	Callous and uncaring treatment of clients and other people
	Hostility toward other people
Reduced personal accomplishment	Low motivation
	Poor performance

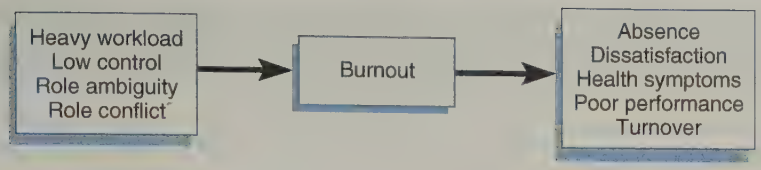


FIGURE 11-6 Job stressors and job strains that have been associated with burnout.
Source: Adapted from "A Review and an Integration of Research on Job Burnout," by C. L. Cordes and T. W. Dougherty (1993), *Academy of Management Review, 18,* 621–656.

stressors such as role ambiguity, role conflict (Beehr, Bowling, & Bennett, 2010), and lack of control (Fernet, Guay, & Senecal, 2004). Hakanen, Bakker, and Jokisaari (2011) showed that having high job demands predicted burnout more than a decade later. On the strain side, burnout has been associated with absence, turnover, poor performance (Swider & Zimmerman, 2010), and physical symptoms (Beehr et al., 2010). It has even been linked to increased risk for cardiovascular disease (Melamed, Shirom, Toker, Berliner, & Shapira, 2006). Figure 11-6 shows some of the job stressors and strains that correlate with burnout. These stressors are possible causes of burnout.

As we have seen in many other areas of I-O psychology, research in the burnout domain has been dominated by self-report survey methods. From these studies, we know many of the variables that are correlated with burnout. We are not yet certain about the causes of burnout and how organizations can prevent it. Research does suggest two ways to reduce burnout. First, burnout can be reduced by getting a break or respite (Fritz et al., 2010) such as taking a vacation (Fritz & Sonnentag, 2006). Second, it has been suggested that organizations encourage managers to provide emotional support to employees by providing positive feedback and engaging in discussions of positive aspects of work as a means of reducing burnout (Kahn, Schneider, Jenkins-Henkelman, & Moyle, 2006).

Chapter Summary

Work can be a dangerous place, not only for blue-collar workers who must use hazardous equipment and substances but for white-collar workers as well. Many hazards have immediate consequences, such as an injury from an accident. Often, however, the effects of work conditions do not show up for many years, such as a cancer that is produced from years of exposure to a carcinogenic chemical.

Accidents are a major cause of death for people of working age. The causes of accidents involve both employee and organizational factors. Programs directed toward both eliminating physical hazards in the workplace and encouraging safe behavior through development of a safety climate seem most effective in reducing accidents.

Physical work conditions tend to have effects that are primarily physical. Exposure to infectious disease and toxic substances can cause illness, exposure to dangerous conditions can cause accidents, and repetitive actions and lifting can cause musculoskeletal disorders (MSDs). Nonphysical conditions can have effects that are both physical and psychological. Work schedules, for example, have been associated with job satisfaction and physical symptoms.

Research has shown that occupational stress can be a factor in psychological strain. Although much of the evidence is circumstantial, support is accumulating for the idea that work demands and control have important physical health implications. Some of the effects of job stressors, however, may be indirect. For example, research has associated job conditions with health-related behaviors such alcohol use.

Work–family conflict concerns incompatible demands between work and home. It can be considered a form of stressor that has been linked to both physical and psychological strains. Both men and women experience work–family conflict. Organizations use a number of practices to reduce it, including flexible work schedules and on-site childcare.

Burnout is a psychological state involving fatigue and lack of motivation for work. Research on burnout has found that it is associated with many job stressors and strains and may itself be considered a psychological strain.

I-O Psychology in Practice

This case discusses how Dr. Stacey Moran works with organizations to improve their safety practices for both clients/customers and employees. Dr. Moran received her Ph.D. in I-O psychology from Pennsylvania State University in 1991. She is a member of the Workers Compensation and Cost Containment Department for St. Paul Travelers Insurance Company. Her role is to help organizations apply principles of psychology to issues involving health and safety at work. As the oldest insurance organization in the United States, St. Paul Travelers is very interested in helping their customers reduce the number and severity of accidents and injuries they suffer. Dr. Moran helps them accomplish this by providing consulting to insureds and company representatives, putting on training programs about safety, and conducting surveys about accident experiences and safety practices. She deals with all areas of OHP, including accidents, burnout, stress, and violence.

One of her projects was a survey of organizations in the outdoor adventure industry in North America. This is a rapidly growing service industry that provides outdoor recreation with activities such as camping, rock climbing, and white-water rafting. Many of these organizations are in the nonprofit sector, such as Boy Scouts and Girl Scouts. The industry is quite concerned about safety, as many of the activities people engage in have the potential for injury.

The goal of this project was to collect information from a large sample of organizations about their safety concerns and practices. This would provide a picture of the state of the industry that could inform where efforts should be targeted to improve safety. Dr. Moran worked in collaboration with Outward Bound, USA, a St. Paul Travelers' insured and the oldest and largest outdoor adventure program in the world. She helped design a survey that was sent to 1,265 organizations throughout North America, and 294 useable surveys were returned (nearly 25%). She analyzed the results and wrote a report for the industry.

The results showed that members of the adventure industry are concerned about safety but that the areas of concern don't necessarily match where their safety efforts are placed. For example, the two major issues identified were driver safety and instructor judgment training. However, most respondents reported that their organizations failed to provide training in these areas. The major conclusions were that improvements are needed in three areas: training, assessment of risk and tracking of accident/injury patterns, and development of safety cultures where injury prevention is a major objective. Interestingly there was a high correlation between customer/client injuries and employee injuries—those organizations that had a high incidence of one had a high incidence of the other. Thus it would be expected that practices that reduced injuries for one group would reduce injuries for the other.

Dr. Moran's report was widely distributed throughout the industry to inform organizations about the steps they could take to increase safety. This project illustrates how psychologists are able to provide information about effective actions that can be taken to solve an important organizational problem.

Discussion Questions

1. Why would an insurance company be concerned about the safety of their insureds' clients/customers?
2. What else might an organization do to improve driving safety other than providing training?
3. How might an organization improve its safety climate?
4. Some managers would argue that employee safety is not their concern and that employees should be responsible for their own safety. Counter this argument and explain why safety is the concern of management.

Learning by Doing

Safety in the Workplace

Choose a workplace that you have access to as a customer, employee, or visitor. It could be your own university. Look for instances in which safety procedures are used. This could include the posting of safety messages (e.g., to use safety equipment), the wearing of safety gear, the availability or use of safety equipment, or other signs of safety practices. Make a record of what you found that can be discussed in class or compared with the findings of other students.

Workplace Stress

Do a mini-qualitative study of occupational stress. Ask five people you know (acquaintances, family members, or friends) to relate a stressful event that occurred to them in the past 30 days. Ask them to describe what led up to it, what happened, and how they responded. When you have all five, look them over and see what the nature of the events was. In particular, see how many occurred at work compared to outside of work. See if any involved work–family conflict. Of the workplace events, see if they fit any of the stressor categories we have discussed, such as role ambiguity, role conflict, workload, lack of control, or social stressors. What was the typical response to a stressful event?

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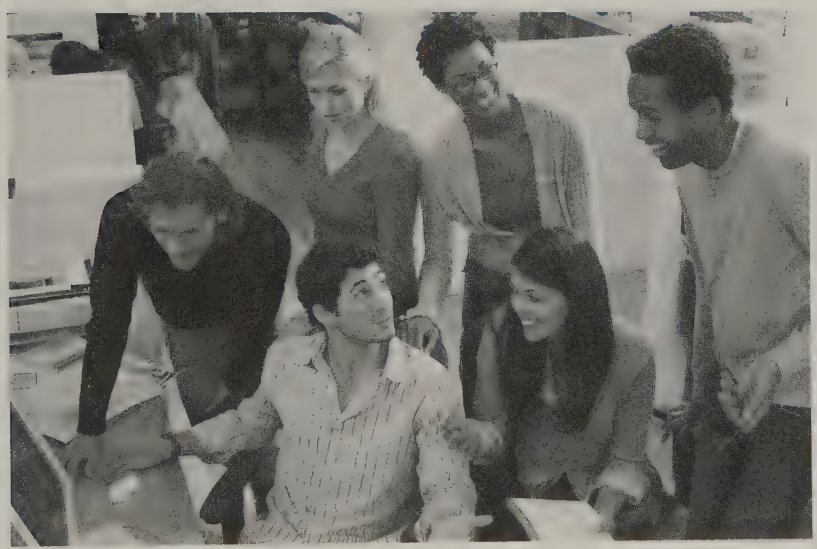
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PART 5

The Social Context of Work



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CHAPTER 12

Work Groups and Work Teams

OUTLINE

Work Groups Versus Work Teams
- Virtual Teams

Important Group and Team Concepts
- Roles
- Norms
- Group Cohesiveness
- Group Conflict
- Process Loss
- Team Commitment
- Team Mental Model

Group and Team Performance
- Performance in the Presence of Others
- Group Versus Individual Performance on Additive Tasks
- Brainstorming
- Group Problem Solving
- Group Decision Making
- Team Innovation
- Team KSAOs

Group Diversity

Interventions with Work Groups in Organizations
- Autonomous Work Teams
- Quality Circles
- Team Building

Chapter Summary

I-O Psychology in Practice

Learning by Doing

References

On July 3, 1988, the U.S. Navy guided missile cruiser *Vincennes* shot down an Iranian airliner, killing all 290 persons onboard. Responsibility for firing the fatal missile was shared by several members of the Anti-Air Warfare Team. This team is supposed to be able to identify hostile aircraft correctly and to shoot only when threatened. Obviously, something went wrong, and much of the blame can be placed on poor teamwork. Someone mistakenly identified the airliner as hostile, and over the next few stressful minutes no one corrected the mistake. The Navy spent considerable time and effort in the aftermath of the tragedy trying to determine how best to prevent similar mistakes in the future, and since the *Vincennes* incident, the error has not been repeated. I-O psychologists were very much involved in this effort to improve teamwork through research (see this chapter's I-O Psychology in Practice).

The U.S. Navy is not the only organization in which people work in teams. Teams can be found in factories, hospitals, schools, and stores. Any job that requires the coordinated actions of more than one person can involve teams. Not all groups of people in organizations work in teams, however. In many work settings, we find groups of people who work relatively independently but still come in contact with one another. College professors, salesclerks, security guards, and teachers often do most of their work without the help of coworkers, although they interact with many other people in their organizations doing similar work. Even the most independent employees are affected by the behavior of others with whom they encounter at work.

In this chapter, we turn our attention from the individual employee to groups of employees. We will see how the behavior of individuals is very much affected by the behavior of other people in the work environment. One cannot fully understand the behavior of individuals without considering the influence of others because people rarely work totally alone and unaffected by others.

We begin this discussion by distinguishing work groups from work teams. Five important group and two important team concepts will be discussed:

Roles
Norms
Group cohesiveness
Group conflict
Process loss
Team commitment
Team mental model

Next, the chapter covers the effects of groups on job performance. Techniques for enhancing group and team performance are included.

Work Groups Versus Work Teams

OBJECTIVES

The student who studies this chapter should be able to

1. Define work groups and work teams and note the distinction between them.
2. Explain the five important group and two important team concepts.
3. Summarize the findings on group performance.
4. Talk about the advantages and disadvantages of group diversity.
5. Discuss the procedures that can be used to enhance work group and team performance.

A **work group** is a collection of two or more people who interact with one another and share some interrelated task goals. These two characteristics—interaction and interrelatedness—distinguish a group from just a collection of people. A university department faculty is a work group. The members of the faculty interact with one another from time to time, and they have interrelated goals involving the education of students. Each faculty member teaches courses that, taken together, constitute the requirements for the major course of study. On the other hand, all of the students in a university are not a group because they do not all interact with one another, although subsets of them do, and they do not all share interrelated goals. Rather, each student has an individual goal that is unrelated to the goals of other students.

A **work team** is a type of work group, but a team has three specific properties (West, Borrill, & Unsworth, 1998):

1. The actions of individuals must be interdependent and coordinated.
2. Each member must have a specified role.
3. There must be common task goals and objectives.

For example, each person on a surgical team has a specific role. A surgeon does the cutting and sewing, a surgical nurse assists and hands instruments to the surgeon, and an anesthesiologist keeps the patient unconscious and monitors vital signs. The actions of these people are coordinated. The cutting cannot begin until the patient is asleep. The surgeon cannot sew unless the nurse hands him or her the tools. There is a common goal of successfully completing the surgery without losing the patient.

The distinction between a group and a team is an important one. All teams are groups, but not all groups are teams. A group consists of people who work together but can do their jobs without one another. A team is a group of people who cannot do their jobs, at least not effectively, without the other members of their teams. For the remainder of this chapter, all group principles will apply to teams, but team concepts do not necessarily apply to groups.

Virtual Teams

As we discussed in Chapter 10, technology (computer-supported cooperative work) has made it possible for people to work in teams without face-to-face contact. These **virtual**

teams communicate via e-mail, telephone, text messaging, Web conferencing, and other technologies. Virtuality, however, is not an all-or-none phenomenon. Teams vary in their use of virtual tools such as e-mail and text (Kirkman & Mathieu, 2005), with some teams having members who are geographically separated, thus precluding face-to-face interaction, whereas others are located in the same place but choose to communicate virtually at least some of the time.

There are both advantages and disadvantages of virtual teams over traditional face-to-face teams. Virtual teams allow employees more flexibility that can reduce work–family conflict (see Chapter 11), and they allow organizations to access experts from around the world (Liao, 2017). On the other hand, virtual teams have more communication problems, and can suffer from low member motivation, feelings of isolation, and low trust (Dulebohn & Hoch, 2017). Comparisons of face-to-face with virtual teams suggest that the former often function more effectively. A meta-analysis of 52 studies that compared face-to-face with virtual teams shows that the virtual teams have worse task performance, take more time to complete tasks, and have lower group-member satisfaction (Baltes, Dickson, Sherman, Bauer, & LaGanke, 2002). Some of these problems can be overcome with the right leadership. To effectively lead virtual teams requires some face-to-face contact to build trust, disseminating knowledge to help teams build a shared mental model (to be discussed later in the chapter), managing conflict, and providing training (Liao, 2017). In a study of software development teams it was found that performance was better in teams with frequent communication between team members and their leader (Gajendran & Joshi, 2012). This suggests that the role of the leader is different with virtual teams, and likely is best focused on facilitating communication and the flow of information. Blog 12-1 discusses what it takes for individuals to work in virtual teams.

BLOG 12-1 Virtual Teaming During COVID19

https://paulspector.com/virtual-teaming-during-covid-19

Discussion Questions

1. What would be the biggest problem in suddenly being directed to work from home?
2. Why does it matter if an employee does computer work on a laptop at a dining room table?
3. What are the best things a supervisor can do to help an employee adjust to working virtually?
4. What will be the long-term impact of the COVID19 pandemic on the workplace?

Important Group and Team Concepts

There are five important concepts that apply equally to groups and teams, and two important concepts that apply primarily to teams. The first three that we will cover (roles, norms, and group cohesiveness) describe important aspects of groups and teams that help us understand how they operate. The fourth (group conflict) and fifth (process loss) are concerned with what sorts of things happen in work groups and teams that prevent people from putting all of their efforts into job performance. Team commitment and team mental models are characteristics more important to teams where efforts must be coordinated than to groups.

Roles

The concept of **role** implies that not everyone in a group or team has the same function or purpose. Instead, different individuals can have different responsibilities and tasks in the group or team. In a surgical team, one person has the role of surgeon, another of nurse, and another of anesthesiologist. In a well-running work team, each role is clearly defined, and all team members know exactly what their roles are.

Formal roles are specified by the organization and are part of the formal job description. In a surgical team, each person's job title (surgeon, nurse, or anesthesiologist) defines the role in a formal way. There may be organizational documents, such as written job descriptions and job analyses that define roles. **Informal roles** arise from group interaction rather than from the formal rules and specifications of organizations. Groups can invent roles that do not exist formally, or a group's informal roles can supersede the formal ones.

An example of an informal role in a work group is that of greeting card sender. It is common in a work group for employees to send cards to one another during special occasions, such as birthdays or weddings. A group member might take on the role of sending cards at the appropriate times. An example of the informal superseding the formal occurs when one person has the formal title of supervisor, but another person is the actual and informal leader. This can occur in combat teams when the members view the lower-ranking experienced sergeant rather than the higher ranking but inexperienced lieutenant as the leader.

Groups vary considerably in the extent to which roles are specialized among members. In a surgical team, for example, the training and credentials are such that little overlap in roles can occur among the surgeon, nurse, and anesthesiologist. With other groups or teams, members can change roles or rotate responsibilities over time. In an academic department of a university, it is common for faculty to take turns being the department chairperson.

Norms

Norms are unwritten rules of behavior accepted by members of a work group. These rules can cover everything from style of dress and manner of speech to how hard everyone works. Norms can exert powerful influences on individual behavior because many groups will strenuously enforce them. As illustrated in Figure 12-1, violation of norms will bring increasingly stronger pressure to bear on the violator, beginning by informing the member of the norm, then scolding the member for violation, and then punishing the member either verbally or physically with violence; when these steps are ineffective, the member will be ostracized (C. L. Jackson & LePine, 2003). A good illustration of norms can be found in Coch and French's (1948) classic study of a pajama factory with a piece-rate system. In this factory, employees assembled pajamas and could work at their own pace. Groups, however, would adopt production norms that specified how much members should produce. Coch and French documented the output of a worker who began to exceed the 50-unit per hour production norm of her work group. When group members pressured her, she restricted her output to about 45 units per hour. A short time later the group was disbanded, and within a matter of days the worker's output more than doubled.

Work group norms can have a bigger impact on member behavior than supervisors or organizational practices. In the Coch and French (1948) study, production was restricted,

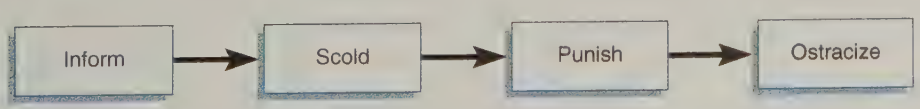


FIGURE 12-1 Norm violators are informed, scolded, punished, and then ostracized from the group.

even though a piece-rate system was in place. Employees would sacrifice the opportunity to make extra money to keep from violating group norms. Clearly norms could prove quite useful as a means of enhancing productivity if they could be appropriately directed. The changing of group norms can be difficult for the management of an organization, which must structure the changes so that it is in the best interest of the group to adopt them. For example, group incentive systems can be an effective means of getting groups to adopt high production norms. With such a system, all members of the group are given rewards, such as a monetary bonus, if the group achieves some specified level of performance. As demonstrated by Coch and French, however, incentive systems will not always motivate groups to perform well.

Group Cohesiveness

Group cohesiveness is the sum of forces attracting group (and team) members and keeping the group together. For a group or team to be highly cohesive, most, if not all, members must have strong motives to remain in the group. A high level of group cohesiveness has important implications for group behavior. Norms tend to be strongly enforced in groups that are highly cohesive. The violation of a norm, particularly an important one, can be threatening to a group's existence. If group continuation is vitally important to group members, the conformity to norms will be a critical issue. In the workplace, people are often dependent on their jobs for economic survival, and the work group can be as important as the family. Threats to the well-being of the group are taken seriously.

Cohesive groups strongly enforce their norms, and work groups might adopt norms for high or low productivity. For this reason, correlations between cohesiveness and job performance have been somewhat inconsistent across studies. However, a meta-analysis (Beal, Cohen, Burke, & McLendon, 2003) suggests that cohesiveness is more likely to result in high than low performance. For example, Man and Lam (2003) studied work teams in an international bank with offices in Hong Kong and the United States. Team members completed questionnaires asking about cohesiveness, and supervisors provided ratings of team performance. Results showed that cohesive teams were rated higher in team performance.

Group Conflict

When people work in groups, they interact with one another, which can potentially lead to conflicts over goals, methods, and resources. It is unlikely that everyone will always agree, which can lead to conflicts about issues that are important to group members. Overall, group conflict, especially in teams, can lead to lower productivity and group member satisfaction (de Wit, Greer, & Jehn, 2012). However, not all conflicts are necessarily detrimental, and there are times when conflicts over allocation of resources or how to get things done are inevitable. How groups deal with such conflicts can determine how effective they can be. Conflicts can be distinguished as cooperative versus competitive (Hempel, Zhang, & Tjosvold, 2009). A **cooperative conflict** is one in which individuals openly share diverging views, respect one another's opinions, and focus on finding a solution that is acceptable to everyone. A **competitive conflict**, on the other hand, is one in which members promote their own points of view, have little regard for others' opinions, and try to get their own position adopted. Cooperative conflict has been shown to relate positively to group performance and competitive conflict has been shown to relate negatively (Hempel et al., 2009; Somech, Desivilya, & Lidogoster, 2009). Thus, it is important for members of groups to adopt a cooperative style to function well.

Process Loss

Much of the time and effort of work group members is devoted to accomplishing organizational objectives through the performance of individuals. Much effort, however, goes

into other group functions that have little to do directly with job performance, including time spent in group maintenance functions such as conflict resolution among members and norm enforcement. It can also involve social activities, such as meals or conversation, that enhance group cohesiveness, which can be important for efficient group functioning. All the time and effort expended on activities not directly related to production or task accomplishment are referred to as **process loss**.

Groups vary tremendously in the amount of time they devote to maintenance activities. Some groups have problems with norm violators and interpersonal conflicts that can consume a great deal of time and energy. Other groups run smoothly with little friction and few internal distractions. In the following section on group performance, we will see that groups do not always perform as well as we might expect. Process loss can have a lot to do with the inefficiency that sometimes occurs in groups. Nevertheless, a certain amount of process loss is necessary and may lead to better future performance by the group.

Team Commitment

The organizational commitment concept has been extended to several different entities, including the team. **Team commitment** is the strength of an individual's involvement in a team and consists of the acceptance of team goals, willingness to work hard for the team, and desire to remain in the team (Bishop & Scott, 2000). Therefore, we might expect that high team commitment would be associated with high team performance, low turnover, and team satisfaction. Research has found support for at least two of these expectations. J. W. Bishop, Scott, and Burroughs (2000) found in an automobile parts manufacturing company that work team performance is positively related to team commitment. J. W. Bishop and Scott (2000) studied sewing machine operators and found that their team commitment was related to coworker and supervisor satisfaction, as well as organizational commitment. Van Der Vegt, Emans, and Van De Vliert (2000), in a study conducted in the Netherlands, reported significant positive correlations of team commitment with general job satisfaction and team satisfaction.

Team commitment seems much like group cohesiveness, but there is a distinction. Commitment is about an individual's feeling toward the team. Cohesiveness is about all the team member feelings toward the team. In a cohesive team, all members have high team commitment. However, there can be teams in which some individuals are committed, and others are not, so the team itself does not have overall high cohesiveness. In fact, when some people are committed and others are not, there is potential for conflict because expectations differ among group members that would not occur if everyone is either high or low on commitment.

Team Mental Model

When people work in teams, they must have some common conception of what they are to do together. A **team mental model** refers to the shared understanding among team members of the task, team, equipment, and situation (Mohammed & Dumville, 2001). Smith-Jentsch, Mathieu, and Kraiger (2005) explained that mental models are complex and can be divided into two types, one concerned with taskwork and the other teamwork. The taskwork model concerns the nature of the job that needs to be done. In a surgical team, all members share an understanding of the surgery they jointly perform and their particular roles. This does not mean that the mental models have to be identical but just compatible (Cannon-Bowers & Salas, 2001). The nurse may not have the same understanding of the patient's illness that the surgeon does, but both share an understanding of what they need to accomplish and what each person does. When the surgeon asks for an instrument, the nurse knows what to do because they share that understanding. The teamwork model is the shared conception of the team and how its members are to work together. A shared mental model of teamwork facilitates team performance because members know how to coordinate efforts with one another.

For a team to perform effectively, there must be a sufficiently shared team mental model. Teams in which the mental model is inadequate will fail to coordinate, will be inefficient, and will be likely to make errors. Conflicts can also arise out of misunderstandings or because team members get frustrated with one another because each person expects the other to do tasks that are not getting done. Research has shown that quality of team mental model relates to team performance, with both accuracy and similarity of mental models among team members leading to better performance (DeChurch & Mesmer-Magnus, 2010; Edwards, Day, Arthur, & Bell, 2006).

Group and Team Performance

There is a widespread belief that group performance is superior to individual performance for many tasks. This belief is based on the notion that something emerges in the interaction among people—a synergy—that enables a group to be better than the sum of its members. In other words, people inspire one another to be better than they would have been alone. It is true that for some tasks the coordinated efforts of two or more people are necessary because a single individual could not accomplish them alone. For example, several people are needed to build a house. Some tasks may require more than two hands, and others may require the lifting of objects that one person cannot do alone. For many tasks, however, groups are not necessarily better than individuals. Part of the reason is process loss—group members distract and keep one another from concentrating solely on the task at hand. There are additional reasons that we discuss as we compare the performance of individuals with that of groups.

Performance in the Presence of Others

One of the earliest known research findings concerning groups in psychology is that task performance is affected by the presence of others. In the late 1800s, Norman Triplett noted that the performance of bicycle riders was faster when they were racing against other people than when they were racing alone (Triplett, 1897). Subsequent research with laboratory tasks, however, did not always find that people performed better in the presence of others. Performance was better in the presence of others in some studies but worse in other studies.



Michael DeLeon/Getty Images

Performing in front of an audience raises arousal, as this person will certainly experience.

The most widely accepted explanation for these results was put forth by Zajonc (1965), who noticed that the type of task determined if performance is enhanced or inhibited by the presence of others. He suggested that the presence of others increases physiological arousal, which has effects on task performance. Performance is improved (the **social facilitation** effect) by other-induced arousal when the task is simple or well learned, such as bicycle riding. On the other hand, performance is decreased (the **social inhibition** effect) by other-induced arousal when the task is complex or new to the individual, such as solving a complex mathematics problem. These results suggest that for complex tasks, people should be given private space that allows them to keep their arousal levels relatively low. For simple tasks, the arousal produced by the presence of others can enhance performance, but other people can also be a distraction in the workplace, leading to poorer performance. There are no guarantees.

Group Versus Individual Performance on Additive Tasks

When researchers compare individuals to groups on task performance, they are usually concerned with an **additive task**. The output of the task is countable, and the total output is the sum of the individual group-member outputs. The total output for a group of cashiers in a supermarket would be additive because the total sales are the sum of all the individual cashiers' sales. The effects of group process on additive task performance can be seen by comparing the output of an interacting group of people with an equal number of individuals who do not interact. The noninteracting individuals are referred to as a **nominal group**. Their output reflects the output of a given number of individuals. The output of the interacting group, by comparison, reflects how well the same number of people will perform in a group.

Research dating back to the 19th century has consistently shown that nominal groups do as well as and usually better than interacting groups (Davis, 1969). This finding is well illustrated by research done over 100 years ago by an agricultural engineer in France named Maximilien Ringelmann. Kravitz and Martin (1986) described Ringelmann's research in which he compared the task performance of groups and individuals. Ringelmann noted that the sum of individual efforts often surpassed the effort of an equal number of people working in a group. Table 12-1 summarizes how group and individual efforts compare. It shows the results across several different types of tasks involving the pulling and pushing of objects. The first column shows the number of people in the group. The second column shows the expected output of a group, which was calculated as the number of people in the group times the average individual performance. In other words, a group of two people should produce double the output of a single person, and a group of four people should produce four times the output of a single person. The third column shows the actual performance of the group. As the table illustrates, the actual interacting group output is considerably less than the expected group output. The percentage that the interacting group output is of the expected group output declines as the group size

TABLE 12-1

Strength of Object Pulling and Pushing as a Function of Group Size

Size of group	Expected pull (kgs)	Actual pull (kgs)	Percentage of actual to expected performance
1	1	1	100
2	2	1.86	93
4	4	3.08	77
8	8	3.92	49

Source: Adapted from "Ringelmann Rediscovered: The Original Article," by D. A. Kravitz and B. Martin (1986), *Journal of Personality and Social Psychology, 50,* 936–941.

increases (see column 4). Clearly something is happening with the interacting group that is inhibiting performance.

There are at least two explanations for the group effect on additive task performance. The first explanation is the possibility of process loss. Group members might interfere with one another's task performance, or they might spend time and effort on group maintenance activities rather than on the task at hand. This might explain inhibited performance in some studies, but with the rope-pulling task this does not seem likely. The nature of the task required that all group members concentrate their efforts on pulling the rope at the same time when a signal was given. Group members could not have been doing something else at the time.

A second and more likely explanation is a phenomenon called **social loafing**—people do not put forth as much effort in a group as they would if they were working alone, and the larger the group, the less effort each person exerts. Latané, Williams, and Harkins (1979) found this phenomenon to be widespread in both laboratory and field settings. The social loafing effect can be diminished when group members believe that their individual output is being monitored. In a field study, social loafing was lower when employees felt their individual productivity was visible to others (Liden, Wayne, Jaworski, & Bennett, 2004). The phenomenon may also be limited to individualistic cultures, such as Australia, Canada, England, and the United States (see the discussion of culture values in Chapter 9), where emphasis is placed on the self rather than on society. Earley (1989) found that Chinese management trainees who came from a collectivist country, where emphasis is placed on the group and society, did not demonstrate social loafing.

Brainstorming

Groups are often said to be superior to individuals in generating ideas or solutions to problems (Osborn, 1957). The theory is that group members inspire one another to generate ideas that they would not have thought of alone. **Brainstorming** is a group technique that is supposed to result in improved performance with this type of task. A group is given instructions to generate ideas without being critical or judgmental in any way. Ideas will be evaluated and modified later.

Unfortunately, research has failed to find that the performance of interacting brainstorming groups is superior to that of nominal groups in which individuals generate ideas on their own (McGlynn, McGurk, Effland, Johll, & Harding, 2004). Rather than inspiring one another, group members often inhibit one another. Part of the difficulty is undoubtedly attributable to process loss. The group may not spend as much time as individuals generating ideas. Perhaps even more important, individuals can be reluctant to share ideas in the group because of shyness or social anxiety. Alone a person might be more confident and secure in generating ideas. Finally, when working in a live group, members are spending most of their time listening to others rather than generating options.

When people engage in virtual brainstorming by working alone on a computer, the advantages of working in a face-to-face group disappears (Dennis & Valacich, 1993). Individuals working virtually produce performance equal to or better than that of nominal groups (the combined output of individuals who worked alone) and better than that of groups of individuals who shared their ideas. In Gallupe, Bastianutti, and Cooper's (1991) virtual brainstorming study, subjects were aware that several people were working on the same task at the same time and that as ideas were entered onto the computer, they would be seen by everyone. Individuals were not known to one another, which may have reduced the social anxiety that could have inhibited performance in an interacting group. In a similar study, however, Valacich, Dennis, and Nunamaker (1992) found that anonymity made no difference in the performance of virtual brainstorming individuals linked to one another. This study suggests that social anxiety is not the reason for the poorer performance of interacting groups.

Gallupe, Cooper, Grisé, and Bastianutti (1994) conducted a study that showed how virtual brainstorming produces better performance in part because people do not have to

wait their turn for others to speak. They can type their responses as they think of them. When virtual brainstormers had to wait their turn to enter their responses onto the computer, performance was about the same as that for the face-to-face groups. This suggests that process loss is responsible for the poorer performance of face-to-face groups compared to virtual or nominal brainstorming groups.

Paulus (2000) argued that the basic idea that group members inspire one another may be correct but that group process gets in the way. He has shown that exposure to the ideas of others can help people generate more ideas. He suggested a procedure whereby people first get together in a group to discuss ideas and then work alone to generate options. Research has shown that the initial group session helps facilitate the subsequent solitary session and results in increased performance (Paulus, 2000).

The idea of brainstorming can be extended beyond a workgroup and even an organization. **Crowdsourcing** is a type of virtual brainstorming in which someone sends invitations to a group of people inside and/or outside of the organization asking for ideas about a stated issue or topic (Boughzala, Vreede, Nguyen, & Vreede, 2014). Large numbers of people can be invited to share ideas electronically, which can provide a wide range of perspectives. Seeber et al. (2020) applied this technique to the issue of developing artificial intelligence (AI) as teammates in a work setting. They crowdsourced the problem to a group of scientists with expertise in the area to identify a list of research issues that need to be explored. Although AI might not yet be developed sufficiently to be considered a teammate, this effort provides a roadmap of what we would need for that to occur.

Group Problem Solving

So far, we have seen that for additive tasks and brainstorming, groups do not necessarily perform better than an equal number of individuals. This is not to say that individuals always outperform groups, however, as there are tasks that can be better done when people interact. Problem-solving tasks involve finding the solution to a given situation, such as solving a puzzle. For some problems, there can be a correct answer, but for others there might be a variety of solutions that could be reasonable. Performance is assessed as the time to find the right answer in the former case or the time to find a suitable answer (or the quality of the answer) in the latter. Studies of group problem solving often compare groups to their individual members, contrasting the group time to solve the problem with the time of the single best performer. Studies of problem solving have often found that groups perform as well or better than their best member, suggesting that for this sort of task a group can be a good choice (Bonner, Baumann, & Dalal, 2002).

Group Decision Making

Groups within organizations frequently make decisions ranging from those that are relatively unimportant (e.g., the color of the new stationery) to those that significantly affect the lives and well-being of thousands (e.g., closing a plant and laying off all the workers). Organizations differ tremendously in the extent to which important decisions are made by individual managers (the autocratic approach) or by groups (the democratic approach). Even in the most autocratic organizations, however, it is common for individuals to make decisions only after consultation with a group or committee. The president of the United States consults the cabinet for important decisions, and the presidents of corporations usually have their "inner circles" of associates who serve the same purpose.

Evaluating the quality of a decision is not always an easy or straightforward undertaking. Often the evaluation depends on the values of the person doing the determination and the criterion chosen for comparison. If a government decides to go to war, the decision might be considered good by one person because the war was won and bad by another because many people were killed. For example, many Americans supported President George W. Bush's decision to use military force against Iraq in 2003 to overthrow the Saddam Hussein government, whereas others believed it was a bad decision

that would cost too many lives. Similarly, if a company president decides to downsize and lay off thousands of employees, it might be considered a good decision by stockholders whose shares might go up in value and a poor decision by employees who might lose their jobs. A solution to this dilemma is to evaluate a decision against the objective that it was meant to obtain. The Iraq War might be considered a good decision because it accomplished the objective of overthrowing Hussein. If the criterion considers the cost in human life and money, the decision might be considered to have been a poor one. A layoff might be a good decision if it results in a financially healthier company, but a bad decision if it does not.

We review two areas of group decisions in this section. First is the issue of whether groups take more risks or are more conservative in their decisions than individuals. As we will see in our discussion of group polarization, this question has no simple answer. The second issue concerns how groups sometimes make inappropriate decisions, even though most of the group members know the decision is a poor one. This is the phenomenon of groupthink.

Group Polarization. If a group of people decides on one of several possible courses of action, will the choice involve greater or lesser risk than the choice made by an individual? In other words, are groups riskier or more conservative than individuals in their decisions? This question has been addressed by hundreds of studies comparing group decisions to the decisions of individuals. The answer is that group decisions often differ from the decisions of individuals, but whether they are riskier or more conservative depends on the nature of the decision.

The typical risky-decision study asks individuals and groups to choose one option from a series of options that vary in risk. For example, a decision task might involve deciding the acceptable odds of survival for undergoing elective surgery. Table 12-2 is one of the choice-dilemmas (Kogan & Wallach, 1964) that have been used in many risk studies. In these studies, subjects are first asked to make an individual decision. The subjects are then placed into groups and are asked to come to a group decision. In most studies, the group decisions are more extreme than the mean of the individual decisions. For example, suppose that five subjects choose the following acceptable odds for the surgery problem: 20, 20, 20, 60, and 80 chances out of 100 of dying in surgery. The mean of their choices is 40. When placed in a group, however, the same five people are likely to reach a group decision that is closer to the majority position of 20 than the mean of the individuals alone.

In groups, the majority position typically holds more weight than the minority position, and the shift of the group is toward the majority view. If most group members make a risky choice, the group decision is likely to be riskier than the mean of its individuals. If the majority make a conservative choice, the group is likely to shift its decision in a conservative direction. This deviation from the group mean is called **group polarization** (Lamm & Myers, 1978), meaning that the group is more extreme (closer to one pole or the other) than the mean of its individuals.

TABLE 12-2

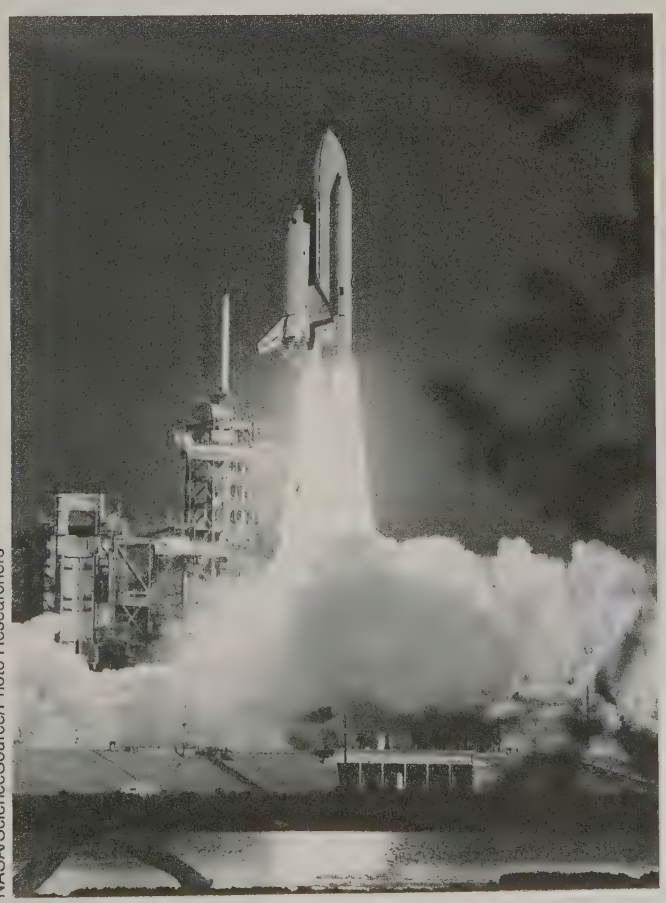
A Risk-Related Choice Task Used in Group Decision Research

Mr. B, a 45-year-old accountant, has recently been informed by his physician that he has developed a severe heart ailment. The disease would be sufficiently serious to force Mr. B to change many of his strongest life habits—reducing his workload, drastically changing his diet, giving up favorite leisure-time pursuits. The physician suggests that a delicate medical operation could be attempted which, if successful, would completely relieve the heart condition. But its success could not be assured, and in fact, the operation might prove fatal.

Source: From *Risk Taking: A Study in Cognition and Personality*, by N. Kogan and M. A. Wallach (1964), New York, NY: Holt, Rinehart and Winston.

Several explanations have been offered for the group polarization phenomenon. One likely explanation is that the members who hold the minority view will conform to the majority, especially if one member's choice is far from the choices of the other group members. The individuals who find that others made the same choice that they did are likely to be convinced that theirs was the best choice. Most of the group discussion will be directed to convincing the minority that they should adopt the "correct" majority viewpoint. Although most of the research on group decision shifts has concerned risk-related decisions, this phenomenon probably holds for any type of choice situation. For example, decision shift would be expected in deciding how much money to spend on an item.

Groupthink. High-level decision-making groups in corporations and governments typically are comprised of experts who should be able to make good decisions. Unfortunately, something can happen to decision-making processes when groups of people get together, leading them to make decisions that any reasonably bright, informed individual would probably never make. Janis (1972) conducted in-depth analyses of decision fiascoes and developed a theory of what can go wrong when groups make decisions. **Groupthink** is a phenomenon that can occur when groups make decisions that individual members know are poor ones (Janis, 1972). Janis noted as examples the Ford Motor Company's decision to produce the Edsel, an automobile that lost $300 million; the Kennedy administration's decision to invade Cuba at the Bay of Pigs, an invasion that was a total failure; and the Johnson administration's decision to escalate the Vietnam War, which the United States never won. Moorhead, Ference, and Neck (1991) analyzed the decision to launch the space shuttle *Challenger* in 1986. Despite warnings that cold weather could cause serious mechanical failures, NASA officials decided to launch the shuttle in freezing temperatures, resulting in a tragic accident that killed the entire crew.



NASA/ScienceSource/Photo Researchers

The decision that led to the *Challenger* disaster was likely caused by groupthink, according to Moorhead, Ference, and Neck (1991).

According to Janis (1972), groupthink is likely to occur in highly cohesive groups with strong leaders, when the social pressures to maintain conformity and harmony in the group take precedence over sound decision making. The likelihood of groupthink is increased when decision-making groups isolate themselves from outside ideas and influences. Note the following sequence of events: Suppose that the leader of the group presents a bad idea at a meeting. Each member might initially suspect that the idea is a poor one but is reluctant to be the one to say so. Much like the story "The Emperor's New Clothes," no one wants to stick his or her neck out and question the leader's decision. As each individual looks around the room and notices that everyone is silent, he or she may begin to doubt his or her initial judgment. After all, if everyone else seems to be going along, perhaps the idea is not so bad. As the group process gets rolling, even the most minor reservation is quickly rationalized away, and pressure is put on individual members to conform to the group point of view. Some of the factors that might lead to groupthink are illustrated in Figure 12-2.

Janis (1972) offered several suggestions for avoiding groupthink. Two major themes appear throughout these suggestions. First, group leaders should serve as impartial moderators in group meetings rather than attempting to control the decision alternatives that are recommended. Second, group members at every stage of the decision-making process should critically evaluate decision alternatives and continually seek information that might support or refute the wisdom of a decision. Janis discussed specific actions that groups should take to maintain a critical and objective frame of mind. For example, groups should periodically break into smaller subgroups to discuss critical issues, and members of the decision-making groups should discuss issues with subordinates. These actions can help groups avoid getting caught in a cycle of groupthink that can result in making the wrong decision.

Aldag and Fuller (1993) reviewed the research on groupthink. They noted that few good tests of its propositions exist and that those that do exist support only part of the theory. For example, group cohesiveness does not seem to be necessary for groupthink to occur. Janis (1972), however, offered sound advice about how to avoid bad group decisions by soliciting a variety of views. This is a potential advantage of having diversity in the backgrounds of group members. A diverse group is likely to have different perspectives on a problem and its solution. We will discuss group diversity later in the chapter.

Team Innovation

Organizations today find themselves in a rapidly changing and competitive world that requires them to adapt and change. Much of that change occurs at the level of work teams that implement new innovations in the workplace. Innovation (see discussion in Chapter 11) is the introduction of new ideas, procedures, or products into a team (De Dreu, 2006). Innovation is not the same as creativity in that team members do not necessarily invent the innovations that they adopt (see discussion in Chapter 10). Innovation is the process of introducing changes regardless of whether they were invented or borrowed.

Teams innovate out of necessity, from both internal factors (organizational constraints and workload) and external factors (turbulent environment) (Anderson, De Dreu, & Nijstad, 2004). A turbulent and challenging environment is the case for high-tech companies that produce products in rapidly advancing fields. Extreme competition requires

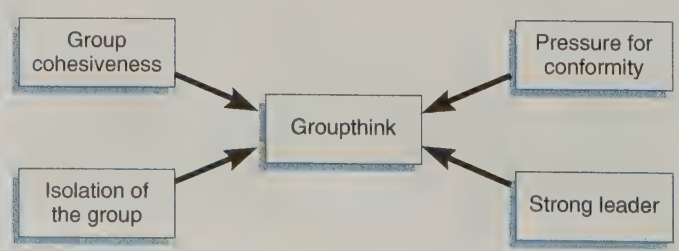


FIGURE 12-2 Several factors can lead to groupthink. Of the four shown here, group cohesiveness seems unnecessary, according to Aldag and Fuller (1993).

constant innovation for organizations to maintain their market share and survive. Teams also innovate because of organizational constraints that require innovations to overcome obstacles and heavy workloads that require new ways to get work done more efficiently.

Teams vary in their orientation to innovation. Those teams that take time to critically discuss how they do things and how they can do them better are the best innovators (Somech, 2006). Such discussions involve sharing differences of opinion that can produce conflicts about tasks among members. A moderate level of such conflict is optimal in facilitating innovation in teams (De Dreu, 2006), especially when that conflict is cooperative (see the discussion on team conflict earlier in this chapter).

Team KSAOs

An important issue for organizations that use teams to accomplish important work is whether or not there are special team KSAOs that determine whether a person is a good team member and, perhaps more importantly, whether the levels of team KSAOs among members relate to team performance. Research has shown that at least some KSAOs that predict job performance for individuals also predict for teams. For example, the higher the mean cognitive ability in a team (computed by averaging team member scores), the higher the team performance is likely to be (Stewart, 2006). Determining additional team KSAOs that also relate to team performance would inform both selection and training of members.

As might be expected, several team KSAOs have been identified that relate to team performance. Three are particularly important:

1. To be a good team member requires knowledge of teamwork (Hirschfeld, Jordan, Feild, Giles, & Armenakis, 2006). Such knowledge is concerned with how individuals can effectively work together in teams and develop good working relationships with others.
2. An effective team member has good social skills (Morgeson, Reider, & Campion, 2005). Beyond knowing how to work in teams, a person must have skills in communicating with and influencing others. In addition, at least one study suggests that emotional intelligence (see Chapter 5) can be an advantage in teamwork (Farh, Seo, & Tesluk, 2012). Being able to recognize and influence emotions in others can help with communication and influencing others.
3. Certain personality characteristics make a person particularly suited to teamwork. C. L. Jackson, Colquitt, Wesson, and Zapata-Phelan (2006) showed that individuals who are collectivistic as opposed to individualistic (see Chapter 9) in their values perform better in teams.

Taken together, these studies suggest that the most effective team members have knowledge of how to work in teams and skill in doing so, as well as a personality that is suited to working closely with others. Blog 12-2 discusses how such "soft skills" are essential for teamwork.

BLOG 12-2 Soft Skills for Teamwork

https://paulspector.com/soft-skills-for-teamwork

Discussion Questions

1. Which of the soft skills are most important for teamwork and why?
2. When are soft skills important for individual work outside of teams?
3. How should soft skills best be taught in school and at work?
4. Should organizations hire people based on their soft skills?

Group Diversity

Demographic shifts have resulted in increasing numbers of minorities and women in the workplace, not only in North America but in much of the rest of the industrialized world (Triandis, 2003). Coupled with the greater reliance on teamwork, group diversity has become an important issue for organizations (Mohammed & Angell, 2004). Diversity or differences among people can be divided into two types: cognitive and demographic (Van der Vegt & Janssen, 2003). Cognitive diversity concerns people's knowledge, skills, and values. Demographic diversity consists of more visible attributes of people, such as age, gender, and race-ethnicity. An important issue concerns the impact of diversity within work groups on member performance and reactions.

S. E. Jackson, Joshi, and Erhardt (2003) reviewed 63 studies that addressed the impact of diversity within groups—that is, the effect on groups of having members that are different from one another. They noted that diversity can have both negative and positive effects but that results across studies are inconsistent. One thing that can contribute to negative effects is when individuals feel they are different from others in the group, (Shemla, Meyer, Greer, & Jehn, 2016). This feeling of being different is distinct from objective diversity, as people who are different from one another cognitively or demographically might still see themselves as similar to others in important ways. Another issue that determines if effects are negative or positive is the type of diversity and nature of the task. Mannix and Neale (2005), for example, concluded that cognitive diversity is likely to be helpful for team innovation, but demographic diversity is not. However, demographic diversity is helpful when there is a need to get the perspectives of a diverse population of potential clients or customers in marketing situations (S. E. Jackson & Joshi, 2004).

Organizational context is also important for diversity. Van der Vegt and Janssen (2003) found no relation of either cognitive or demographic diversity with performance in teams from a Dutch company. However, the diverse groups were the best performers when the job required coordinating with teammates and the worst performers when the job could be done independently. In another Dutch study, a similar pattern was found for job satisfaction when the joint influences of diversity and group goals were investigated (Schippers, Den Hartog, Koopman, & Wienk, 2003). There is no overall correlation between diversity and job satisfaction. However, members of teams with group goals are more satisfied if they are diverse; members of teams with individual goals are more satisfied if they are not diverse. Taken together, these studies suggest that diversity can have negative effects when people have no stake in getting along with one another because their jobs are independent or their goals are not linked. However, when there is a necessity to work well with others, not only does the negative aspect of diversity disappear, but also there can be significant advantages in both performance and satisfaction.

Interventions With Work Groups in Organizations

Most organizations consist of a network of interrelated work groups. For an organization to function effectively, individuals must coordinate their efforts within their own groups, and groups must coordinate their efforts with one another. In this section, we discuss three techniques that can be used to improve group functioning. The autonomous work team is an alternative to the traditional organization of a factory. Items are assembled by small teams of employees rather than by all production employees. The autonomous work team idea has been adapted for nonmanufacturing organizations as well. Quality circles are groups of employees who meet to provide suggestions to management about how to improve productivity. Team building is a family of procedures used to improve the functioning of teams.

Autonomous Work Teams

In the traditional factory, the assembly of a product is broken down into many small operations. For large, complex products, like an automobile, there can be hundreds or thousands of operations, each done by a separate employee. Because assembling a product requires the coordinated effort of many people, resources must be devoted to supervision. The autonomous work team is an alternative system whereby an entire product is assembled by a small team of employees. A factory will be comprised of many work teams, each assembling an entire product. Because assembly of a product involves only the coordination of team members, relatively few resources are necessary for supervision. Teams are relied on to manage themselves, requiring far fewer supervisors.

The details of how autonomous work teams operate vary from organization to organization. One such system, described by Hackman and Oldham (1980), was implemented by the Butler Corporation when it opened a new grain dryer plant. A grain dryer is a large piece of farm equipment that contains over 3,000 parts (see photograph). At Butler, each dryer is assembled by an autonomous work team. Each team is responsible for managing itself and for product assembly. Ten distinguishing characteristics of the teams at Butler are listed in Table 12-3. As you can see, each member of the team learns each operation, so that after about 18 months on the job every employee can assemble an entire dryer. The team is responsible for the quality of the finished product, which it must test before



Stan Zack/Alamy Stock Photo

Autonomous work groups at Butler Corporation assemble entire grain dryers, which is the cylinder surrounded by steam. (Grant Heilman Photography)

TABLE 12-3

Distinguishing Features of Autonomous Work Groups at Butler Corporation

1. Employees frequently rotated jobs.
2. After about 18 months, most employees knew the entire production process.
3. Groups designed and purchased their own tools.
4. Group members went on service calls to do warranty repairs.
5. Quality control inspection was done by group members.
6. There were few supervisors.
7. Group members participated in hiring and firing.
8. Supervisors served as coaches providing counseling and training.
9. There were weekly group meetings and monthly plant meetings.
10. There were employee advisory groups to management.

Source: From *Work Redesign*, by J. R. Hackman and G. R. Oldham (1980), Reading, MA: Addison-Wesley.

sending it out of the plant. If a dryer is defective after it is placed into use on a farm, a team member might have to make a service call to fix it. The role of supervisors is different at Butler. There are few of them, and their major function is to offer advice and training to team members. The approach is participative with frequent staff meetings and an advisory committee comprised of members from different teams.

Research has shown that autonomous work teams can benefit employees and organizations. Job satisfaction is sometimes higher with autonomous work teams than more traditional approaches (Cordery, Mueller, & Smith, 1991). Job performance in manufacturing organizations has been found to be the same (Wall, Kemp, Jackson, & Clegg, 1986) or better (Banker, Field, Schroeder, & Sinha, 1996). However, the decreased need for supervisory personnel can result in an overall greater efficiency for these autonomous work teams, even when productivity is the same (see the Research in Detail box). Although there can be advantages to autonomous work teams, they are not suitable for all situations. Langfred (2005) found that to be in an autonomous team means surrendering some individual autonomy. Thus, such teams are best suited to tasks that require a high level of interdependent effort among members to complete tasks.

Research in Detail

It is rare in field settings to be able to do a true experiment in which two or more experimental conditions are created and subjects are randomly assigned to them. Wall, Kemp, Jackson, and Clegg (1986) conducted a *quasi-experiment*, meaning that the design of the study was an approximation to an experiment. Two factories that represented the two experimental conditions of interest were compared, but employees were not randomly assigned to work at each factory. It is therefore possible that the observed effects were due to differences in the two factories rather than the autonomous work group treatment.

The study was conducted at a candy manufacturing company in England. Officials of the company decided to experiment with autonomous work groups by trying them at one factory. The researchers were enlisted to evaluate the effects of the new system. The productivity, job satisfaction, and mental health of employees at the autonomous work group factory were compared to those factors for employees at a matched factory that used the traditional assembly-line approach. Data were collected 6 months, 18 months, and 30 months after the new factory began operation.

The results showed that employees in the autonomous work group factory were more satisfied with their jobs than employees in the traditional factory. Their productivity, however, was not better. In fact, during the first 6 months of operation, the productivity of the autonomous work groups was quite disappointing. Much of the difficulty was attributed to problems with new equipment and the time needed for training employees in the new production procedures. By the 30-month time period, performance in both factories was equivalent. Because the autonomous work group factory had fewer supervisors, however, it was found to be more cost efficient.

One finding illustrates the difficulties in drawing conclusions from quasi-experimental studies. The turnover rate was found to be higher in the autonomous work group factory than the traditional factory. This finding was surprising because employees of the former factory were more satisfied with their jobs than employees of the latter factory. The authors noted that the unemployment rate in the area of England where the autonomous work group factory was located was lower than it was where the traditional factory was located. They speculated that the unemployment rate may have been the cause of the turnover rate differences rather than the type of factory. Because of the design of the study, we cannot be certain why the difference occurred. This study does provide evidence to support the idea that autonomous work groups can be more cost efficient than traditional factory structures. Organizations should be aware, however, that extra effort and time may be needed for successful implementation of the system.

Source: Adapted from "Outcomes of Autonomous Workgroups: A Long-Term Field Experiment," by T. D. Wall, N. J. Kemp, P. R. Jackson, and C. W. Clegg (1986), *Academy of Management Journal, 29,* 280–304.

Quality Circles

A quality circle is a group intervention that gives employees the opportunity to have input into issues at work. **Quality circles** are groups of employees who meet periodically to discuss problems and propose solutions relevant to their jobs. Typically, the groups are comprised of people who have similar jobs in manufacturing organizations, and discussions revolve around issues of product quality and production efficiency. As with autonomous work teams, quality circles have been used in all types of organizations.

In theory, quality circles have benefits for both employees and organizations. They allow individual employees to enjoy greater participation, which many find stimulating and enjoyable. It can be a welcome break from routine work to spend time discussing work problems with colleagues. For the organization, it should mean better production procedures because the people who do the work are often the most knowledgeable about what the problems are and how they can be solved.

Too little research has been done on quality circles to draw any firm conclusions about their effects on employees or organizations (Van Fleet & Griffin, 1989). The few studies that have investigated quality circle benefits have yielded somewhat mixed results (Bettenhausen, 1991). Marks, Mirvis, Hackett, and Grady (1986) conducted one of the few studies that compared participants with nonparticipants in the same organization. They found that employees who participate in the quality circle program are more productive and have fewer absences than employees who do not. These results are quite promising, but they need to be replicated in other organizations before we can conclude that quality circles will increase productivity and reduce absence.

The quality circle idea has been adapted to focus on employee health rather than job performance. The German **health circle** or Gesundheitszirkel is an intervention in which groups of employees discuss ways to improve health and well-being. Aust and Ducki (2004) identified 11 studies with results that showed mostly positive effects of health circles. Not only did studies show that many suggestions were implemented, but some found increases in both health and well-being as well.

Team Building

Team building refers to an activity designed to enhance the functioning of work groups or teams. Some team-building efforts are task oriented—they attempt to help team members improve how they accomplish their team tasks. Other efforts are interpersonally oriented—they are concerned with how well team members communicate and interact. This approach presumes that teams will perform better when their members can communicate and interact with one another effectively (Buller, 1986).

There is no one way in which team building is done, but three factors characterize team-building efforts (Buller, 1986). First, team building is a planned activity—that is, it consists of one or more exercises or experiences that are designed to accomplish a particular objective. Second, team building is typically conducted or *facilitated* by a consultant or trainer who is an expert in delivering interventions. It would be difficult for a team to run itself through team building, for the trainer is an integral part of the experience. Third, team building usually involves an existing work team. Individuals are trained in team building to enhance their individual team skills within their work teams.

Team building often involves team members discussing problems and coming up with solutions. The role of the team trainer is to facilitate the discussion by getting team members talking to one another. This might involve directing questions such as these at individuals:

"Tom, what sorts of problems have you been having with product quality?"
"Ellen, why don't you seem to get the information that you need?"



Jochen Sands/Digital Vision/Getty Images

Team building can be valuable for all sorts of teams.

or summarizing and reflecting back to the group the points that have been made:

"It sounds like everyone is concerned that there are too many defective parts."
"I guess everyone feels uninformed about decisions."

The trainer's job is to get people to raise issues, identify problems, and discuss possible solutions. The trainer might also have to mediate conflicts if the discussion leads to arguments among team members.

Studies have shown that team building can have positive effects on teams and team members. Klein et al. (2009) conducted a comprehensive meta-analysis to summarize the results of 20 team-building studies. Their analyses showed that team building resulted in better team performance, more efficient team coordination, enhanced team skills by members, and better attitudes about the team. As might be expected, team building had larger effects on team members (attitudes and skills) than team performance because the focus of these interventions is individual members. Furthermore, interventions that were task oriented had larger effects than those that were interpersonally oriented, although both types of intervention were effective.

Chapter Summary

Much of the work done today in organizations is performed by work groups or work teams. Work groups are collections of individuals who interact at work and share interrelated task goals. Work teams are a type of work group, but the tasks of individual members are coordinated and interrelated, the team members have different roles, and the team has a common objective or task goal.

There are seven group and team concepts that are important. Five relate to work groups. *Roles* distinguish the specific positions and functions of individuals in a group or team. *Norms* are group rules of behavior that in many groups are rigidly enforced. *Group cohesiveness* is the sum of forces holding the group together. Highly cohesive groups rigidly enforce their norms. *Group conflict* arises from disagreements and disputes among group members. *Competitive conflict* has detrimental effects, whereas *cooperative conflict* can have positive effects. *Process loss* is the time and effort that group members spend keeping the group operating rather than working on tasks. Two additional concepts are important for teams: *Team commitment* is the involvement members have in their team. *Team mental model* is the shared understanding team members have about the task and situation.

The presence of other people affects task performance. Simple or well-learned tasks are facilitated by the presence of others; complex or new tasks are inhibited by the presence of others. Group performance is often inferior to the combined performance of an equal number of individuals working alone, particularly for additive tasks (the total performance is the sum of all individual's performance). This can be explained by the phenomenon of social loafing in that the larger the group, the less effort each individual expends.

Group brainstorming leads to worse performance than individuals working alone when groups work face-to-face. Under some conditions, virtual brainstorming leads to equivalent or even better performance than individuals working in isolation.

Group polarization explains that, depending on the situation, group decisions can be riskier or more conservative than individual decisions. Groupthink occurs when highly talented decision makers are placed in decision groups and make bad decisions. Rapidly changing environments necessitate that teams innovate by adopting new ways of working. Finally, team KSAOs are characteristics of individuals that make them well suited to working effectively in teams.

Three interventions have the potential for improving group functioning and performance. Autonomous work teams are given the responsibility for entire jobs, such as assembling whole products like appliances and automobiles. Quality circles are groups of employees who meet periodically to come up with solutions to work problems. Team building is an intervention designed to improve the functioning of work teams.

I-O Psychology in Practice

This case concerns a U.S. Navy team development training program created and carried out by Dr. Janis Cannon-Bowers. Dr. Cannon-Bowers received her Ph.D. in I-O psychology in 1988 from the University of South Florida. From her graduation until 2003, when she accepted a faculty position at the University of Central Florida, she worked at the Naval Air Warfare Center Training Systems Division in Orlando, Florida, where she held the title of Research Psychologist. Her major responsibility was to conduct research on team performance and training to develop new and more effective approaches. As a result of her research, she became involved in training naval officers in team development.

There were two naval tragedies in the late 1980s that led to a great deal of research into team performance. In 1987, the U.S.S. *Stark* was hit by an Iraqi missile, and in 1988 the U.S.S. *Vincennes* shot down an Iranian airliner. An investigation into the causes of both incidents revealed that poor teamwork was a major factor. This led to the U.S. Navy's effort to find ways to improve the performance of teams. Dr. Cannon-Bowers was part of this research effort, but her work also involved interventions aimed at improving team performance on navy ships.

Many different teams on combat ships carry out complex and dangerous functions, often under the severe stress of combat. Under such conditions, there is no time for group deliberation because all functions must be carried out quickly and efficiently, with life-and-death decisions being made in a matter of seconds. It is vitally important that teams are developed into well-functioning units that do their jobs efficiently. On a combat ship, it is the commanding officer (C.O.) who must see to it that the various teams develop into effective units. To do so, the C.O. must have skills in team development.

Dr. Cannon-Bowers and her colleagues designed a team development training program for C.O.s that she conducted at the U.S. Navy's Surface Warfare School. The program was intended to give the C.O.s insights into team functioning and sound training principles. It covers the ways to

1. Give feedback
2. Accept criticism by subordinates
3. Create a climate for learning
4. Develop a "shared mental model" or common understanding of the team's functions
5. Avoid groupthink

The response to the training by the C.O.s was positive. They found the training program to be informative and useful. From the perspective of participant reaction criteria, it was successful. Whether this translates directly into better team performance on ships still needs to be determined, but initial results suggest that it does.

Discussion Questions

1. Do you think Dr. Cannon-Bowers's program will prove to be effective?
2. What steps could the U.S. Navy take to improve the team performance of ship personnel?
3. Is awareness of the causes of groupthink enough for team members to avoid it?
4. How would you go about giving feedback to subordinates if you were a ship's C.O.?

Learning by Doing

Team Innovation

Find an individual (friend, acquaintance, or family member) who is a member of a work team. Ask him or her to relate a case in which his or her team adopted some new way of working (e.g., a new type of equipment or a new procedure). Ask the following questions.

1. What was the nature of the innovation?
2. What motivated the team to adopt the innovation?
3. Who suggested the innovation (i.e., team member, manager, or someone else)?
4. Were alternative innovations considered?
5. Was the original innovation idea modified to suit this particular team?

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CHAPTER 13

Leadership and Power in Organizations

What makes a person a good leader? Was President Bill Clinton a good leader? During both of his terms, the media reported constant rumors and scandals. He was impeached, was sued for sexual harassment, and was the target of an ongoing criminal investigation through his entire presidency. His opponents attacked his character constantly, arguing that he was morally unfit for the job. Yet in the midst of serious charges of immoral behavior and perjury and an impeachment trial in the U.S. Senate, poll after poll found that the overwhelming majority (two-thirds) of Americans approved of his performance in office. The U.S. economy was the strongest in decades with the stock market breaking records, the federal budget was balanced, serious crime was on the decline, and welfare reform seemed to be successful. Were these signs of his effectiveness or merely coincidences? How would you go about determining how effective he was? Is good leadership a matter of character or a matter of being able to get important things done? Will the same person be a good leader in all situations? These are important questions to both government and nongovernment organizations. The answers tell us whom to choose as our leaders, and they tell leaders how they must act to be effective.

In this chapter, we deal with the important domain of leadership in organizations. We discuss the nature of leadership and how leaders influence followers. We summarize what is presently known about the personal characteristics that relate to good leadership performance and the effects of leader behavior on subordinates. We see how good leadership is the result of leader behavior, leader characteristics, and the leadership situation. Finally, we discuss women in leadership positions and cross-cultural differences in leadership.

OUTLINE

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OBJECTIVES

The student who studies this chapter should be able to

1. Define leadership.
2. Explain the five sources of power and three sources of political power.
3. Summarize the major approaches and theories of leadership.
4. Compare and contrast the major approaches and theories of leadership.
5. Discuss how men and women compare on leadership.

What Is Leadership?

You probably have an intuitive idea of what leadership is. A *leader* is the one in charge or the boss of other people. Just because you are in charge, however, does not mean that people will listen to you or do what you say. What at first seems to be a simple idea is quite complex. Leadership scholars have come up with many different definitions of leadership, and no one definition has been universally accepted (Yukl, 1989). A common idea that runs through various definitions is that leadership involves influencing the attitudes, beliefs, behaviors, and feelings of other people. Even nonleaders influence others, but leaders exert a disproportionate influence—that is, a leader is more influential than a nonleader.

Within an organization, leaders are often associated with supervisory positions; however, being a supervisor does not guarantee that you will be able to influence others. Furthermore, many leaders in organizations have no formal organizational title. Informal leaders often arise in work groups and may be more influential over the behavior of group members than those with a supervisor title. Formal and informal leadership is an aspect of the formal and informal roles that we discussed in Chapter 12. An organization assigns the role of leader (e.g., manager or supervisor) to a person. An individual develops the informal leader role through interaction with colleagues. A person who is particularly skilled might find that others look to him or her for guidance, perhaps more so than to their own supervisors. The amount of influence a person has over others is determined by several personal and organizational factors, which we discuss next.

Sources of Influence and Power

French and Raven's (1959) Bases of Power

French and Raven (1959) described five bases of power one person has over another, such as a supervisor over a subordinate. **Power** is the extent to which one person can influence another to do something. The power bases listed in Table 13-1 involve both individual characteristics and organizational conditions, and they concern the relationship between leader and follower, or between supervisor and subordinate. Although bases of power are discussed as characteristics of the supervisor, power arises from the interaction between subordinate and supervisor. The supervisor makes an influence attempt, but it is the behavior of the subordinate that determines whether it is effective. Table 13-1 indicates how supervisors can use each power base.

TABLE 13-1

The Five French and Raven Bases of Interpersonal Influence and Power and How They Can Be Used

Base	Use
Expert	Give information
Referent	Get subordinates to like you
Legitimate	Get a high-level position or rank
Reward	Give rewards for compliance
Coercive	Give punishments for noncompliance

Source: Adapted from "The Bases of Social Power" (pp. 150–167), by J. R. P. French, Jr., and B. Raven (1959), in D. Cartwright (Ed.), *Studies in Social Power*, Ann Arbor, MI: Institute for Social Research.

Expert power is based on the knowledge and expertise that the supervisor has. A subordinate is likely to follow the directives of a person who he or she believes has special knowledge or expertise about the issue at hand. Note that it is the expertise the subordinate believes the supervisor has that is important rather than the actual expertise. Although actual expertise affects perceived expertise, some people are better than others at appearing to be experts. Titles (doctor), college degrees (Ph.D.), certifications (certified public accountant), and distinctions (Nobel Prize winner) can enhance the perceived expert power of an individual. Expert power can be particularly effective because the subordinate is likely to be convinced that the supervisor knows the right answer, and so following his or her directive is the best course of action.

Referent power is the extent to which the subordinate likes and identifies with the supervisor. A person is likely to be influenced by another whom he or she admires or likes. This source of power can be developed through personal relationships with other people. It can also be enhanced by raising the status of the supervisor. A person with celebrity status is likely to have a high level of referent power. Some corporate leaders are national celebrities with referent power, such as Oprah Winfrey who is the chairperson of Harpo, Inc.

Legitimate power is the power inherent in a supervisor's job title. It is derived from the subordinate's belief that the supervisor has the legitimate right or authority to be in charge. Much of the strength of this power derives from the subordinate's values about the rights of supervisors. If the subordinate refuses to recognize the authority of the supervisor, there will be no power in the supervisor's title.

Reward power is the ability of the supervisor to reward subordinates with bonuses, desirable job assignments, promotions, or raises. **Coercive power** is the ability of the supervisor to punish subordinates with disciplinary actions, fines, firing, or salary reductions. Organizations differ in the extent to which supervisors can give out punishments and rewards. In private companies, it is not unusual for a supervisor to be able to give raises and promotions to subordinates. In government organizations, an individual supervisor might not be able to do so because these rewards are determined by legislative action.

All five types of power can be effective if used properly. The major limitation of reward power is that subordinates might become accustomed to it and perform only when the reward is available. For example, salespeople on commission might be reluctant to do anything other than selling. Coercive power can have detrimental effects because subordinates might become angry and strike back, either directly or indirectly; for example, they might engage in counterproductive work behavior (see Chapter 10). Aguinis, Nesler, Quigley, Suk-Jae-Lee, and Tedeschi (1996) showed that the expert, referent, and reward bases of power are associated with good relationships between college professors and their students. On the other hand, coercive power is associated with poor relationships.

Yukl's (1989) Political Action

In organizations, particularly at management levels, people engage in behavior that enhances their influence over others. Although politics is often considered from a negative and self-serving point of view, as we discussed in Chapter 11, there is a positive side to politics as well. Landells and Albrecht (2017) conducted a qualitative interview study of employees to capture their experiences with political behavior in the workplace. They uncovered five aspects of political behavior that reflected both positive and negative aspects.

1. Building relationships with others so that organizational tasks can get done.
2. Manipulating others by bullying and undermining them.
3. Observing what is going on to get a better understanding of the organization and how best to influence people.
4. Controlling decisions and consolidating power and influence.
5. Building a positive reputation and managing one's reputation or personal brand.

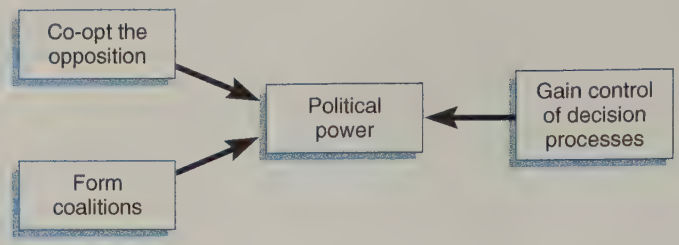


FIGURE 13-1 Yukl (1989) discussed how political power tactics can be a means of achieving political power in an organization.
Source: Adapted from *Leadership in Organizations*, by G. A. Yukl (1989), Englewood Cliffs, NJ: Prentice Hall.

Relatedly, Yukl (1989) outlined three tactics by which political power is achieved and maintained in organizations (Figure 13-1), which overlap with some of the five aspects of political behavior.

Similar to behavior category 4, *controlling decision processes* involves controlling and influencing important decisions in the organization, such as the allocation of resources. This sort of power can be achieved by serving on appropriate committees (e.g., finance) or taking on the right tasks (preparation of the budget). Influence in the U.S. Congress is largely based on being on the most powerful House or Senate committees.

Forming coalitions means entering into agreements with others to support your position in return for your support of the others' position. Again, this is often seen in legislative bodies when different factions agree to support each other's favored positions. Senators in the United States, for example, who wish to pass immigration reform legislation might make a deal with senators who wish to pass gun control legislation, so that each side gets their bill passed.

Co-opting involves trying to diffuse another faction's opposition by allowing its members to participate in the decision. The hope is that this will make it difficult for them to remain in opposition. For example, a local government that wishes to take action to reduce the pollution produced by local industry is sure to run into opposition by individuals from that industry. A political approach to reducing or co-opting that opposition is to assign the task to a committee that includes industry representation—but not enough representation to determine the committee's actions.

Politics is used in government and private industry to accomplish goals and get things gone. It can be an important tool used to the benefit of organizations and society. It can also be used in a self-serving manner to achieve personal goals at the detriment of organizations and people. Whether politics is good or bad is determined by how and why it is used.

Political Skill

If leadership is about influencing other people, then political skill is an important component. **Political skill** is the extent to which a person is able to influence others to engage in behavior that is beneficial to that person or to the organization (Zellars, Perrewe, Rossi, Tepper, & Ferris, 2008). Such skill can be used in a self-serving way, as we discussed in the Chapter 11 section on politics, but it also can be used to benefit others and the organization. Ferris and his colleagues (Ferris et al., 2005) have divided political skill into four dimensions.

1. Social astuteness is the ability to understand people and social situations. This is not unlike emotional intelligence (see Chapter 5), but social astuteness does not involve just understanding emotions.
2. Interpersonal influence is the skill of convincing other people to engage in the behavior desired or to accept a particular position.
3. Networking ability involves developing relationships with a wide range of individuals and managing those relationships to accomplish objectives.

4. Apparent sincerity is the skill of appearing to be (and preferably really being) honest, open, and trustworthy.

These four dimensions suggest that the politically skilled understand social interactions, are able to influence others, can build networks of allies to rely on, and exude an aura of integrity. Research has shown that political skill in leaders does result in leader effectiveness (Ferris et al., 2005). Furthermore, political skill can be important for all employees and not just supervisors, as individuals who are more skilled are able to perform better on the job because of their ability to work well with others (Blickle, von Below, & Johannen, 2011).

Abuse of Supervisory Power

When used appropriately, the various forms of power can provide tools to enhance the functioning of organizations. They can also be used to help individuals have positive feelings about work and perform their jobs well, but there is a potentially negative side to power. Some supervisors will use their power to mistreat subordinates. In some cases, the supervisor believes that punitive measures are necessary to get people to perform well; in other cases, the supervisor simply enjoys wielding power over others. Unfortunately, mistreatment received from supervisors can have a larger detrimental effect on subordinates than mistreatment from coworkers or customers (Chang & Lyons, 2012).

We will discuss two forms of mistreatment that subordinates might endure from supervisors. First, we will talk about *abusive supervision*, which concerns aggressive and punitive behaviors some supervisors direct toward subordinates. In the extreme, abusive supervision can rise to the level of bullying. *Sexual and ethnic harassment* concern abusive behaviors that target groups of individuals based on gender, race, or sexual orientation. Blog 13-1 discusses why leaders should not mistreat subordinates.

BLOG 13-1 Why You Shouldn't Be a Coercive Leader

https://paulspector.com/why-you-shouldnt-be-a-coerciveleader

Discussion Questions

1. What kinds of situations might call for a coercive approach?
2. What is the difference between being coercive and being abusive?
3. Why are noncoercive approaches generally more effective than coercive approaches?
4. What sorts of things can an employee do if his or her supervisors are coercive?

Abusive Supervision

Some supervisors mistreat their subordinates by engaging in a pattern of **abusive supervision**, which is a persistent pattern of aggressive and psychologically harmful behaviors (Tepper, 2000). Tepper (2000) listed 15 specific acts that characterize abusive supervision, for example:

- Calls subordinate names
- Is rude
- Lies to a subordinate

- Puts down a subordinate in front of others
- Ridicules a subordinate

Abusive supervision is a type of social stressor (see Chapter 11) that can lead to employee strain. Not surprisingly, being subjected to abusive supervision is associated with a number of adverse consequences, especially for low-level employees who have little autonomy and control over their own work (Velez & Neves, 2016). It has been associated with psychological strains such as burnout, job dissatisfaction, and negative emotions at work (e.g., anxiety and depression) (Mackey, Frieder, Brees, & Martinko, 2017). Individuals subjected to abusive supervision are less likely to follow safety rules (Yang, Zheng, Liu, Lu, & Schaubroeck, 2020) and are more likely to engage in counterproductive work behavior, less likely to perform organizational citizenship behavior, and perform their jobs worse than individuals who do not endure this form of mistreatment (Mackey, McAllister, Maher, & Wang, 2019; Shoss, Eisenberger, Restubog, & Zagenczyk, 2013). Furthermore, one does not have to be the target of abuse to experience negative consequences. Observing coworkers experience abusive supervision can have much the same effect as experiencing it yourself (Harris, Harvey, Harris, & Cast, 2013).

Studies have shown that personality is related to subordinate reports of abusive supervision, with individuals high on conscientiousness (Mary B. Mawritz, Dust, & Resick, 2014) and low on emotional stability (Garcia, Restubog, Kiewitz, Scott, & Tang, 2014) reporting more abusive supervision. One question that arises with these studies is whether individuals with these personality characteristics are just prone to report abusive supervision, whether it exists or not. Evidence against that possibility was provided by Mary Bardes Mawritz, Mayer, Hoobler, Wayne, and Marinova (2012) who showed that within workgroups, coworkers have a high degree of agreement about their supervisor's abusive behavior. In addition to personality, it has been shown that poor performers are more likely to experience abusive supervision, but only when the supervisor has a vested interest in that performance (Walter, Lam, van der Vegt, Huang, & Miao, 2015). In other words, if the supervisor is held responsible for the subordinate's performance, he or she might rely on abusive tactics to either get the subordinate to improve performance or quit the job.

Although one might guess that there might be gender differences in both the supervisors who engage in abusive supervision and the employees who receive it, at least one study finds no differences. Hoobler and Hu (2013) found with their American sample that men and women reported experiencing the same amount of abusive supervision and that men and women were seen by their subordinates to be equally abusive.

Ethnic and Sexual Harassment

Whereas abusive supervision is a general mistreatment of employees, sexual and ethnic harassment are targeted forms of mistreatment directed to members of a particular group. Some supervisors might engage in *sexual harassment* by mistreating subordinates of a different gender or sexual orientation. Others might engage in *ethnic harassment*—the mistreatment of employees based on their ethnic or racial background (Bergman, Palmieri, Drasgow, & Ormerod, 2007; Schneider, Hitlan, & Radhakrishnan, 2000). Fox and Stallworth (2005) found that the most common forms of ethnic harassment include derogatory comments, ethnic jokes, and exclusion of the target person from employee interactions.

Perhaps the best-known form of harassment is **sexual harassment**, which is behavior of a sexual nature that

Is unwanted
Can adversely affect a person's employment
Interferes with a person's job performance
Creates a hostile and intimidating work environment

The sorts of behaviors that comprise sexual harassment include

- Unwelcome and repeated sexual advances and requests
- Unwanted physical contact or touching
- Use of offensive language
- Repeated requests for a date
- Threats of punishment for noncompliance with requests

Sexual harassment is illegal in the United States and many other countries. In the United States, it is covered by civil rights legislation and is considered a form of discrimination. Many cases have resulted in lawsuits, with companies having to pay damages to employees in excess of $100,000. Although sexual harassment is the act of an individual, organizations have been held accountable for the behaviors of their employees. Organizations are expected to prevent their supervisors and others from engaging in sexual harassment.

It is difficult to know exactly how widespread sexual harassment might be. Surveys in the United States (e.g., Schneider, Swan, & Fitzgerald, 1997) and elsewhere (de Haas, Timmerman, & Hoing, 2009) have asked men and women if they have encountered one or more instances of behavior that a victim of sexual harassment might endure, such as crude comments or jokes or unwanted requests for a date. Ilies, Hauserman, Schwochau, and Stibal (2003) conducted a meta-analysis of 55 such studies and concluded that 58% of women reported experiencing these sorts of behaviors at work. One must be cautious in interpreting this to mean that a majority of women have been victims of sexual harassment (Fitzgerald, Drasgow, Hulin, Gelfand, & Magley, 1997). Many of these behaviors become harassment only when they are unwanted and are repeated often enough to create a hostile or intimidating work environment. An isolated comment or simple request for a date is not harassment, so one should not interpret such surveys as indicating that the majority of women have been victims. In fact, Ilies et al. (2003) noted that fewer than half of those women who reported experiencing these behaviors felt they were harassed. It should be noted that although sexual harassment is often considered a woman's problem, studies have shown that men can also be targets (Berdahl & Moore, 2006).

Another issue is that people vary in the extent to which they perceive actions by supervisors and others to be harassment (Timmerman & Bajema, 2000). In other words, to some extent, harassment is in the eye of the beholder—and in the attribution an employee makes about the intent and motives of the other person (Luthar & Pastille, 2000). For example, Wayne (2000) asked college students to read a real sexual harassment case, but she manipulated the gender and organizational level of the perpetrator and victim. The person was more likely to be judged to have harassed when the victim was of a higher level (e.g., supervisor) than a lower level (subordinate). Wayne argued that the perception of the situation is determined in part by whether the person's behavior is contrary to expectations. A certain degree of coerciveness is seen as expected in supervisors but not subordinates, and so for supervisors there may be a higher threshold for perceiving their behavior as sexual harassment.

Sexual and other forms of employee harassment are serious matters that organizations should attempt to control. They often reflect a general climate of abusiveness in which racial, sexual, and general harassment occur together (Berdahl & Moore, 2006). Furthermore, it is not just supervisors who engage in these behaviors. Coworkers, subordinates, and even customers can engage in harassment, as well. When supervisors and other employees engage in certain forms of harassment, they can get their organizations into legal difficulties. The costs of legal problems, however, are probably quite small in comparison to the hidden costs to organizations. Sexual and ethnic harassment can be stressful, leading to job dissatisfaction, psychological strain, and physical strain (Raver & Nishii, 2010; Willness, Steel, & Lee, 2007). As with all forms of employee mistreatment (see the discussion of social stressors in Chapter 11), there can be serious consequences to individuals who are targeted, as well as to their organizations. For that reason, organization management would be wise to make efforts to safeguard its employees from victimization by supervisors as well as others who abuse their power.

Approaches to the Understanding of Leadership

Many approaches to the study and understanding of leadership have been taken. The trait approach is concerned with determining the personal characteristics of good leaders. It asks the question

"Who will make a good leader?"

The behavior approach is concerned with finding out which leader behaviors are effective. It asks the question

"What do good leaders do?"

The contingency approach (Fiedler's and path–goal) assumes that good leadership is a function of the interplay of the person, his or her behavior, and the situation. It asks the question

"Under a given condition, who will be a good leader and what behavior is likely to be effective?"

The leader–member exchange theory and the charismatic/transformational approaches focus on the relationships between subordinates and supervisors. They ask the question

"How does the interaction between subordinate and supervisor affect the subordinate's behavior?"

The moral theories of leadership—authentic, ethical, and servant—ask

"How can we get leaders to hold to high moral standards and encourage their subordinates to do the same?

All of these approaches have contributed to our understanding of leadership, and we discuss them in this section. We also cover the Vroom–Yetton model for deciding how to approach decision-making tasks in work groups.

The Trait Approach

The oldest approach to the study of leadership is the *trait approach*. It is based on the presumptions that some people make better leaders than others and that it is possible to determine the traits of good leaders. Some proponents of this approach would argue that good leadership is a function of the person and that a person who is a good leader in one situation would be a good leader in any situation. It would follow that various leaders, such as Alexander the Great, George Washington, Martin Luther King, Jr., and Winston Churchill, could have been great leaders in other times and situations. This does not seem likely, however, since each man had different attributes and adopted a different approach to leadership that was appropriate to his circumstances.

Most of the research studies that have attempted to uncover the traits of good leaders have used one of two approaches. One approach used a methodology similar to employee selection studies, which were discussed in Chapter 6. A sample of leaders, often supervisors in an organization, is identified for study, and a criterion for leadership performance, typically job performance, is chosen. The supervisors are assessed on the criterion and on the personal traits of interest. These might include measures of various abilities, job experiences, motivation, and personality. Relationships between the personal characteristics and performance are interpreted as the effects of traits on leader performance.

Various studies have used many different measures of personal characteristics, as well as different measures of performance. Randle (1956), for example, assessed about 100 different traits of managers. Although many studies have used well-validated measures,

many have used untested instruments developed for that study. Some of these measures were not of good quality, especially in early studies conducted before we fully understood some of the biases that affect psychological measurement. This has contributed to inconsistency of results across studies in predicting leader performance. Nevertheless, research on managers as leaders has shown that personal traits such as cognitive ability can predict managerial performance (Hogan, Curphy, & Hogan, 1994).

The second approach is concerned with *leader emergence*—that is, who in a group will become the leader. These studies had groups of people work on a laboratory task, and the criterion was who became the leader of the group. The performance of the leader would not usually be assessed. It is possible that the personal characteristics that resulted in an individual's becoming the leader (for example, physical attractiveness) would not necessarily result in that person being a good leader.

It should come as no surprise that results across many of these studies are inconsistent. Some studies found that certain characteristics are associated with leader emergence and performance, whereas others did not. To make sense out of an inconsistent literature, Judge, Bono, Ilies, and Gerhardt (2002) conducted a meta-analysis to combine results across studies statistically. They found that effective and emergent leaders were high on the Big Five traits of emotional stability, extraversion, openness to experience, and conscientiousness.

The Leader Behavior Approach

The *leader behavior approach* is concerned with what leaders do rather than what their personal characteristics might be. Although leader behavior studies have dealt with specific behaviors, most have concentrated on leadership styles. A *leadership style* is a cluster of related behaviors that represent an approach to dealing with subordinates. For example, some supervisors prefer to allow subordinates to have input into decisions that affect them. Such a style of seeking advice and having discussions about issues is called *participative*. Other supervisors do not involve subordinates in decisions. Rather, they make the decision and announce it to the group. This style in which subordinates are given little input is called *autocratic*.

The most influential research program to study leader behaviors is the Ohio State Leadership Studies, which were begun in 1945 (Stogdill, 1963). This series of studies was designed to uncover the effects of specific supervisory behaviors on subordinates. The Ohio State researchers began by collecting about 1,800 critical incidents that represented either very good or very bad instances of supervisory behavior. They used these incidents as the basis for developing a 150-item questionnaire on leader behavior. The questionnaire was administered to several samples of employees, who answered each item about their supervisors. A complex statistical procedure called *factor analysis* was used to see if the 150 items could be reduced to a smaller number of underlying dimensions of leadership. Two dimensions stood out as important for effective leadership, which they called consideration and initiating structure.

Consideration is the amount of concern that supervisors show for the happiness and welfare of their subordinates. It includes friendly and supportive behavior that makes the workplace pleasant for subordinates. **Initiating structure** is the extent to which the supervisor defines his or her own role and makes clear what is expected of subordinates. It includes assigning tasks and scheduling the work. One of the major contributions of the Ohio State Leadership Studies was the development of scales to assess these dimensions. The most widely used is the **Leader Behavior Description Questionnaire (LBDQ)**, which is completed by subordinates about their supervisor. Table 13-2 contains four items that assess consideration and four items that assess initiating structure.

Many studies have used the LBDQ to discover the effects of leader behavior on subordinates. A good example is Fleishman and Harris's (1962) study of production workers in a truck manufacturing plant. Data were collected from subordinates of 57 supervisors

TABLE 13-2

Eight Items From the Consideration and Initiating Structure Scales of the Leader Behavior Description Questionnaire (LBDQ), Form XII

Consideration Items

He or she is friendly and approachable.
He or she does little things to make it pleasant to be a member of the group.
He or she puts suggestions made by the group into operation.
He or she treats all members of the group as his or her equals.

Initiating Structure Items

He or she lets group members know what is expected of them.
He or she encourages the use of uniform procedures.
He or she tries out his or her ideas in the group.
He or she makes his or her attitudes clear to the group.

Note: Items were modified to eliminate the generic "he."
Source: Adapted from *Manual for the Leader Behavior Description Questionnaire–Form XII*, by R. M. Stogdill (1963), Columbus, OH: Ohio State University.

with the LBDQ. The grievance and turnover rates were also collected for each supervisor's work group. Grievance rate can be considered a behavioral measure of dissatisfaction with conditions of work. In government and unionized organizations, grievances require hearings that can consume considerable employee time. An excessive grievance rate can destroy the efficiency of a work group because people are spending time in unproductive ways.

Fleishman and Harris (1962) found that the mean LBDQ scores for the supervisors are related to the grievance and turnover rates in their departments. Supervisors with low scores on consideration and high scores on initiating structure had higher turnover rates and more grievances among subordinates than supervisors who were high on consideration and low on initiating structure. The supervisors scoring lowest on consideration had a turnover rate that was about four times higher than the supervisors scoring highest (Figures 13-2 and 13-3). More recently, Ceri-Booms, Curşeu, and Oerlemans (2017) conducted a meta-analysis of studies that found consideration and initiating structure of supervisors were related to the performance of their work groups. Although consideration is generally a good thing, Blog 13-2 discusses how sometimes when people including supervisors try to be supportive, that support is not effective.

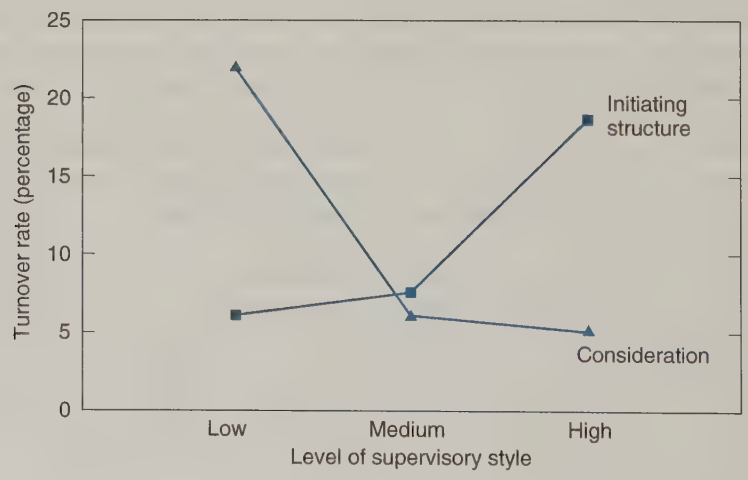


FIGURE 13-2 Turnover rate as a result of both the consideration and the initiating structure of supervisors.
Source: Adapted from "Patterns of Leadership Behavior Related to Employee Grievances and Turnover," by E. A. Fleishman and E. F. Harris (1962), *Personnel Psychology, 15*, 43–56.

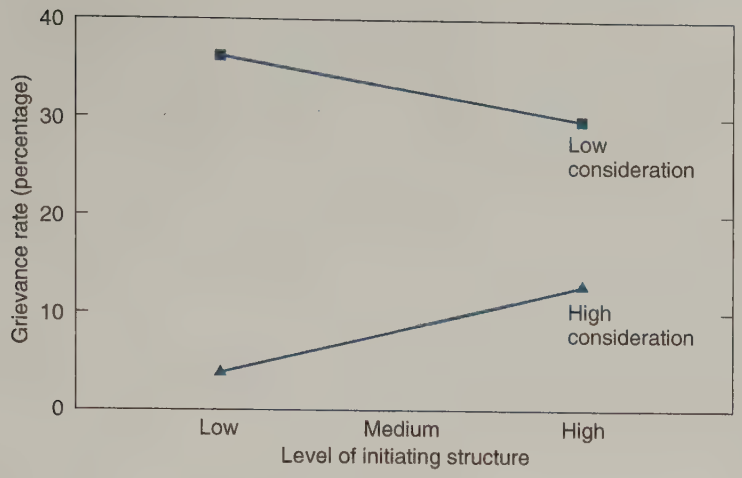


FIGURE 13-3 Grievance rate as a result of both the consideration and the initiating structure of supervisors.
Source: Adapted from "Patterns of Leadership Behavior Related to Employee Grievances and Turnover," by E. A. Fleishman and E. F. Harris (1962), *Personnel Psychology, 15,* 43–56.

BLOG 13-2 When Helping Is Not Helping

https://paulspector.com/when-helping-is-not-helping

Discussion Questions

1. How should a supervisor approach a subordinate who is struggling to get something done?
2. Why should providing unhelpful help be stressful for a subordinate?
3. How can you provide feedback to someone without it coming across as being overly critical?
4. What can an employee do to be sure that the help given by a supervisor is actually helpful?

Although it is tempting to interpret these results as a demonstration of the effects of leader behavior on important subordinate behaviors, there are two major difficulties in doing so. First, the LBDQ might not be a good indicator of supervisory behavior and might be telling us as much about subordinates as their supervisors. Several studies have attempted to find out what subordinate reports about their supervisors really mean. It has been found that the reports are affected by the biases and stereotypes of the subordinates. In a series of studies, college students were asked to view a videotape of a supervisor interacting with subordinates. At random, all subjects who watched the same tape were told that the supervisor was rated either high or low in performance. Subjects who were told that the supervisor was a good performer rated him differently on the LBDQ than subjects who were told he was a poor performer (Lord, Binning, Rush, & Thomas, 1978).

The second problem concerns drawing causal conclusions from data collected at one time in a cross-sectional research design (see Chapter 2). We cannot be certain from a study such as Fleishman and Harris's (1962) if the grievance and turnover rates are caused by supervisor behavior or if supervisor behavior is caused by the grievance and turnover rate. Studies have shown that supervisor behavior can be affected by subordinate behavior (Lowin & Craig, 1968), particularly job performance. Yukl (1989) concluded that a reciprocal relationship probably exists between supervisor style and subordinate behavior. A supervisor whose subordinates are filing many grievances might become angry and reduce consideration behavior. This might make subordinates angrier and lead

them to file more grievances, which will lead to even less consideration, and so on. These sorts of reciprocal processes have rarely been studied in I-O psychology.

In the United States, participatory practices have been linked to both job performance and job satisfaction, but these linkages are not always strong (Wagner, 1994). Part of the reason for small effects might have to do with the areas in which employees are allowed to participate. Sagie and Koslowsky (1994) found larger relations between perceived participation and job satisfaction when the participation involved deciding how to implement a change at work rather than whether or not to implement it in the first place. They concluded that it is important to consider the kinds of decisions appropriate for subordinate participation.

Participation has been shown to work in several studies. In others, however, it has not had positive effects. For example, Bragg and Andrews (1973) conducted a study in which participants worked in two of three departments. At the beginning of the study, the supervisor of the hospital laundry department changed from an autocratic to a participative style. Over the next 18 months, there were positive effects on attendance, job performance (a 42% increase), and job satisfaction. This supervisory approach was then successfully introduced in the medical records department, but it did not produce positive effects in the nursing department. The reasons why participatory styles sometimes succeed and sometimes fail are complex and may relate to the situations under which they are tried. This brings us to the basic idea of contingency theory: The situation interacts with leader characteristics and leader behavior.

Fiedler's Contingency Theory

The trait approach assumes that certain characteristics of people will make them good leaders. The behavior approach presumes that certain leader behaviors will be effective, regardless of the situation. **Fiedler's contingency theory** states that leadership is a function of both the person and the situation. One characteristic of the leader and three characteristics of the situation determine leadership effectiveness.

The theory begins with the characteristic of the leader, which Fiedler (1978) refers to as the *motivational structure* of the leader. The motivational structure is assessed with a self-report instrument called the **Least Preferred Coworker (LPC) scale**. Although the name implies that it assesses the coworker, the scale measures a characteristic of the leader, not the subordinate. The LPC asks the leader to think about the person with whom he or she has had the most trouble working—that is, the coworker with whom he or she would least like to work. The leader then describes his or her least preferred coworker using a semantic differential scale (Osgood, Teannenbaum, & Suci, 1957). The LPC consists of 18 bipolar adjective items, and for each item the leader indicates which of the two words with opposite meanings best describes someone, such as pleasant versus unpleasant or friendly versus unfriendly. (Examples from the LPC scale appear in Table 13-3.)

Fiedler's (1978) theory is also concerned with the situational variable of leader situational control. *Situational control* concerns the amount of power and influence the leader

TABLE 13-3

Four Items From Fiedler's Least Preferred Coworker Scale (LPC)

Pleasant	___	___	___	___	___	___	___	___	___	Unpleasant
Friendly	___	___	___	___	___	___	___	___	___	Unfriendly
Rejecting	___	___	___	___	___	___	___	___	___	Accepting
Tense	___	___	___	___	___	___	___	___	___	Relaxed

Source: Adapted from "The Contingency Model and the Dynamics of the Leadership Process" (pp. 59–112), by F. E. Fiedler (1978), in L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 11), New York, NY: Academic Press.

has over subordinates. It is the extent to which the supervisor's actions will predictably lead to subordinate behavior. There are three characteristics of the leadership situation that comprise situational control: *Leader–member relations* is the extent to which subordinates get along with and support their supervisors. *Task structure* is the extent to which subordinate job tasks are clearly and specifically defined. *Position power* refers to the amount of power and influence that the supervisor has, including the ability to give out rewards and punishments. A supervisor with good leader–member relations, highly structured tasks for subordinates, and high position power will be in a situation of high control. A supervisor with poor leader–member relations, low task structure for subordinates, and low position power will be in a situation of low control.

According to Fiedler's (1978) theory, the LPC of the supervisor determines the situations in which he or she will perform well. Individuals who are low on LPC do well under both very high and very low situational control. Individuals who are high on LPC will do best under conditions of moderate situational control. Take, for example, the situation in which the leader does not get along well with subordinates, the subordinates have unstructured tasks, and the leader has little power. This is an unfavorable situation, and the low LPC leader would be expected to be more effective than the high LPC leader. However, if the situation is moderately favorable, where relations are poor, but task structure is high and the leader has moderate power, the high LPC person should be more effective than the low LPC person. Figure 13-4 illustrates how supervisor performance is a function of situational control for individuals high and low in LPC.

Research on contingency theory has provided mixed support for its validity. Two meta-analyses combined the results of many tests of the theory (Peters, Hartke, & Pohlmann, 1985; Strube & Garcia, 1981). Both found that leader performance was a joint function of LPC and situational control, although the predictions of the theory were not completely upheld. What is not clear at the present time is exactly why LPC and situational control interact. The major difficulty is that no one, not even Fiedler, is quite sure what LPC represents. LPC was intended to measure something about leader motivation, but it is not clear that motivation is assessed. Fiedler (1978) states that low LPC leaders are more concerned with getting tasks done than with having good relationships with subordinates, whereas high LPC leaders have the opposite motivations, being more concerned with having good relationships with subordinates than with getting the job done. At this time, all we can say for sure is that the LPC assesses some unknown but important characteristic of leaders.

Although the theory states that the situation determines the best leader characteristics, Fiedler (1978) does not believe that a supervisor should attempt to adapt his or her style to the situation. He believes that supervisors should modify the situation to

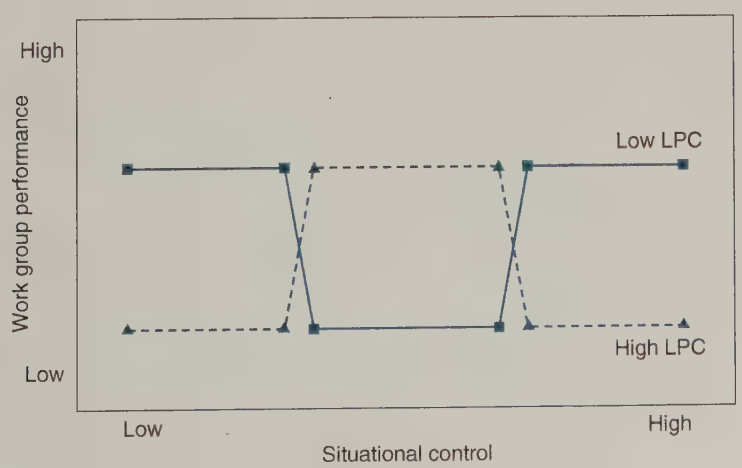


FIGURE 13-4 Group performance as a result of both the situational control and the LPC of the leader.
Source: Adapted from "The Contingency Model and the Dynamics of the Leadership Process," by F. E. Fiedler (1978), in L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 11), New York, NY: Academic Press.

be appropriate to their own leadership style. To this end, he has developed a training program called **Leader Match**. Fiedler summarized the results of several field experiments comparing Leader Match–trained supervisors with untrained controls. The results showed better group performance for the trained supervisors. Some question has been raised, however, about whether Leader Match training results in leaders changing the situation according to theory or whether the results of the Leader Match research are due to other factors (Jago & Ragan, 1986).

Despite the criticisms of the theory, Fiedler has been one of the most influential people in the study of leadership. His major contribution has been to show us that leadership involves the complex interaction of leader characteristics with the leadership situation. His work has been extended by theorists who have developed more complex contingency theories. One of these is path–goal theory, which we discuss next.

Path–Goal Theory

Path–goal theory (House & Mitchell, 1974) is a contingency theory that is more complex than Fiedler's. It posits that subordinate job performance and job satisfaction result from the interplay of situational characteristics, subordinate characteristics, and supervisor style. The basic idea, which is based on expectancy theory (see Chapter 8), is that the supervisor can enhance the motivation and job satisfaction of subordinates by providing rewards for good job performance and by making it easier for subordinates to achieve their task goals. Supervisors can accomplish this by adopting one of four supervisory styles, the efficacy of which is determined by situational and subordinate characteristics.

The four supervisory styles are

Supportive style. This style is similar to the Ohio State Leadership Studies' style of consideration. It involves showing concern for the needs and welfare of subordinates.

Directive style. This style is similar to the Ohio State Leadership Studies' style of initiating structure. It involves structuring job tasks for subordinates and letting them know what is expected.

Participative style. This style involves seeking input from subordinates and allowing them to participate in decision making.

Achievement style. This style involves emphasizing achievement and good performance. It includes setting challenging task goals and emphasizing high performance standards.

Subordinate characteristics include personality variables, such as locus of control and self-perceived ability. Locus of control (see Chapter 9) is the extent to which subordinates believe that they can control rewards in their lives. A person with an internal locus of control believes that he or she can control rewards. A person with an external locus of control believes that rewards are controlled by others or by outside forces. Self-perceived ability is the extent to which the subordinate believes he or she is capable of doing the task well. It is similar to self-efficacy, which was discussed in Chapter 8, but it is specific to the particular task at hand. Situational characteristics include aspects of tasks, such as dangerousness, repetitiveness, and structure.

House and Mitchell (1974) derived a series of hypotheses based on the basic ideas of the theory. These hypotheses describe how supervisory styles affect subordinates under certain conditions. For example:

1. When tasks are boring, dangerous, stressful, or tedious, a supportive style will be the most appropriate. Subordinates who must deal with these situations will have their anxiety lowered and their self-esteem raised by a supportive supervisor.
2. When tasks are unstructured and subordinates are inexperienced, a directive style will be most appropriate because subordinates will be uncertain about what to do. A directive supervisor will increase subordinates' effort and job satisfaction by telling them what is expected and what they should do.

Unfortunately, researchers have focused attention on only a few of the hypotheses of path–goal theory, particularly the second hypothesis given here. Although some of this research has supported the theory (Podsakoff, MacKenzie, Ahearne, & Bommer, 1995), many of the findings are inconsistent (Wofford & Liska, 1993). In part, the inconsistency may be due to methodological weaknesses in some of the studies. Another possibility is that some of the propositions are not correct.

Keller (1989) noted that not all individuals are bothered by lack of structure on a job and that in fact some people might prefer it. People who prefer unstructured tasks should be more satisfied with a low-structure job and would respond negatively to a directive supervisory style. Samples of employees from four organizations were assessed on subordinate need for structure, job performance, job satisfaction, and directive supervisory style (Keller, 1989). The results are consistent with predictions that subordinates who have a high need for structure respond favorably to directive supervision (see the Research in Detail box). Keller's study suggests that one of the propositions should be modified to take subordinate personality into account.

Research in Detail

One of the hypotheses of path–goal theory is that when task structure is low, initiating structure by the supervisor will result in subordinate satisfaction. In other words, when subordinates are unsure about what is expected, clarification by the supervisor will be appreciated. Keller (1989) noted that research support for this hypothesis has been inconsistent across studies. He reasoned that a mistake of path–goal theory is assuming that all employees find lack of structure unpleasant. His hypothesis is that the subordinate's need for clarity determines his or her reaction to initiating structure in a job with low structure.

In this study, a survey was conducted among professionals in research and development (R&D) organizations. Because this work involves discovering new knowledge and technologies, an R&D job can have little structure. Respondents to the survey completed scales to assess the extent to which they need and prefer clarity on the job, the initiating structure of their supervisor, and their job satisfaction.

Data analyses showed that Keller's hypothesis is correct. Those individuals with a high need for clarity are more satisfied with high-initiating structure than low-initiating structure. Individuals with a low need for clarity are more satisfied with low-initiating structure than high-initiating structure. This study suggests that supervisors should consider the personality of each subordinate in deciding the most appropriate supervision method.

Source: Adapted from "A Test of the Path-Goal Theory of Leadership With Need for Clarity as a Moderator in Research and Development Organizations," by R. T. Keller (1989), *Journal of Applied Psychology, 74,* 208–212.

Future research will be needed to show which of the original House and Mitchell (1974) hypotheses can be supported. It seems likely in light of Keller's (1989) findings that new hypotheses involving the interplay of situations, subordinates, and supervisors will be developed. One implication of Keller's findings is that different supervisory approaches might be necessary with different subordinates. This brings us to the leader–member exchange theory of leadership, which is concerned with the interactions of each subordinate–supervisor dyad or pair.

Leader–Member Exchange (LMX) Theory

The **leader–member exchange (LMX) theory** (Dansereau, Graen, & Haga, 1975) focuses on the subordinate–supervisor dyad rather than on the supervisor and work group. Dansereau et al. argued that one of the major limitations of most leadership research is its implicit assumptions that each supervisor's group of subordinates is sufficiently homogeneous to justify studying it as a unit and that each supervisor adopts the

same style across all subordinates. On the contrary, they propose that supervisors treat individual subordinates differently.

Dansereau et al. (1975) discussed two types of relationships that develop between supervisors and subordinates. The **cadre** or **in-group** consists of subordinates who are trusted and influential members of the work group. The supervisor treats them with consideration and adopts a participative style with them. The **hired hands** or **out-group**, by contrast, is subordinates who are supervised with a directive style and are given little input into decisions. These relationships evolve over time, with characteristics of subordinates affecting the category in which they find themselves. To become part of the cadre, a subordinate must be perceived as dependable and hardworking. In return for cadre status, a subordinate must be prepared to exert effort on the job beyond the minimum expected.

In their research, Dansereau et al. (1975) found that within work groups supervisors had two distinct groups in terms of how much participation was allowed. Members of the cadre were more satisfied with their jobs, believed they had better relationships with supervisors, and were less likely to quit than the hired hands. Care must be taken, however, in concluding that the satisfaction and turnover differences were the result of supervisor treatment. It is likely that supervisor behavior toward each subordinate was as much a function of the subordinate's job performance as it was a cause of that performance (Bauer & Green, 1996).

One contribution of the leader–member exchange approach is that it focuses attention on the importance of individual relationships within each supervisor–subordinate dyad. The idea was the basis of an intervention study in which supervisors were trained to enhance their relationships with each subordinate. Graen, Novak, and Sommerkamp (1982) conducted a field experiment in which one group of supervisors was trained in leader–member exchange. The training was intended to help supervisors improve their relationships with subordinates. Each trained supervisor had meetings with individual subordinates to discuss work issues and the working relationship between them. The subordinates of the trained supervisors subsequently had better job performance and higher job satisfaction than a control group in which supervisors were not trained.

Research has shown that the quality of LMX relationships, as perceived by subordinates, is associated with several important work variables. For example, a meta-analysis of LMX studies showed that subordinates with better relationships with supervisors had better job performance and engaged in more organizational citizenship behavior and less counterproductive work behavior (Martin, Guillaume, Thomas, Lee, & Epitropaki, 2016). In their meta-analysis of 79 studies, Gerstner and Day (1997) showed that individuals who have good relationships with their supervisors tend to have higher job satisfaction, are more committed to their employers, and perceive the job as less stressful than individuals with poor relationships with supervisors. Overall, employees who have good relationships with their supervisors enjoy better psychological well-being (Kim et al., 2020). Taken together, these studies suggest that good relationships between supervisor and subordinate are important because they benefit employees and organizations.

There have been criticisms and limitations noted about the LMX theory of leadership. First, differential treatment of subordinates within a work group can be destructive (Yukl, 1989). Equity theory, as discussed in Chapter 8, describes how employees can react negatively to unequal treatment. The higher turnover rate and lower job satisfaction of the hired hands in the Dansereau et al. (1975) study might well be interpreted as a response to inequity. Second, J. F. Schriesheim (1980) pointed out that supervisors often direct influence attempts at entire work groups at one time rather than treating each individual differently. She believed that a focus on both work groups and individual dyads makes the most sense for understanding leadership. Despite limitations, LMX theory has helped focus attention on the relationship between subordinate and supervisor. It also has led to an understanding that supervisors do not act the same way with all subordinates.

Transformational Leadership Theory

Transformational leadership theory deals with leaders who have considerable and unusual influence over their followers; in other words, they transform their followers. Much of this is due to their being **charismatic leaders**, but transformational leadership is more than just charisma. It is in some ways a return to the trait approach because it focuses on characteristics of leaders in relation to effectiveness. However, it differs from prior approaches in going beyond linking traits to performance and in attempting to determine how leaders affect their followers. A **transformational leader** is one who leads by inspiring others to change their attitudes, beliefs, and values so they adopt high goals and strive to achieve them (Siangchokyoo, Klinger, & Campion, 2020). He or she articulates a vision for followers and encourages them to pursue it. Gardner and Avolio (1998) explained that certain leaders are able to convince followers of their competence and the importance of a vision. They engage in behaviors that make them appear to be creative, innovative, powerful, and trustworthy. Much of the leader's influence derives from beliefs by followers that only by following the leader will they be able to achieve the vision, such as making the company profitable. Leaders like Abraham Lincoln, John F. Kennedy, Martin Luther King, Jr., and Winston Churchill are examples of transformational leaders. King's vision of a free society reflected in his "I have a dream" speech on August 28, 2003, in Washington, D.C., is an example of a vision statement that inspires.

Bass and Riggio (2006) argued that transformational leadership has four components.

1. Idealized influence is the extent to which leaders encourage followers with their statements and model high standards of behavior.
2. Inspirational motivation is providing a vision, such as King's dream.
3. Intellectual stimulation is encouraging followers to question the status quo and think of better ways to do things.
4. Individualized consideration is paying attention to the development and well-being of followers.

Taken together, this suggests that transformational leaders inspire by articulating a vision for the group, encouraging and supporting followers, and setting an example to follow.



Bettmann/Getty Images

Dr. Martin Luther King, Jr. (left) and President John F. Kennedy (right) were charismatic leaders who championed civil rights in the United States.

Research on transformational leadership shows that it relates to several subordinate variables that are important for organizational functioning. For example, individuals

who perceive their supervisors to be transformational tend to be high on general job performance (Keller, 2006), and on sales for sales representatives (Frieder, Wang, & Oh, 2018). They are also high on job satisfaction, organizational commitment (Kovjanic, Schuh, Jonas, Van Quaquebeke, & Van Dick, 2012), and organizational citizenship behavior (Den Hartog & Belschak, 2012). In a laboratory study, transformational leadership had a positive effect on creativity (He et al., 2020). Furthermore, although it might seem that transformational leadership is innate, researchers have been successful at training people to exhibit the behaviors. For example, Towler (2003) conducted a laboratory experiment in which business students were randomly assigned to receive transformational leadership training versus control training. They subsequently delivered a role-play speech to a supposed group of employees. Those who received the transformational training were rated by trained observers to be higher on transformational leadership than the controls. Barling, Weber, and Kelloway (1996) were able to successfully train bank branch managers to be more transformational and showed that this training had an impact on the financial performance of their branches.

Existing studies are quite suggestive that transformational leadership has considerable potential for application. If transformational leaders have more productive and satisfied subordinates and if such leadership can be taught, organizations would benefit by encouraging supervisors to adopt this approach. More studies like Barling et al. (1996) are needed to confirm their promising results.

Moral Leadership

As concerns about corporate scandals (e.g., Enron and Wells Fargo) have grown, there has been increasing interest in the moral aspects of leadership. Several moral leadership types have emerged that are all based on the idea of a leader as an ethical and moral person who encourages high standards in subordinates. Three such types have been particularly prominent among leadership researchers. As described by Lemoine, Hartnell, and Leroy (2019), they are as follows:

- **Authentic leaders** are self-aware of their own morals and values, display a high standard of ethical and moral behavior, and encourage the same for followers.
- **Ethical leaders** have high ethical standards for themselves and for others.
- **Servant leaders** have a desire to serve and put the needs of others, including followers, before their own, which leads to engaging in ethical and moral behavior that benefits others.

Each of these forms of leadership has been well studied, and all of them are related to positive outcomes for employees and organizations. According to a meta-analysis, all three types of moral leadership are associated with subordinates who are high in organizational commitment, job satisfaction, and job performance (Hoch, Bommer, Dulebohn, & Wu, 2018).

Given moral leadership has positive outcomes, one might wonder how often leaders display it. Part of the answer comes from a study that analyzed the themes contained in annual report letters written by CEOs of Fortune 500 companies (Legutko, 2020). Although Legutko found that transformational leadership themes (e.g., referring to a vision) were most often expressed in letters, moral leadership themes (e.g., referring to ethics) were very common. This suggests that moral leadership can go hand in hand with other forms of leadership.

Vroom–Yetton Model

The **Vroom–Yetton model** (Vroom & Yetton, 1973) is a different kind of leadership theory from the theories we have discussed so far. Rather than describing how the leadership process works, Vroom–Yetton is a prescriptive model that indicates the supervisory approach that is expected to be most effective in a particular situation when making

decisions. Note that Vroom–Yetton is designed only for decision making and not for other aspects of supervisor behavior, such as generating solutions to problems and directing the activities of subordinates. The model is based on psychological principles that can help inform the best decision-making practices based on characteristics of a particular situation. A manager can use the model to help choose the way to handle each situation in which a decision must be made.

The model specifies the following five approaches to making a decision, which range from the autocratic to democratic:

1. Supervisor makes the decision alone.
2. Supervisor gets information from subordinates and makes the decision alone.
3. Supervisor discusses the problem with some subordinates and then makes the decision.
4. Supervisor discusses the problem with all subordinates in a meeting and makes the decision.
5. Supervisor presents the problem to all subordinates in a meeting and lets them decide.

As you can see, the supervisor can act independently (approach 1), turn over the problem to the group (approach 5), or adopt various stages of sharing the decision from merely soliciting information (approach 2) to actually discussing the problem and considering others' viewpoints (approach 3 or 4).

The decision-making situation is defined by seven characteristics that address the problem itself and the subordinates:

1. Quality requirement for the result (is it important to make the right decision?)
2. Sufficiency of information the supervisor has
3. Problem structure (is it clear what has to be done or is the situation ambiguous?)
4. Necessity for subordinate acceptance of the decision
5. Likelihood of subordinate acceptance of the decision if made by the supervisor alone
6. Subordinate commitment to solving the problem
7. Subordinate conflict over solutions

Each of the characteristics is translated into a yes/no question (e.g., "Is the problem structured?"). The pattern of answers determines the best practice. For example, if quality isn't important (characteristic 1), acceptance by subordinates is important (characteristic 4), and subordinates are unlikely to accept a decision made unilaterally by the supervisor (characteristic 5), the best approach is to allow the subordinates to make the decision. On the other hand, if quality is not an issue and if acceptance is not important, any of the five approaches should be equally effective. In most cases, the more democratic approaches are appropriate, and it is only in limited situations that being autocratic is preferred.

Vroom and Yetton (1973) provided decision tools based on their model that can be used by managers to help choose a decision-making approach. The specific approach recommended depends on whether you wish to minimize the time necessary for a decision or maximize the likelihood of group acceptance of the decision. Not surprisingly, making a decision by yourself is the quickest approach, but it is not necessarily the most effective. There are paper-and-pencil materials (tables and decision trees) that one can use to follow the answers to all seven questions to the recommended decision-making approaches. They also have developed a computer app that displays the questions, allows you to enter answers, and then provides advice about how to approach the situation.

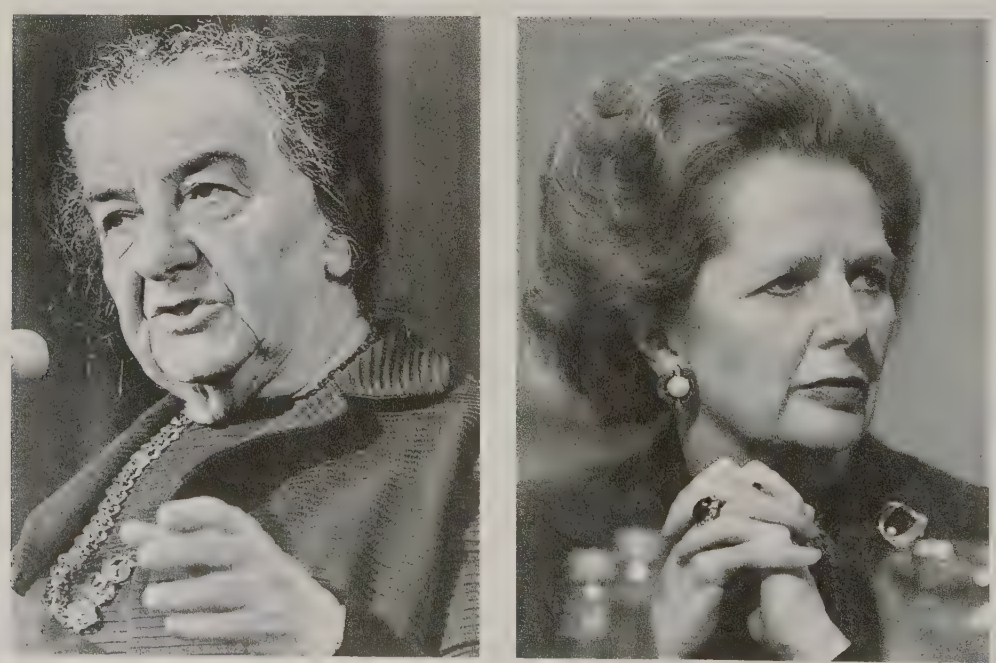
A limited number of studies have tested the Vroom–Yetton model. For the most part, the findings support the recommendations of the theory. Vroom and Jago (1988) compiled results across six studies that compared the effectiveness of decisions that conformed with the theory's advice with those that failed to conform. The success rate for decisions made in accordance with the theory was higher than for decisions made in violation of it: 62% versus 37%, respectively. On the other hand, Field and House (1990) provided only

mixed support for the theory. They had a sample of supervisors and their subordinates report on the process and effectiveness of a decision. Although the supervisor data supported the Vroom–Yetton model, the subordinate data did not. Field and House were hesitant to conclude that the theory was invalid and called for additional research to test it.

The Vroom–Yetton model has the potential to be the most useful of the leadership theories from the perspective of the practicing manager who wishes to use evidence-based practices to guide his or her management approach. This theory offers very specific advice about how to supervise, whereas the other theories provide principles that one would have to figure out how to apply. After working with the Vroom–Yetton model for a while, a manager will likely learn the underlying principles, making it unnecessary to consult a table or app each time a new decision situation in encountered. At the present time, the research findings have been promising, but too few studies have been conducted in field settings to test whether following the theory leads to better decision outcomes, in terms of either decision quality or decision speed.

Women in Leadership Positions

Women have made considerable strides in achieving management and supervisory positions in organizations throughout most of the world. It was estimated that by 1999 about 46% of all management jobs in the United States were held by women (Powell, Butterfield, & Parent, 2002). Despite their success at the lower levels of management, American women are still underrepresented at the higher levels of organizations. Their numbers, however, have been increasing. For example, by early 2020 women held more than 26% of executive and senior level positions in S&P 500 companies (Catalyst, 2020). One study of MBA graduates' career progression found that men had higher starting salaries and that their salaries went up more quickly with age than did women's (Goldberg, Finkelstein, Perry, & Konrad, 2004). However, it is unclear how typical these results might be, as another study of high-level executives in a financial services corporation found little difference between men's and women's compensation (Lyness & Thompson, 1997). Perhaps some industries have made progress in equating men's and women's salary progressions, whereas others lag behind.



Bettmann/Getty Images

What do these two women have in common? Both Golda Meir of Israel (left) and Margaret Thatcher of the United Kingdom (right) were prime ministers of their countries.

Although women have more difficulty than men achieving high-level positions in most organizations, this problem is not found in all organizations. Powell and Butterfield (1994) found that women who applied for promotion were more (not less) likely than men to be promoted to top management in the U.S. civil service. In part, the gender difference was attributed to better job performance by the female applicants. The lack of bias against women may have been due to fairer promotion practices and commitment to equal employment opportunity in U.S. government agencies.

Many explanations have been advanced for the **glass ceiling** phenomenon that symbolizes women's difficulty in getting beyond the lower levels of management. Some of these explanations have focused on differences between men and women in their career preparation and their attitudes, whereas others are concerned with bias against women as high-level managers. For example, a Dutch study by van Vianen and Fischer (2002) found that women were less ambitious, cared less about salary and status, and were more concerned with work–family conflict than men. These factors may explain why fewer women might seek promotions to higher management, but it does not explain why those who wish to achieve higher levels have a more difficult time doing so.

The bias explanation has to do with the attitudes and stereotypes of those at the top levels of organizations who make decisions about hiring. Research by Schein and colleagues (Schein, Mueller, Lituchy, & Liu, 1996) demonstrated how subtle stereotypes about characteristics of men and women put women at a disadvantage for management selection. Schein et al. asked people to describe the characteristics of managers, of men, and of women and found that the descriptions of managers overlapped with descriptions of men but not with descriptions of women. It was concluded that the reason a woman might have difficulty getting promoted is that she is not seen as having the characteristics necessary for the position. It is not that the decision maker is consciously discriminating against women. Rather, the male candidates more closely fit stereotypes of successful managers. According to this view, equal access to high-level management jobs will require changes to how managers are viewed on the part of those who do the hiring. Furthermore, this phenomenon seems to be universal, for they found similar results in China, Germany, Japan, the United Kingdom, and the United States.

On the other hand, bias on the part of decision makers is unlikely to be a complete explanation either. Lyness and Thompson (2000) surveyed matched samples of middle- to upper-level male and female managers about their career progression. They found that women are more likely than men to report feeling they do not fit in with colleagues. Whether this reflects that women have a harder time adapting to management ranks, are finding colleagues and supervisors less accepting of them, or merely perceive less fit is unclear. However, even if it is just perception, feeling out of place would be likely to affect confidence and behavior in a way that might adversely affect career progression.

Powell and Butterfield (1994) suggested that the U.S. federal government may be a model of how to eliminate the glass ceiling. Important factors include a strong management commitment to equal employment opportunity and uniform selection procedures that reduce subjectivity in decisions.

Gender and Leadership Style

Do men and women in leadership positions differ in their supervisory styles? Our stereotypes of men and women suggest that women would be more concerned with the feelings and emotional well-being of subordinates (consideration) and men would be more concerned with getting the job done (initiating structure). Research on gender differences in leadership suggests that the answer is not so simple.

Eagly and Johnson (1990) conducted a meta-analysis of studies that compared the leadership styles of men and women. They combined the results of over 160 leadership studies and arrived at several conclusions. One is that the stereotypic styles of men being high in structure and women being high in consideration have been found in laboratory research with students but not in field studies with actual leaders. They had two

explanations for this finding. First, in an organizational setting, there are environmental constraints and requirements that may force male and female supervisors to adopt similar styles. Second, organizations may select women who have leadership styles that are similar to men. In laboratory studies, subjects who are typically college students are selected more randomly, and there are fewer constraints on the leader behaviors that the participants adopt. Thus, whereas women may be inclined to supervise differently than men do, organizational settings do not allow them to express that inclination.

On the other hand, when men and women are compared on their autocratic or democratic tendencies, gender differences are found in both the laboratory and the field. Men have been found to be more autocratic and women more democratic in their styles. Eagly and Johnson (1990) pointed out that each style will probably be more effective under different organizational circumstances.

Men and women have also been compared in the extent to which their subordinates see them as transformational. Bass, Avolio, and Atwater (1996) found, based on three samples, that women were either the same as or higher than men on transformational leadership. In addition, a meta-analysis by Paustian-Underdahl, Walker, and Woehr (2014) showed that there were no differences in ratings of leadership performance between men and women, overall. However, when self-ratings versus other-ratings (observer or supervisor) were examined separately, there was a small tendency for men to give themselves higher ratings than women, and a small tendency for other-raters to give women higher ratings than men. This line of research clearly suggests that women are as effective, if not more effective, than men in leadership positions.

Cross-Cultural Issues in Leadership

It would be a mistake to assume that all findings and theories discussed in this chapter apply universally to all countries and cultures. How leaders are viewed and what might be effective are not necessarily the same across all countries. For example, the attributes associated with good leadership can be culturally determined. The most comprehensive study of this issue is the 62-country Global Leadership and Organizational Effectiveness (Project GLOBE) Research Program (House et al., 1999). One of the findings of GLOBE is that there are many specific attributes of managers that are universal, but there are others that vary across countries. For example, being intelligent and being trustworthy are universally seen as positive characteristics. However, being individualistic (focusing on self rather than others) and being willing to take risks are seen as more positive in some countries than in others.

Similarly, Ensari and Murphy (2003) asked students from a collectivist country (Turkey) and an individualist country (the United States) to read descriptions of managers that vary in their behavior and in their performance and then to rate how transformational the leader is. The Turkish students' ratings were influenced most by the performance of the managers, whereas the American students focused mainly on behaviors. To the extent that perceptions of transformational leadership affect employee attitudes and behavior, this suggests that the specific behaviors of managers are more important in the United States than Turkey, where results are paramount. Of course, this needs to be replicated in an organizational setting with practicing managers.

Another important issue concerns cultural differences in the effectiveness of different leader behaviors. Scandura, Von Glinow, and Lowe (1999) investigated this issue by comparing employees from the United States with those in the Middle Eastern countries of Jordan and Saudi Arabia. They found that consideration is more strongly related to leadership effectiveness than initiating structure in the United States but that the opposite was true in the Middle East. In their meta-analysis of LMX theory, Rockstuhl, Dulebohn, Ang, and Shore (2012) found that correlations between quality of LMX relationships and several variables such as job satisfaction and perceived justice were stronger in Western

countries than in Asia. It would seem that Asians and Westerners view subordinate–supervisor relationships differently. Both studies suggest that using American leadership approaches in culturally dissimilar countries may not be effective.

Preferences for directive versus participative management might also vary across countries. Narayanan, Menon, and Spector (1999) asked clerical employees in India and the United States to describe the most stressful incident that had happened to them at work in the prior month. Trained judges analyzed the content of the incidents, placing them into categories. In the United States, lack of control was the second most often mentioned stressful incident, mentioned by almost a fourth of participants. In India, the most often mentioned stressful incident was insufficient structure provided by supervisors, mentioned by a little over a fourth of the participants. Not one American mentioned insufficient structure, and not one Indian mentioned lack of control. In another study, Euwema, Wendt, and van Emmerik (2007) surveyed employees in 33 countries (including India and the United States) concerning the leadership styles of their supervisors and found that directive approaches have more negative effects on people from individualistic than collectivistic countries. The results of both studies suggest that leadership style preferences and effectiveness may differ across countries.

Chapter Summary

Leadership is an important function in organizations in which the efforts of many individuals must be coordinated and directed. Leadership refers to the disproportionate influence that one person has over others, and in organizations, it is typically associated with management and supervisory positions. Leaders' influence over their followers is based on many factors. French and Raven (1959) provided five bases of power and influence:

Expert
Referent
Legitimate
Reward
Coercive

Yukl (1989) added the political influence tactics of

Controlling decisions
Forming coalitions
Co-opting

Some managers mistreat their subordinates either by engaging in abusive supervision or performing acts of sexual or ethnic harassment. Abusive supervision is a pattern of repeated aggressive and harmful behaviors and statements. Sexual and ethnic harassment consist of mistreatment based on gender, ethnicity, or sexual orientation. Harassment is considered a form of discrimination that is illegal in the United States and many other countries.

There have been many approaches to the study of leadership. The trait approach attempts to find characteristics that make people good leaders. The leader behavior approach, represented by the Ohio State Leadership Studies, views leadership from the perspective of behaviors that are and are not effective. Contingency theories, such as Fiedler's and path–goal, state that leadership is a complex interaction of leader characteristics and the leadership situation. The leader–member exchange theory points out that leadership can be fully understood only by focusing attention on the unique interactions of a supervisor with each subordinate. Transformational leadership theories look at the way some leaders have a profound influence on the attitudes, beliefs, behaviors, and values of subordinates. Moral theories such as authentic leadership, ethical leadership,

and servant leadership view leaders from the perspective of their ethical and moral standards. Finally, the Vroom–Yetton model is a prescriptive theory that tells a supervisor how best to approach a decision situation.

Although women have made great strides in the workplace, they still face a glass ceiling, making it more difficult for them to obtain high-level management positions than for men. One explanation for this phenomenon has to do with the stereotypes of women's behavior. Research has found few differences in the consideration and initiating structure styles of men and women managers, but women seem to be more democratic than men.

The theories discussed in this chapter were developed and tested primarily in Western developed countries. It is unclear to what extent they all hold in culturally dissimilar countries. Research suggests that there likely are some aspects of leadership that are and some that are not universal. Directive leadership styles, for example, are perceived differently across countries.

I-O Psychology in Practice

This case concerns development of a training program to teach transformational leadership skills to corporate managers. Dr. Steve Cohen headed the team of consultants that implemented the program. Dr. Cohen received his Ph.D. in I-O psychology from the University of Tennessee in 1971. He began his career as a college professor but decided shortly after earning tenure that he preferred the world of consulting. Over the next 25 years, he has alternated between working for a consulting firm and running his own. Today he is Managing Director, Learning Solutions Group, for Dove Consulting in Minneapolis. Dove is a 110-employee international strategy and organizational effectiveness firm. The Learning Solutions Group specializes in developing training programs and employee performance improvement systems.

One of the most interesting projects on which he has worked involved the challenging task of training competent managers to become transformational and visionary leaders. A major global food and beverage company, headquartered in the United States with facilities in 170 countries, contracted with Dove to train their 7,500 managers to change their management approach. This company had been successful for decades, and top management felt employees at all levels had become relatively complacent. Managers did a good job of running the day-to-day business, but they had adopted a short-term focus, tended to avoid risk, and lacked a vision for the future. As described in this chapter, a transformational leader is just the opposite, in that he or she inspires followers to aspire to do better through the promotion of a vision for the future.

The project began with the development of a leadership competency model that described the ideal manager of the future for their business. Turning existing managers into the ideal served as the ultimate objective of the project. Next came the development of the curriculum. This started with a needs assessment to determine the existing skill levels and deficiencies of managers. Dr. Cohen's team then designed and developed training materials to address the skills identified in the needs assessment. They pilot tested the materials and then trained the trainers (not psychologists) who would ultimately deliver the training to the 7,500 managers throughout the world. Finally the project was evaluated through the use of 360-degree feedback. Subordinates, peers, and supervisors completed rating scales that contained items reflecting transformational leadership behaviors.

The methods used for training were quite eclectic. Some were traditional paper and pencil materials provided to both trainers and trainees, and some of the training occurred in a classroom setting. However, Dr. Cohen has been a leader in the use of electronic technologies for training, and much of the material was provided online. Managers could log on to the company website and find self-paced materials, as well as resources for them to manage their own development. This approach not only provided an efficient means of conducting training with minimal use of trainers but also allowed for an individualized approach that helps trainees create a plan and track progress toward completion.

Discussion Questions

1. Why did Dr. Cohen train trainers instead of conducting training himself?
2. What are the advantages and disadvantages of the Web-based approach?
3. Why was it necessary to first conduct a needs assessment?
4. What is one advantage and one disadvantage of having all leaders in a company adopt a transformational approach?

Learning by Doing

Transformational Leadership

Choose a public leader such as a head of state who you believe is transformational. Find evidence from one or more of the leader's speeches that confirms that he or she is transformational. Which of the four components of transformational leadership does it reflect? Find an example of a vision statement the leader has used.

Abuse of Power

Who is Helen Green, for what company did she work, and what does she have to do with abuse of power? Explain how her experience adversely affected her and the company for which she worked.

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CHAPTER 14

Organizational Climate/Culture, Development, and Theory

So far, our focus in this book has been on the individual employee or small groups of employees in the context of the organization. In this last chapter, we change our perspective from the individual to the organization itself. We deal with three important topics—organizational climate and culture, organizational development, and organizational theory.

Every organization has its own policies, practices, and ways of doing things. Some organizations are rigid and rule-oriented, whereas others are loose and allow employees latitude to perform their jobs as they see fit. Climate and culture are concerned with these organizational differences and what make each workplace unique.

Organizations in the modern industrialized world find themselves in a rapidly evolving environment that requires appropriate changes in both their structure and their function. The field of *organizational development* helps organizations make changes that are rationally planned and implemented. Organizational change is often forced by circumstances and crises that are beyond the control of those in charge, resulting in hurried changes in response to an emergency. Companies such as Starbucks during the 2020 COVID-19 pandemic and British Petroleum with the Gulf of Mexico oil spill in the summer of 2010 instituted organizational change with insufficient time to plan the best way to implement that change. Such precipitous changes can have unintended consequences that are damaging to the organization in the long term.

OUTLINE

Organizational Climate and Culture
- Organizational Climate
- Organizational Culture

Organizational Development
- Employee Acceptance of Change
- Management by Objectives
- Survey Feedback
- Team Building
- T-Group
- Effectiveness of OD Programs

Organizational Theories
- Bureaucracy Theory
- Theory X/Theory Y
- Open System Theory
- Sociotechnical Systems Theory
- Comparison of the Theories

Chapter Summary
I-O Psychology in Practice
Learning by Doing
References

For example, many organizations today are experiencing *downsizing*—a reduction in the number of employees. Although downsizing is often necessary, it is too often carried out from a purely financial perspective without consideration of the effects on employees and on the organization itself. The projected savings from layoffs may never materialize because productivity is compromised by social disruption. Surviving employees might be demotivated and unproductive, and many of the best employees might leave, resulting in a less skilled workforce. Organizational development can help by considering the human side of organizational change and the best way to carry it out so that the organization remains effective. In this chapter,

we explore how organizational development can help and some of the specific techniques involved.

Organizational theories describe how organizations work. Some focus on the structure of organizations, including the various components and how they interrelate. Others are concerned with the interpersonal aspects of organizations, including communication and how people relate to one another. Finally, some focus on the interaction of the interpersonal and technical sides of organizations: In other words, how do people affect the technology of the organization, and how does the technology affect people? All these approaches are discussed in this chapter as we cover four important organizational theories.

OBJECTIVES

The student who studies this chapter should be able to

1. Distinguish organizational climate from organizational culture.
2. Explain what organizational development is and how it is applied.
3. Describe the organizational development techniques and indicate the effectiveness of each.
4. Discuss each of the organizational theories presented in the chapter.
5. Show the linkages among the four organizational theories discussed.

Organizational Climate and Culture

In Chapter 11, we learned about the concept of safety climate that explains how organizations differ in the importance they place on the safety of employees. Safety climate is the emphasis that organizations place on safety in terms of their policies and practices, that is, what sorts of behaviors are encouraged versus discouraged (Zohar, 2010). But climate is not limited to safety as organizations can have different kinds of climate, depending upon what they wish to emphasize. Furthermore, climate is not the only way in which organizations differ from one another. Organizational culture has to do with far more than policies and practices but defines all the ways in which organizations differ. We will explore the concepts of climate and culture to help us understand characteristics of organizations that go beyond individual employees and their workgroups. Blog 14-1 further explains organizational climate and contrasts it with organizational culture.

BLOG 14-1 What Is Organizational Climate?

https://paulspector.com/what-is-organizational-climate

Discussion Questions

1. What is the difference between organizational climate and culture?
2. What is the most important climate for a private corporation? How about a police department?
3. How should the climate differ for different functions of an organization such as manufacturing, product development, and sales?
4. How should managers best develop the climates of their organizations?

Organizational Climate

As already noted, **organizational climate** refers to what is considered important to an organization, that is, the sorts of behavior that are encouraged (wearing safety gear) versus discouraged (removing a safety shield from a machine). *Perceived climate* is the

individual perceptions of employees about what the climate might be, whereas *organizational climate* is the shared perception of employees about the climate. It is reflected in the average score on a scale designed to measure climate. Some organizations have strong climates that permeate throughout the organization and might be reflected in an organization's slogan. For example, Ford Motor Company adopted the slogan "Quality is Job One," during a time they were prioritizing improved product quality.

There are many types of organizational climates. We have already learned about safety climate, but there are others that have been shown to relate to employee and organizational performance. They include:

- **Diversity climate** is the extent to which organizations value diversity and having respect for people's differences that can produce a welcoming environment to everyone regardless of their backgrounds and characteristics. Good diversity climates have been linked to positive outcomes for individuals such as job satisfaction and organizations such as sales (Groggins & Ryan, 2013). Some of the negative effects of workgroup diversity that we saw in Chapter 12 can be reduced when an organization has a good diversity climate.
- **Ethical climate** is the extent to which organizations hold high standards for ethical and moral behavior. It provides guidance to employees about how to behave appropriately (Kuenzi & Schminke, 2009). Ethical climates are encouraged by leaders who behave ethically and exhibit the kinds of moral leadership we discussed in Chapter 13.
- **Innovation climate** is the extent to which employees are supported and rewarded for trying new things. It results in increased innovation, which can be vital to organizational long-term success, as discussed in Chapter 10. Beyond that it benefits employees in terms of higher job satisfaction, motivation, and well-being (Newman, Round, Wang, & Mount, 2020).
- **Service climate** is the extent to which providing good service to clients, customers, and even patients is encouraged. With service climate, it is not only the perceptions of employees that matter, but service climate perceptions of customers can also be vital to business success (Jung, Yoo, & Arnold, 2017). Although service climate has been shown to impact financial outcomes (e.g., sales) of organizations (Jiang, Hu, Hong, Liao, & Liu, 2016), it is the combination of ethical and service climates that matters most. To be most effective, service climates must go hand in hand with ethical climates, so employees maintain high ethical standards as they provide good service (Myer, Thoroughgood, & Mohammed, 2016).

Organizational Culture

Organizational climate has to do with the sorts of behaviors that are encouraged and supported. **Organizational culture** goes much deeper. It is reflected in all aspects of the organization that has been created by people. As Kuenzi, Mayer, and Greenbaum (2020) note, culture consists of the assumptions, beliefs, and values of people that can be seen in the artifacts (dress code) and symbols (company logo) of the organization. Climate and culture are sometimes used interchangeably, but they are not the same thing. Climate is a manifestation of culture but is only a small part of it.

The culture of an organization does not exist in a vacuum, but is influenced by the business environment (e.g., high vs. low growth), industry (e.g., health care vs. technology), and national culture as we discussed in Chapter 9 (Ostroff, Kinicki, & Muhammad, 2012). Culture develops and evolves over time due to the combination of external (changing markets) and internal (new employees) forces. Much has been written about the impact of generational differences on the workplace (Pryor, 2019), and those differences have the potential to shift organizational cultures. However, research shows that generational differences tend to be small (King, Finkelstein, Thomas, & Corrington, 2019), so cultural change is more likely to be driven from broader societal changes such as globalization and technology.

Organizational Development

Organizational development (OD) is a family of techniques designed to help organizations change for the better. They involve the use of behavioral science principles and procedures that help employees improve performance and interact with coworkers more effectively. An OD effort involves an entire organization or a large component of it, and it is intended to result in substantial changes in how the organization operates. Such changes can involve a reorganization in which new departments are created and old ones eliminated, with functions moved from area to area and person to person. An OD effort, however, is typically much more than a reorganization, and often reorganization is not even involved. It usually means changing how people do their work, how they communicate with one another, and how they coordinate their efforts.

An OD effort or program involves employees at all levels of the organization. It is implemented by a person or persons referred to as change agents. The **change agent** is the catalyst for change within the organization. He or she is an expert in working with organizations to improve their functioning. The change agent might be an employee of the organization, as in the case at the end of the chapter. In most instances, however, the change agent is an outside consultant who is hired to implement the OD program. Many consulting firms throughout the world specialize in OD.

The change agent's job is to act as a guide and trainer for the OD process. He or she might conduct classes in which employees are trained in new ways to communicate or operate within their organization. He or she might conduct group sessions during which organization members plan changes that will improve the organization. The role of the change agent in these sessions is to serve as the group facilitator or moderator, keeping everyone focused on the task at hand and helping to mediate disputes among people. In short, the change agent assists the organization members in their OD effort. The change agent usually does not come into the organization with a specific plan for change, only the process by which employees can redesign their organization.

OD and other changes are not easy to implement. Armenakis and Bedeian (1999) discussed how it is a multistage process that an organization must go through to successfully implement a change. It begins with employees first learning that a change needs to occur, which in many cases will induce anxiety and disbelief. Next, the specific form of the change is determined, often with the participation of the employees affected. Once a plan is produced, the change can be implemented. Typically, there will be some degree of resistance to the change that must be overcome. Finally, the new ways of operating must be consolidated and become part of the accepted way people operate. In other words, it becomes part of the organizational culture.

Employee Acceptance of Change

Management's desire to introduce change does not guarantee that it will be successful. Employees who are asked to change their behavior or use new equipment and techniques effectively must be willing to accept the change rather than resisting and must commit to making it successful. Change can be stressful, leading to negative emotions and feelings of uncertainty that can affect acceptance (Baillien, Escartín, Gross, & Zapf, 2017; Kraft, Sparr, & Peus, 2018). Both individual employee and organizational factors combine to determine people's willingness to accept change. On the individual side, people vary in their tendency to accept or resist change (Oreg & Sverdlik, 2011); individuals who adapt best are flexible and like to try new things (Choi & Price, 2005). In addition, employees who are high in organizational commitment are likely to support change (Seo et al., 2012). This makes sense as a committed employee wants the organization to succeed and should be willing to put his or her own concerns aside for the good of the organization. Furthermore, people who have had positive experience with change in the past will be more likely to accept it in the future (Cunningham et al., 2002).

On the organizational side, leadership is an important element in employee acceptance of change (Furst & Cable, 2008). Transformational leaders can effectively encourage followers to accept change (Bommer, Rich, & Rubin, 2005; Oreg & Berson, 2011). Of particular importance is the leader's articulation of a vision that is consistent with the change. In other words, an effective transformational leader will explain to followers how the change will enable them to reach important goals more easily and will convince them that change is welcome. Wanberg and Banas (2000) noted how sufficient information about change and participation by employees in the process were associated with employee acceptance of change within U.S. government agencies over a 14-month period (see the Research in Detail box). K. J. Klein, Conn, and Sorra (2001) studied change in 39 U.S. manufacturing plants and found that sufficient financial resources and support from management are associated with successful change efforts.

Research in Detail

Even the most well-designed organizational change will induce some level of resistance among employees. An issue of concern is determining what factors might mitigate that resistance. Wanberg and Banas (2000) studied organizational change in U.S. public housing organizations funded by the U. S. Department of Housing and Urban Development (HUD). In the midst of a radical restructuring of HUD and its operations, surveys were conducted to determine those factors that might lead to favorable employee reactions to organizational change.

Participants in this study were members of the National Association of Housing and Redevelopment Officials (NAHRO) from two states. Surveys were administered to 173 employees who were attending state NAHRO conferences. A number of scales assessed characteristics of the individual employees and their perceptions of organizational conditions. Included was a measure of resilience, which was comprised of high self-esteem, an optimistic outlook on life, and feelings of control. Organizational scales assessed information sharing (the extent to which employees were informed about changes) and participation in changes. Two months later, participants were mailed a questionnaire that assessed their openness to organizational change, job satisfaction, and turnover intentions. One year later, organizations were contacted to determine whether or not each participant had quit his or her job.

Results showed that the two most important factors in openness to change were the extent to which employees felt informed and participation. Personality was also a factor, with resilience associated with openness. Furthermore, openness was associated with job satisfaction and intention to quit, and both job satisfaction and intention to quit were associated with turnover. This suggests that forced change can lead to dissatisfaction and intention of quitting, which can lead to subsequent turnover.

This study shows that people vary in their openness to organizational change and that resilient people are more likely to endorse rather than resist it. Furthermore, these results suggest that providing sufficient information about impending changes and allowing employees to participate in change planning and implementation can go a long way to increasing openness and reducing resistance, thus facilitating effective organizational change.

Source: Adapted from "Predictors and Outcomes of Openness to Changes in a Reorganizing Workplace," by C. R. Wanberg and J. T. Banas (2000), *Journal of Applied Psychology*, 85, 132–142.

Management by Objectives

Management by objectives (MBO) is an organizational change technique that is based on goal setting (see Chapter 8). Each employee's own goals are coordinated with the goals of both supervisors and subordinates. In a typical MBO program, goal setting begins by having those at the top of the organization set broad objectives for the entire organization. The process of setting goals or objectives then filters down level by level, with all employees' goals being related to the goals of their superiors. The goals serve

as motivational tools to direct effort, as criteria against which employee performance is appraised, and as the means of coordinating everyone's efforts toward a common set of organizational objectives.

Implementation of an MBO program typically begins with the change agent meeting with the top officials of the organization to set organization-wide goals and objectives. These goals must be as concrete and measurable as possible because everyone else's goals must be linked to them. A goal such as

Improve the functioning of the organization

is a worthy goal, but it is too vague to be of much value in directing effort. A better goal would be

Increase sales by 20%

This goal is specific and measurable, allowing everyone to know precisely what needs to be done and when it has been achieved.

In the next step, the change agent meets with managers and trains them in the goal-setting process. The program will work only when managers understand how to state measurable goals and how to set goals with subordinates and superiors. The third step is a series of meetings involving every subordinate–supervisor pair in the organization, usually beginning at the top and working down the organization level by level. The technique involves active participation by subordinates, who negotiate their goals with their supervisor, with the requirement that subordinates' goals must be consistent with those of the higher levels. Once all goals have been set, employees try to achieve them. After a 6- to 12-month period, each employee's job performance is evaluated against progress toward his or her goals. The entire process is illustrated in Figure 14-1.

Research on MBO has supported its use as an effective means of increasing organizational performance. Rodgers and Hunter (1991) conducted a meta-analysis of the effectiveness of MBO. They found positive effects on employee productivity in 68 of the 70 studies they reviewed. The combined results of 23 of the studies indicated an average increase in productivity of 39% after implementing an MBO program. Rodgers and Hunter did an additional analysis in which they separated the 23 studies into three groups based on the extent to which top management was committed to the MBO program. As shown in Table 14-1, organizations with the highest levels of management commitment had far better results than those with the lowest levels (57% vs. 6% increase in productivity).

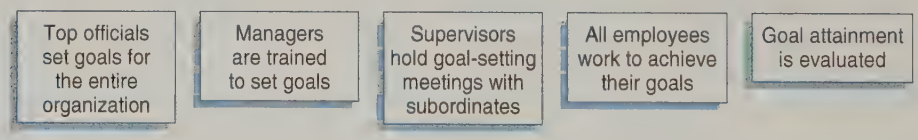


FIGURE 14-1 The five steps of implementing a management by objectives (MBO) program.

TABLE 14-1

Effect of Management Commitment on Performance Gain After Implementation of Management by Objectives

Level of commitment	Percentage gain in productivity
High	56.5
Medium	32.9
Low	6.1

Source: Adapted from "Impact of Management by Objectives on Organizational Productivity," by R. Rodgers and J. E. Hunter (1991), *Journal of Applied Psychology*, 76, 322–336.

The high success rate found by Rodgers and Hunter (1991) is probably an overestimate of how well MBO has worked across the many organizations in which it has been tried. These studies likely represent some of the better efforts at implementing MBO. Many organizations have made attempts to implement MBO without full management commitment or necessary resources. Such halfhearted attempts are likely to have little effect on the organization, with employees setting easy goals that require little effort to achieve them.

Survey Feedback

Survey feedback is an OD technique that involves conducting a survey of employee attitudes and opinions and then feeding back the results to the entire organization. The idea is that employees can express their opinions in a nonthreatening way through anonymous or confidential questionnaires. The survey data can then be used as the starting point for discussions about needed changes in the organization.

A survey feedback program consists of two stages. First, the change agent designs and administers questionnaires to the employees of the organization. Employees are asked about job satisfaction, perceptions of job conditions, and problems at work. Standardized scales can be used to assess some of these variables; for example, the Job Descriptive Index (Smith, Kendall, & Hulin, 1969) can be used to measure job satisfaction (see Chapter 9). Other items and custom-made scales might be developed specifically for each organization by the change agent after interviews with a sample of employees. The advantage of using standardized scales is that results from the organization can be compared to results from other organizations. That way one knows if employee job satisfaction is unusually high or low compared to similar organizations. The advantage of custom-made scales is that they can be much more targeted and deal with issues of concern to employees only in the specific organization. Thus, one can find out with a standardized scale how employees feel about their pay in general, but it would take a custom-made scale to find out how they feel about the company's pay policy.

The second stage of a survey feedback program is providing feedback about the survey to employees. Data from the survey are compiled into a report, and the report is presented to employees, usually at a series of group meetings. A change agent might run the meetings, during which employees discuss the results and potential solutions to the problems uncovered by the survey. A successful program will result in the implementation of solutions that emerged in the group meetings.

Studies on the effectiveness of survey feedback have tended to find positive results from its use. Bowers (1973) reported the results of a large-scale longitudinal study involving more than 14,000 employees from 23 organizations. Positive changes in employee reports of job satisfaction and job conditions were found after survey feedback programs were introduced. In a meta-analysis of OD studies, survey feedback was found to have a modest positive impact on the job satisfaction of employees who participated (Neuman, Edwards, & Raju, 1989). It gives employees an opportunity to air their grievances in a constructive atmosphere. It also can provide for increased participation by employees in policy decisions that affect the entire organization. If done properly, survey feedback can help solve problems and give employees a greater sense of involvement in the organization.

Team Building

Team building refers to many techniques that are designed to enhance the functioning of work teams. As discussed in Chapter 12, team building can focus on tasks, such as the smooth coordination of effort, or on interpersonal issues, such as communication. With the task-oriented approach, the change agent helps work teams improve their task performance by learning how to work together more effectively. With the interpersonal approach, the change agent helps work teams improve their communication and interaction. Part of this effort can be directed toward reducing interpersonal conflict within work teams.

Team building can be an essential part of an OD effort because many of the tasks of organizations are conducted by work teams rather than individuals. An organization in which work teams do not work well will have a hard time being effective. Improving team functioning can go a long way toward improving an organization. In Chapter 12, we saw how the U.S. Navy is committed to improve team functioning through training. Also noted in Chapter 12 was a comprehensive meta-analysis that shows that team building tends to have positive effects on team functioning and team performance (C. Klein et al., 2009). In their meta-analysis, G. A. Neuman et al. (1989) found that team building has a positive effect on job satisfaction.

T-Group

The **T-group** or training group is an intervention designed to enhance the communication and interpersonal skills of individual employees through the use of specific group exercises. There are many variations of the T-group. Most are conducted at a site away from work, take place over a 3-day to 2-week period, and involve several people who do not know one another. The idea is for the group of strangers to experience a series of interpersonal skills exercises with a trainer or facilitator to guide them.

A T-group experience encourages participants to experiment with their interpersonal behavior in a safe situation in which they receive nonjudgmental feedback. This allows group members to gain insights into their effects on others and how they are perceived by others. The purpose is for organizational members, most often managers, to increase their interpersonal skills in the hope that they will be more effective on the job.

At one time, the T-group was a popular intervention, with many large organizations sending their management staffs to an off-site location for training. It is not as popular at the present time for at least two reasons. First, research on the T-group has found that although individuals can be positively affected by the experience, there is typically either no effect or negative effects on the workplace. For example, Bowers (1973) found detrimental changes in reports of job conditions and job satisfaction among employees who participated in T-groups. Second, the T-group experience can be very much like group psychotherapy, with individuals exploring sensitive and potentially threatening aspects of themselves. There have been reports of individuals being hurt and upset by the T-group. Some have raised the issue that it is unethical for an organization to require T-group attendance.

Although T-groups have lost much of their popularity, organizations are still very much concerned with communication skills. To enhance such skills, organizations can use a variety of other methods. For example (as discussed in Chapter 7), behavior modeling has been found to be effective in teaching interpersonal skills. This method involves having employees watch people enact appropriate ways to communicate with others on the job. Trainees then practice what they have seen, under the direction of a trainer. This approach can be effective in enhancing interpersonal skills without the potentially harmful effects of the T-group. Thus, organizations have alternatives that they can use to enhance the communication skills of their employees.

Effectiveness of OD Programs

The many different approaches to OD make it difficult to define precisely what a legitimate OD program is. Many involve more than one technique, including some combination of the four discussed in this section. An OD program might begin with survey feedback to identify issues. MBO or team building might be implemented next if the survey feedback process suggests that they are appropriate interventions. The wide variety of approaches and the complexity of the programs make it difficult to determine the effectiveness of individual OD techniques as well as overall programs.

Another problem is that research on an entire organization is difficult to accomplish. If one implements an OD effort and wishes to assess the results, what will serve as the control group? The ideal OD study would randomly assign a sample of organizations (as opposed to individual participants) to one of two groups: intervention or control. This sort of design would require the cooperation of many organizations and is not generally feasible. Most OD studies are conducted in a single organization, with comparisons made before and after the OD program. For example, one can compare the performance of employees before and after OD implementation, but one cannot be certain of what caused any differences that might have been found. A variety of things might have occurred that had nothing to do with the OD program, and some of those might have been the real cause of differences.

Perhaps the most reasonable conclusion is that OD programs, if properly applied and supported by top management, can be effective. Meta-analyses have found that many OD techniques have positive effects on people and organizations (Guzzo, Jette, & Katzell, 1985; Neuman et al., 1989). Except for T-groups, there have been few reports of detrimental effects on organizations. Most large U.S. corporations seem to believe in the value of OD. In a survey of Fortune 500 companies, McMahan and Woodman (1992) found that most had internal OD professionals who were actively working to improve their organizations: 38% of the companies had OD staffs of 6 or more people, and 14% had staffs of 21 or more people. These results are probably an overestimate of the amount of OD activity in large U.S. companies, for the participation rate in the study was only about one-fifth of the eligible companies, and those actively engaged in OD were probably more likely to participate in the study. Nevertheless, they suggest that OD is an important activity in many large organizations.

Organizational Theories

Organizational theories describe the structure and functioning of organizations and deal with issues such as

1. The distinguishing characteristics of organizations
2. The structure of organizations
3. The interrelationships among people in organizations
4. The interactions among people and technology in organizations

Descriptive theories explain how existing organizations work. A good descriptive theory will provide an accurate picture of how organizations are structured and how they operate. **Prescriptive theories** indicate how organizations should operate. The proper application of a good prescriptive theory will lead to an effective and efficient organization.

In practice, the distinction between descriptive and prescriptive theories may not be totally clear. Elements of both may appear in a theory. Prescriptive theories that tell us what to do may in fact be descriptive of certain types of organizations. The first theory we discuss, bureaucracy, describes a particular type of organization, but its developer intended it to be prescriptive.

In this section, we discuss four different theoretical approaches to understanding organizations. *Bureaucracy* is the oldest theory, dating back to the 19th century. It is concerned with the structure of a particular type of organization that has been quite popular over the past century. *Theory X/Theory Y* is concerned with the interpersonal aspects of an organization. It is not an overall theory of organizations but describes how the attitudes of managers toward subordinates determine the organizational practices that are adopted. *Open system theory* describes the 10 components common to all general systems, including organizations. *Sociotechnical systems theory* is concerned with the interaction between the people and the technology of an organization.

Bureaucracy Theory

Bureaucracy theory, developed by Max Weber in the late 1800s, is concerned mainly with the structure of an organization (Weber, 1947). In the early days of large organizations, little was known about effective techniques to structure and manage them. Weber's idea was to create a rational structure and several principles that would allow for the orderly and efficient functioning of an organization. Although we tend to think of a bureaucracy today as an inefficient and unresponsive organization, it represented an improvement over many of the organizational structures that existed at the time it was invented. Early organizations were often disorganized and inefficient. Bureaucracy theory provides characteristics and principles that were presumed to be important for an effective organization. We will discuss four of them:

- Division of labor
- Delegation of authority
- Span of control
- Line versus staff

These principles can be useful for describing how most organizations operate, even those that are not bureaucratic in nature.

Division of Labor.

Division of labor refers to the organization's specialized job positions, each of which is responsible for different tasks. For a complex process, such as manufacturing an automobile, the total job is divided into many individual parts. For an entire manufacturing organization, the design, production, sale, and delivery of products are handled by different people in different departments.

The advantage of a division of labor is that each job requires relatively few skills. Therefore, it will not be difficult to find people who have the necessary KSAOs to do any job, it will take little time to train them, and individuals can become quite proficient because they have few tasks to master. The major disadvantage is that it requires resources to coordinate the activities of many specialized people. In a factory, for example, many managers and supervisors are needed to make sure that all employees do their jobs properly and that the efforts of employees are coordinated. This leads us to the next characteristic, delegation of authority.

Delegation of Authority.

Most organizations are hierarchically structured with one person at the top who has ultimate authority and control. Reporting to the top person will be one or more people who have authority and control over others who are below them in the hierarchy. At each level of the hierarchy, except the first, people report to others who are their superior. At the last or bottom level are people who report to someone above them, but no one reports to them. An example of the organizational chart for a hierarchically structured organization is shown in Figure 14-2.

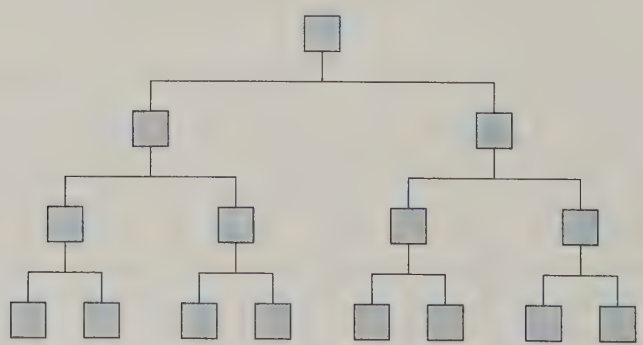


FIGURE 14-2 An organizational chart for a hierarchically structured organization. In such organizations—for example, a bureaucracy—each person reports to a single supervisor.

Division of labor means that no one in the organization does the entire work of the organization. Thus, the person at the top is dependent on all those below to produce the organization's goods or services. To accomplish this, each person must allow **delegation of authority** to those below to accomplish a particular job. Thus, the top person might delegate authority for the design of a product to the research and development manager, for the running of a factory to a plant manager, for the selling of the product to a sales manager, and for the distribution of the product to a distribution manager. The people who report to each of these managers will be given authority to do whatever their jobs require. The efforts of different individuals are coordinated through a network of hierarchical supervision or **chain of command**: Each person is responsible for those tasks and functions over which he or she has authority.

Span of Control. **Span of control** refers to the number of subordinates who report to each supervisor. In a bureaucracy, there will be an optimal span of control. Because everyone except the person at the top has a supervisor, too small a span of control results in needing too many managers. Too large a span of control is chaotic because one person cannot adequately supervise the work of many people. The number of people someone can adequately supervise depends on two factors. First, the more skilled the subordinates, the less supervisory time they take. A person who is unskilled will need constant help and direction. A person who knows the job well will need only occasional attention. Second, the person's supervisory style helps determine the optimal span of control. A directive style requires considerable time for each subordinate. Each time a decision or problem arises, the supervisor must take time to deal with it. A participative style allows for a larger span of control because subordinates can deal with many of their own problems and make their own decisions, thereby freeing the time of their supervisors.

Line Versus Staff. Each position in an organization can be classified as either line or staff. A *line position* is involved directly with the organization's major purpose. In the military, it would be combat soldiers; in education, it would be teachers; in manufacturing, it would be assemblers; and in retailing, it would be salespeople. Line positions also include all the levels of supervision above these positions. A *staff position* supports the activities of a line position. The administration of salary and fringe benefits, employee selection, and training are all considered to be staff functions performed by people in staff positions, usually in the human resources department. Blog 14-2 discusses how overly bureaucratic procedures in organizations can be stressful to employees.

BLOG 14-2 Bureaucracy Can Be Stressful

https://paulspector.com/bureaucracy-can-be-stressful

Discussion Questions

1. How do the bureaucratic procedures described in the blog fit into Weber's bureaucracy theory?
2. How do bureaucratic controls in organizations reflect the organizational culture?
3. Explain the difference between Theory X and Theory Y managers would approach controls.
4. Why is it necessary to implement bureaucratic procedures in organizations?

Theory X/Theory Y

McGregor's (1960) **Theory X/Theory Y** is concerned with the interaction between supervisors and subordinates. The basic idea is that the attitudes and beliefs of supervisors about their subordinates determine the organization's management approach, which in turn affects how subordinates behave. This is a self-fulfilling prophecy in that managers treat subordinates according to how they are expected to behave, and this treatment causes subordinates to behave as expected. For example, a manager who believes that subordinates will not do their jobs properly without close supervision is likely to supervise closely. The closely supervised subordinates will undoubtedly believe that they are not trusted and will probably not work well when the supervisor is absent. Although the manager might believe that the close supervision is required because subordinates are unmotivated, in fact the low motivation is due to the close supervision.

McGregor (1960) considered Theory X to represent the conventional view of the manager's role and the nature of subordinates. He noted eight propositions that represent beliefs widely held by managers Table 14-2). They include the idea that managers are responsible for organizing the human and nonhuman (equipment, money, supplies, and tools) elements of the organization and that they should direct and motivate subordinates. The worker is viewed as being indifferent to the organization's needs, lazy, unmotivated, and not very bright. This belief leads managers to adopt one of two strategies. The *hard approach* is to use coercion and threats and to supervise closely, an approach that results in employee resistance, such as counterproductive work behavior and restriction of output. The *soft approach* is to be permissive and avoid conflict with subordinates, which leads to an ineffective organization.

Theory Y is McGregor's preferred management view, which he believes will lead to more satisfied employees and more effective organizations. It has four propositions (see Table 14-2), which cover both the role of managers and the nature of subordinates. According to Theory Y, managers are responsible for organizing rather than directing the various human and nonhuman elements of the organization. Subordinates are

TABLE 14-2

McGregor's Theory X/Theory Y Propositions

Theory X
Managers are responsible for organizing elements of the organization.
Managers should direct the activities of subordinates.
Employees are resistant to organizational needs.
The average employee is lazy.
The average employee lacks ambition and dislikes responsibility.
The average employee is concerned for himself or herself and not the organization.
The average employee is resistant to change.
The average employee is gullible and not very bright.
Theory Y
Managers are responsible for organizing elements of the organization.
Employees are not by nature resistant to organization needs. They have become that way because of prior organization experiences.
Managers should make it possible for subordinates to recognize and develop their organizational capabilities.
Managers should create organizational conditions so that subordinates can achieve their own goals through achieving organizational goals.

Source: From *The Human Side of Enterprise*, by D. M. McGregor (1960), New York, NY: McGraw Hill.

capable and not inherently unmotivated or unresponsive to organizational needs. It is the responsibility of managers to arrange conditions so that employees can fulfill their own goals by directing efforts toward organizational goals. This last point is very much like the path–goal leadership theory idea (see Chapter 13), that leaders should provide the means through which subordinates can achieve personal rewards through good job performance. The supervisory approach adopted by the Theory Y manager is likely to be quite different from his or her Theory X counterpart. Rather than relying on directive approaches, the Theory Y manager stresses employee autonomy and development. Emphasis is placed on the setting of goals and objectives for employees, with their supervisors helping by removing constraints and providing guidance.

McGregor believed that movement toward Theory Y would be a slow process because the experiences of most people have been in Theory X situations. Today we can see many examples of the Theory Y approach. For example, the autonomous work team is based on the philosophy that subordinates are capable of managing themselves. As organizations continue to experience pressure to reduce costs by downsizing, it will become necessary to give more responsibility to lower-level employees. Doing so will require adoption of a Theory Y approach.

Theory X and Theory Y are not the only possible approaches for managing people. Ouchi (1981) proposed an approach to management that is based on Japanese practices. **Theory Z** assumes that long-term employment is the basis of effective organizations. People who can count on spending their entire career in the same organization will have high levels of commitment. They will be willing to put more effort into helping their organizations to be successful because they have a personal stake in the long-term success of their employers.

Open System Theory

According to Katz and Kahn's (1978) **open system theory**, an organization can be viewed as a type of open system. The idea comes from the natural sciences, which view biological organisms such as plants, animals, bacteria, and viruses as open systems. Although organizations are different from biological organisms, they do share many characteristics (see Figure 14-3).

Katz and Kahn (1978) noted 10 characteristics of open systems, which are listed in Table 14-3. Open systems such as organizations import energy, transform the energy into



Stephen Meese/iStockphoto

FIGURE 14-3 Organizations can be thought of as open systems that share many of the characteristics of biological organisms.

TABLE 14-3

The 10 Organizational Characteristics From Open System Theory and an Organizational Example of Each

Characteristic	Example
1. Import energy	Hire people
2. Transform energy	Make products
3. Output products	Sell products
4. Cycles of events	Work shifts
5. Escape entropy	Stay profitable
6. Input information	Do a market survey
7. Homeostasis	Balance the annual budget
8. Specialization	Create specialized job titles
9. Coordination and integration	Supervise employees
10. Equifinality	There are many effective ways to run an organization

Source: From *The Social Psychology of Organizations* (2nd ed.), by D. Katz & R. L. Kahn (1978), New York, NY: John Wiley.

something else, and output some product or service. All organizations import people and materials, produce goods and services, and deliver those goods and services to customers. Even government organizations provide services to citizens, including education, health care, protection, and transportation.

Open systems undergo cycles of events, and organizations are no different. Most organize their finances by fiscal years; employees have weekly work schedules, and for many organizations the day is broken into two or more work shifts. Universities organize instruction by semesters and semesters are organized into academic years. Many employees are hired according to time-limited contracts, especially in professional sports organizations such as baseball, basketball, football, and soccer teams.

Open systems must somehow escape entropy—the decay and destruction of the system. With a biological organism, entropy results in death. For an organization, entropy also can result in death, although often "dying" organizations are absorbed by other organizations. With private-sector organizations, entropy can be indicated by the economic health of the company. Organizations that are efficient in transforming their inputs into goods and services that can be sold at a reasonable profit will survive. Those that cannot produce goods and services at a profit will have their finances erode until they can no longer pay employees or input energy. When this situation occurs, they will cease to function unless additional energy is available. This might occur if an external entity provides the funds to continue. It is what happened during the COVID-19 crisis when governments provided funds to private companies to cover their lost sales.

In addition to energy, open systems input information about their environments. Organizations have many people who are information specialists of various types. Organizations have accountants to deal with financial matters and lawyers to deal with legal issues, helping the organization maintain its homeostasis. Just as the thermostat in a house keeps the temperature constant, systems in organizations maintain certain conditions. An organization must maintain an appropriate number of employees, have the proper equipment in working order, have the necessary materials, and balance a budget. All these maintain the organization's homeostasis.

As open systems grow and become more complex, they develop specialized functions. As organizations become larger, they tend to divide work into more and more specialized functions, as well. A small organization might have a single individual perform all accounting, human resources, and legal functions. A large corporation will have entire departments and often divisions for each of these functions. As functions become more specialized, open systems develop structures for coordination and integration. In organizations, this function is accomplished through supervision and the chain of command.

The final characteristic of an open system is equifinality—a system can reach a particular state from many different starting points using many different methods. From an open system perspective, there is no one correct way to structure and operate an organization. Successful organizations can function in a variety of ways. For example, a product can be produced with an autonomous work team or with a traditional assembly line.

Open system theory is descriptive in providing a framework to understand the characteristics of organizations. It does not provide prescriptive insights into how an organization should be run, as does McGregor's Theory X/Theory Y.

Sociotechnical Systems Theory

Sociotechnical systems theory views an organization in terms of the interrelations between people and technology in the context of the organizational environment. *People* include the employees of the organization and their relationships with one another. *Technology* consists of the equipment, materials, tools, and other nonhuman objects in the organization. The *environment* is the physical and social conditions in which the organization must function. The theory deals with how people affect technology and how technology affects people. Sociotechnical systems theory is prescriptive in that it uses research findings to provide principles of good organizational design.

The origins of sociotechnical systems theory can be found in a paper by Trist and Bamforth (1951) in which they describe the effects of technological change in the British coal mining industry (see Figure 14-4). Prior to the change, coal mining was done by small groups of men who controlled their own work pace. Members of each group worked closely together inside the dangerous environment of the mine. The introduction of machinery resulted in changes in the work group relationships among the men and the loss of worker control over work pace. Individuals now operated large pieces of machinery alone, without the close support of colleagues. This led to increases in absence and health complaints among the miners. Trist and Bamforth's paper made the linkages between the human and technological aspects of organizations very clear.

Since Trist and Bamforth's (1951) paper, sociotechnical systems theory has undergone development and frequent application (Winterton, 1994). Cooper and Foster (1971) noted



Jeff Morgan 08/Alamy Stock Photo

FIGURE 14-4 Technological changes in coal mining have sometimes disrupted the social system of miners, resulting in employee problems.

several principles of the theory. **Joint optimization** is the idea that the social and technological systems should be designed to fit one another as well as possible. Machines and equipment should be easy for people to use, and people should be organized into tasks and jobs so that machines and equipment can function well. This means not only that human factors should be part of equipment design but also that available technology should be considered in designing the human side of organizations. The introduction of word processing on personal computers in offices during the 1980s is an example of this approach. Because employees using this technology were not experts in computers, both hardware and software had to be designed to be as easy to use as possible. To get the full advantage out of word processing, however, the computers could not be designed just to mimic the typewriters they were replacing. The use of additional functions required that they had to operate somewhat differently. This necessitated extensive training for clerical employees with limited computer experience. Many managers of organizations, however, violated sociotechnical systems principles by thinking that all they needed to do was order computers and have them put on employees' desks.

Unit control of variances concerns who handles work problems when they arise. In many organizations, each employee is responsible for handling only routine assigned tasks. When there is a variance from normal routine—for example, a machine breaks or a customer has a problem—specialists or supervisors are called to handle it. The idea of unit control is that variances should be handled by the employee or employees who encounter them. Thus, the operator of the machine should be allowed to fix it, and the salesclerk should be allowed to help a customer with a problem. In an office, employees who use word processors should be able to solve all but the most difficult problems they encounter. This approach enhances the motivation, self-efficacy, and skills of the employee, and it saves the time of the specialist and supervisor.

Implementation of the sociotechnical systems approach results in self-regulation by the individual employees or groups of employees. Thus, the autonomous work team approach is a major way in which these ideas have been introduced into organizations (Parker, Morgeson, & Johns, 2017). The existence of self-regulating or self-managed units implies a different function for management. Rather than directing the actions of employees, managers spend time counseling and supporting the activities of work units and facilitating their interactions.

The ideas of sociotechnical systems theory have been widely applied in organizations and will probably continue to spread for at least two reasons. First, as noted earlier in this chapter, there has been a worldwide trend toward downsizing organizations by trimming the size of management staffs (Kozlowski, Chao, Smith, & Hedlund, 1993). With fewer managers, individual employees will have to work more independently. Second, organizations today find themselves in a rapidly changing environment that requires flexibility to adapt to changing demands. The principles of sociotechnical systems theory describe how organizations can function well under such conditions (Liu, Shah, & Schroeder, 2006).

Research on sociotechnical systems theory applications has been supportive. Two studies conducted in the United Kingdom, for example, found that the unit control of variances principle has positive effects on productivity. Wall, Corbett, Martin, Clegg, and Jackson (1990) hypothesized, based on sociotechnical systems theory, that allowing factory workers to deal with machine problems themselves reduces the amount of time that machines are "down" for adjustment or repair. They found not only that this form of unit control enhancement decreased downtime but also that it decreased employee feelings of job pressure and increased their job satisfaction. In a similar study in another British factory, Wall, Jackson, and Davids (1992) found that when factory workers assumed responsibility for fixing machine problems, productivity increased because of a reduction of machine downtime.

Meta-analyses of interventions based on sociotechnical systems theory have indicated a high degree of success. Pasmore, Francis, Haldeman, and Shani (1982) analyzed the results of 134 studies and found that the majority have positive effects on criteria of costs, employee attitudes, employee withdrawal, grievances, productivity, safety, and work quality Table 14-4).

TABLE 14-4

Percentage of Studies Reporting Various Positive Effects of Sociotechnical Systems Theory Interventions

Effect	Percentage successful
Productivity	87
Cost	89
Absence	81
Turnover	65
Attitudes	94
Safety	88
Grievances	89
Quality	97

Source: Adapted from "Sociotechnical Systems: A North American Reflection on Empirical Studies of the Seventies," by W. Pasmore, C. Francis, J. Haldeman, and A. Shani (1982), *Human Relations*, 12, 1179–1204.

Comparison of the Theories

Each of the four theories we have discussed is distinct, and each tends to focus on different aspects of organizations. There are some common ideas and connections among them, however. The rigid structure of the bureaucracy lends itself to a Theory X approach. In a bureaucracy, each person's job is clearly defined, with the individual having relatively little autonomy or discretion. This tends to be associated with the leadership style defined as Theory X, which includes close supervision and nonparticipative approaches.

Sociotechnical systems theory applications have tended to be consistent with Theory Y ideas. One of the main sociotechnical systems approaches is the autonomous work team (see Chapter 12). The idea is to give employees autonomy and discretion in how they do their jobs. This assumes that management adopts a trusting view of employees. One cannot allow someone discretion without being confident that he or she will do the job properly. Thus, the application of sociotechnical systems theory requires a Theory Y philosophy that employees can be trusted to do the job.

Open system theory is quite different. It describes the functioning of an organization in terms of 10 rather general principles and does not recommend specific practices. One can use the principles to describe the processes of an organization that might be based on the other theories. For example, the ways in which employees are supervised is covered by the principles of coordination and integration; however, there is little in the theory to tell us how we should coordinate and integrate. Of course, the principle of equifinality tells us that there can be many effective ways to run an organization, which is consistent with the principles of sociotechnical systems theory (Walker, Stanton, Salmon, & Jenkins, 2008).

These theories provide a broad perspective on organizations and how they function. Some have led to specific applications such as the autonomous work group based on sociotechnical systems theory. Others have affected the philosophies of those who manage organizations rather than describing particular techniques. Theory X/Theory Y, for example, is well known to managers and has had some influence on their practices.

Chapter Summary

We took an organizational perspective in this chapter, briefly reviewing three areas: organizational climate and culture, organizational development, and organizational theory. Organizational climate is the extent to which organizations encourage and support behavior that fit certain categories, such as diversity, ethics, innovation, or service.

Organizational culture is reflected in the assumptions, beliefs, and values of employees, as well as the artifacts and symbols that can be seen in the workplace.

Organizational development (OD) is the application of behavioral science principles to improve the functioning of organizations. We discussed four specific techniques that can be used separately or in combination. Management by objectives (MBO) sets interlinked goals throughout an organization. Survey feedback uses the results of an employee survey as the basis for group discussion and organization improvement. Team building is a family of techniques that can be used with work teams to improve their functioning. T-groups are training groups that engage in a series of group exercises designed to enhance the communication and interpersonal skills of individuals.

Existing evidence suggests that MBO, survey feedback, and team building can be effective interventions, with positive effects on both employees and organizations. On the other hand, T-groups have not been found to be effective and have been associated with detrimental effects.

Organizational theories describe how organizations can and should operate. Bureaucracy theory focuses on the structural components of organizations. Theory X/Theory Y explains how management philosophy affects the behavior of employees. Open system theory describes organizations in terms of 10 characteristics of open systems. Sociotechnical systems theory is concerned with the interrelations between the human and technical sides of organizations. This theory has led to many interventions, and most of those reported in the research literature have been successful.

I-O Psychology in Practice

This case is an effort to help employees cope with organizational change brought about by a corporate downsizing. Dr. Tom White served as the architect and primary change agent for this OD project. Dr. White received his Ph.D. in I-O psychology in 1985 from the University of South Florida. Immediately after graduation, he moved to Australia, where he has worked as an I-O psychologist ever since. At the time of this case, he was Organization Development Manager for Compaq Computer Corporation in Australia before it merged with Hewlett-Packard.

Among Dr. White's responsibilities was facilitating organizational change and development. He was also involved with conflict resolution among employees, leadership development, planning for the future, and team building. His role was mainly that of an internal consultant and facilitator. This means he functioned as a change agent to help the organization manage the frequent change necessitated by rapid technological development in the computer industry.

An important project Dr. White undertook was to help employees cope with a corporate downsizing that was necessary to keep the company profitable in the extremely competitive computer industry. Despite the company's reputation of caring for employees, heavy losses in recent years required drastic action to cut costs. As many as 30% of employees in some areas had to be let go. This downsizing was a traumatic experience for survivors of the layoffs, many of whom lost close friends at work. The entire company was disrupted, as people found it difficult to work effectively. Dr. White's job was to find a way to help survivors deal with the situation.

The approach chosen was based on techniques to help people cope with the death of a family member. A series of 2-day sessions was conducted with 100 employees or more in each. During the sessions, which were conducted by managers, employees engaged in a series of small-group activities to help them grieve for their losses while focusing on plans for the future. Two themes were letting go of the past and committing to the future. Dr. White's role was to organize the companywide activity and instruct managers in how to conduct sessions. This is a typical role for a change agent, in that managers have to actually implement change. A psychologist will be a facilitator and resource for those who do the change.

Once the full program was completed, which took a month, an evaluation was conducted to determine its effectiveness. Results showed that employees became more accepting of change and more trusting of management. Employee job performance increased, as did overall productivity of the workforce. Overall, this organizational change effort was beneficial to both the employees and the organization.

Discussion Questions

1. Why didn't Dr. White take a more active role in running the sessions?
2. How can a change agent facilitate change if managers have all the power in the organization?
3. What KSAOs are needed for a person to do organizational development?
4. Why is it important to evaluate programs such as Dr. White's?

Learning by Doing

Organizational Development

Go to the website of a company that does organizational development and answer the following questions.

1. What are the backgrounds of the individuals in the company?
2. What services does the company provide?
3. Can you find out whether the company uses any of the four techniques discussed in the chapter?
4. Does it specialize in a particular industry?

Open System Theory

Take an organization (it could be your college or university) with which you are familiar. For each of the 10 open system theory characteristics, note one example from the organization.

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Industrial and Organizational Psychology: Research and Practice

Guide to Incorporating Blog Content into I-O Courses

Paul E. Spector

In 2019 I became interested in blogging to expand my impact beyond the academic world. I started writing blogs that would explain I-O concepts or present results of I-O research to a broader audience. One of my earliest blogs, commissioned by an online assessment company, explained the concept of adverse impact. After posting it on LinkedIn, I received feedback from some instructors that they were using the blog in class because it was more accessible to students, and because students were more likely to read blogs than books. I began incorporating my blogs into my own teaching. When the time came to write the 8th edition of my I-O textbook, I decided to incorporate blog articles as a special feature.

There are several advantages to using blogs in combination with the text.

- Blogs deal with a single concept or study in a concise way. Students can focus attention on the one idea, which makes it easier to retain.
- Blogs are written in an accessible style that minimizes jargon and citations. It is easier for students to focus on the concepts without additional details that can be found in the text.
- Students often use more than one device at a time. They can read the text on a computer or laptop, and then take a quick break to read a blog on their phone.
- Blog articles are short and can be read in about 5 minutes. Students can read them when they have a few minutes, which allows them to remain engaged in the class more frequently.

The New Blog Feature

Each chapter in the 8th edition of *Industrial and Organizational Psychology: Research and Practice* has as a special feature links to blog articles. In each chapter there are boxes that show the title of the blog and include the URL, a hyperlink for the electronic version, and a QR code for use with a smart phone. Students can use the method of choice to access the blog. The box also includes several discussion questions for the blog.

I write a blog article once every week or two. Ideas come from a variety of places, sometimes from research we have done, sometimes from things I have read, and sometimes from conversations with others. Some of the blogs were written specifically for the book to reinforce a concept or present results of relevant research. Many of my blogs are not incorporated in the book but are on my website http://paulspector.com/blog and can be used by instructors. Instructors and students are welcome to subscribe to my blog at http://paulspector.com/about/subscribe-to-paul-spectors-blog. It is free.

Incorporating the Blogs into a Class

The blogs can be incorporated into a class in a variety of ways, and they can be used in an active or a passive way. A passive use would be to assign them and tell students they are responsible for the content. We often approach reading assignments in that manner, expecting students to study the material on their own, whether we cover it in class or not. Blogs can also be used in a more active way as exercises that can reinforce concepts in the text and presented in class lectures. Activities and assignments can be spoken or written, long or short, or individual or group.

A nice feature of the blog articles is the short length. It is easy to have students read an article in class (it only takes 5 minutes) and be prepared to discuss it. This gets around the problem of assigning a reading only to find half the students did not read it. Discussions can involve an entire class, small groups, or pairs of students. They can work well in both in-person classes and online asynchronously or synchronously through course management tools or collaboration tools like MS Teams or Zoom.

Suggested Exercises

- **In-Class Discussion**. Choose a blog article from the book. Ask students to take out their phones or tablets, click on an assigned blog article, read it, and be prepared for discussion. Allow five minutes, and then ask the class to discuss. In large classes, students can be placed into discussion groups. For smaller classes, discussion works well with the entire class. The discussion questions for each of the blog articles in the book can be used for discussion. The instructor can read a question and ask the students to provide their views.
- **Online Discussion Synchronous**. This could work similarly to the in-class discussion, only conducted online. If the class is using video features, which are preferred, discussion can mimic an in-class session.
- **Online Discussion Asynchronous.** Students would be asked to read a particular blog and answer one or more of the discussion questions within a specified timeframe (e.g., within 24 hours). Their answers can be posted using the course platform to create a discussion session, and comments on posts can be encouraged to create a discussion.
- **Written Response to Discussion Questions**. Students can be assigned a blog and asked to write responses to the discussion questions, to be submitted to the instructor for grading.
- **Report on a Blog**. Students can be asked to write reports based on a blog articles They can be asked to go to the blog library at http://paulspector.com/blog, choose the blog of their choice and write a report. The report can be written and/or presented to the class.
- **Explain a Concept to a Peer**. Pair students up into dyads. Ask them to read the same blog, and then have them take turns explaining the main point of the blog to one another.
- **Debate**. Students are asked to read a blog article, and then are assigned to take different positions on an issue given to them. This can be done in pairs, small groups, or the entire class. For example, you can assign the "Should You Test or Train?" article (http://paulspector.com/hr-issues/should-you-test-or-train/). One group of students can be asked to defend the position that the best way to assure you have the right talent is through selection and another group can argue for training/development.
- **One Minute Drill**. Students read a blog article and are given one question and are asked to write about it for exactly one minute. At the end of the minute the class has a discussion where students share what they wrote. Their responses can be collected by the instructor in order to provide feedback to individual students.
- **Reactions Exercise**. Students are assigned to read a blog, and when they are done, students are called upon to give their immediate reactions.

This is just a sampling of activities that can be done both inside and outside of the classroom.

GLOSSARY

360-degree feedback: A performance appraisal technique that provides feedback from several perspectives, including peers, subordinates, supervisors, and self.

Ability: The capability of developing a skill or learning a task; a person's aptitude for learning.

Ability test: A test designed to assess how well a person can perform a particular task.

Abusive supervision: Repeated pattern of mistreatment of subordinates by their supervisor.

Achievement test: A psychological test designed to assess a person's level of knowledge or skill; also called a knowledge and skill test.

Action process: From action theory, a series of steps describing the process by which a person translates desire for something into behavior.

Action theory: A motivation theory that links a person's goals to his or her behavior.

Action versus state orientation: A personality variable concerning a person's ability to carry out a sequence of activities to accomplish a goal. An action-oriented individual is able to self-regulate behaviors to achieve goals, whereas a state-oriented person has difficulty doing so.

Actual criterion: The way in which the theoretical criterion is assessed; the operationalization of a construct.

Additive task: A task in which a group's performance is the sum of individual members' performances. For example, total sales for a group of salespeople in a store is the sum of each person's individual sales.

Adverse impact: Potential unfairness in the treatment of minority group or protected class members. In hiring, it occurs if the protected class's selection ratio is less than four-fifths of the nonprotected class's selection ratio.

Affective commitment: A type of organizational commitment in which the person has an emotional attachment to his or her organization.

Affirmative action: A program designed to increase the number of minority or protected class members in an organization.

Analysis of variance (ANOVA): A statistical test used to compare group means.

Application form: A form completed by a job applicant; asks for background information.

Apprenticeship: An on-the-job training method. The trainee learns by assisting an experienced employee; most often used to teach a skilled trade such as carpentry or plumbing.

Arithmetic mean: The sum of scores divided by the number of scores.

Assessment center: A series of assessment exercises, including simulations of work tasks that are used to assess a person's potential for a job. It is most frequently used to determine an employee's suitability for promotion into a management position.

Audiovisual instruction: A training method that uses pictures and sound to present material.

Authentic leader: A leader who is aware of his or her own morals and values, displays a high standard of ethical behavior and encourages the same in followers.

Autoinstruction: Any self-taught method of training.

Automated interview: An interview conducted electronically without a live interviewer, where the interviewee's spoken responses to questions are recorded for later evaluation.

Automaticity: A state where a skill or task is so well learned that a person can do it automatically with little conscious monitoring or thought. Professional athletes achieve this level of task performance.

Autonomy: The extent to which an employee is able to decide how to do his or her job.

Baserate: How often something occurs. In selection, it is the proportion of people hired who will be successful on the job.

Behavior criteria: Methods of evaluating training by assessing changes in trainee behavior on the job.

Behavior Observation Scale (BOS): A behavior-based job performance instrument. Raters are given a list of behaviors and indicate how often the ratee performs each one.

Behaviorally Anchored Rating Scale (BARS): A behavior-based job performance instrument. Raters are given several behaviors shown on a scale and are asked to indicate which one is most characteristic of the ratee's performance.

Big Five: The five dimensions considered to represent the major factors of human personality: agreeableness, conscientiousness, emotional stability, extraversion, and openness to experience.

Biographical inventory: A selection tool in which the job applicant provides extensive background information.

Blended learning: A training course or program that combines an E-learning method with a traditional method of classroom delivery, such as lecture.

Brainstorming: A group method whereby individuals meet to generate solutions to a problem.

Bullying: A pattern of abusive behavior directed toward one or more individuals.

Bureaucracy theory: The characteristics of a highly structured organizational form outlined by Max Weber.

Burnout: An aversive emotional state that is thought to be the result of job stress. It is characterized by a lack of enthusiasm for the job and a lost sense of the importance of the job.

Cadre: A term from leader–member exchange (LMX) theory that refers to individuals who are favored by their supervisors.

Cafeteria benefits: An employee benefit program in which individuals are allowed to customize their fringe benefits by choosing several from a long list of benefits, such as different types of insurance plans.

Career ladder: A system in an organization that defines a progression of promotion opportunities, such as ranks in the military.

Carpal tunnel syndrome: A repetitive strain injury of the wrist brought on by continually performing the same motions.

Categorical measurement: A measurement technique in which numbers represent arbitrary categories of a variable rather than positions along an underlying continuum.

Central tendency error: The tendency for a rater to give everyone mid-range ratings across all dimensions of performance.

Chain of command: In bureaucracy theory, the idea that directives flow down the organization from supervisor to subordinate.

Change agent: The person (or persons) who implements the changes in an organizational development plan.

Charismatic leader: A leader who has an unusual amount of influence on followers and can change their attitudes and beliefs.

Circadian rhythms: Physical body changes throughout the day involving hormone levels and temperature.

Classical measurement theory: A theory that states that a measure is composed of a true score component and an error component.

Climate: *See* Organizational climate.

Closed-ended test: A test that requires the test taker to choose from among 2 or more options.

Coercive power: Power based on the use of punishments.

Cognitive ability test: A test that assesses cognitive or mental abilities, such as mathematical or verbal reasoning. The most commonly used cognitive ability tests are intelligence tests.

Collectivism: A culture value referring to the focus a person has on others as opposed to the self. It is the opposite of individualism.

Combination Job Analysis Method (C-JAM): A job analysis technique that involves several methods, including interviews and questionnaires.

Comparable worth: The idea that jobs having equivalent value to an organization should be paid the same; refers to differences in pay levels between jobs held predominantly by men and jobs held predominantly by women.

Compensable factors: In job evaluation, the variables that are used as the basis of the analysis.

Competency system: An organizational practice in which critical competencies (KSAOs) for a job are identified and employee progress toward developing those competencies is tracked.

Competitive conflict: A conflict in a team in which team members promote their own points of view, have little regard for others' opinions, and try to get their own position adopted.

Computer adaptive testing (CAT): A computer-administered test that chooses items to administer based on answers to previous questions.

Computer-supported cooperative work (CSCW): Work involving two or more people that is done through the use of computers and other similar technologies, often from remote locations.

Concurrent validation study: A validation strategy in which the predictor and criterion are assessed at the same time.

Conference: A training method in which trainees meet to discuss the material.

Confounding: A state that occurs when two or more variables are intertwined in such a way that conclusions about either one alone cannot be made.

Consideration: A supervisory style characterized by concern with the well-being of subordinates. One of the dimensions of the Leader Behavior Description Questionnaire that was developed during the Ohio State Leadership Studies.

Construct validity: The ability to confidently interpret the meaning of an instrument and the ability to conclude that we understand what it is that an instrument actually measures.

Content validity: The instrument in question adequately covers the entire domain intended. For a final examination, content validity would mean that all of the curriculum has been included as opposed to only a small part.

Contextual performance: Behavior that is not required of employees but that benefits the organization. Also called organizational citizenship behavior.

Continuance commitment: A type of organizational commitment based on the investments an individual has in his or her organization, such as pensions and seniority.

Continuous measurement: A measurement technique in which numbers represent an underlying continuum of a variable from low to high.

Control: Any of a number of research procedures that eliminate the possibility that unwanted variables caused the results.

Control group: A comparison group in an experiment; often a group that did not receive the treatment of interest.

Control group design: A research design in which a group of people who are given a treatment are compared to a group of people (control group) who are not.

Control theory: A motivation theory that focuses on how feedback affects the goal-setting process.

Cooperative conflict: A conflict in a team in which individuals openly share diverging views, respect one another's opinions, and focus on finding a solution that is acceptable to team members.

Correlation: The association between two variables.

Correlation coefficient: *See* Pearson product–moment correlation.

Counterproductive work behavior (CWB): Employee behavior that hurts the organization or employees of the organization.

Creativity: Coming up with a new idea for doing something, such as a new product or procedure at work.

Criterion: A standard of comparison. For performance appraisal, it is the definition of good performance. In a regression equation it is the variable on the left-hand side of the equation that is predicted by the predictor variables.

Criterion contamination: The extent to which an actual criterion assesses something other than the theoretical criterion.

Criterion deficiency: The extent to which a theoretical criterion is not assessed by the actual criterion.

Criterion relevance: The extent to which the actual criterion assesses the theoretical criterion.

Criterion-related validity: The instrument in question is related to a criterion to which it is theoretically expected to relate.

Critical incident: An example of either good or poor job performance; often used to conduct job analysis.

Cross-sectional design: A design for a study in which all data are collected at the same time.

Cross-validate: To replicate the results of one sample with those of another sample.

Crowdsourcing: A type of virtual brainstorming in which people outside of a workgroup are invited to share ideas about a stated issue or problem.

Cutoff score: A score that serves as the threshold for selection. Individuals who reach the cutoff are hired, whereas those who are below the cutoff are not.

CWB: *See* Counterproductive work behavior.

Cyberbullying: A pattern of abusive behavior directed toward one or more individuals that occurs electronically, such as via e-mail or text messages.

Cyber incivility: Rude and demeaning behavior when often the intention of the actor is ambiguous that occurs electronically, such as via e-mail or text messages.

Cyberloafing: An employee's use of electronic devices such as cell phones, computers, or tablets to engage in leisure or personal activities during time they should be working.

Delegation of authority: From bureaucracy theory, the principle that each manager should assign the responsibility for portions of work to subordinates.

Demand/control model: A model of job stress that suggests how control can reduce the negative effects of job stressors.

Dependent variable: In an experiment, the variable that changes as a result of manipulating the independent variable.

Descriptive statistics: Statistics that summarize a distribution of scores, such as means and standard deviations.

Descriptive theory: An organizational theory that explains how existing organizations operate.

Diary study: See Experience sampling.

***Dictionary of Occupational Titles* (DOT):** A book that contains descriptions of more than 20,000 jobs in the United States.

Distal motivation theory: A motivation theory that deals with variables that are remote from the behavior, such as needs.

Distributive justice: The form of justice concerning a fair division of rewards among people.

Division of labor: A principle from bureaucracy theory that suggests how work should be divided into a series of tasks that are assigned to different individuals.

Dynamic criterion: The idea that job performance changes over time.

E-learning: The use of electronic technology such as the Internet to deliver training.

Emotional dissonance: A state a person experiences when having to pretend he or she is experiencing one emotion while actually experiencing an incompatible emotion, such as acting happy when sad.

Emotional intelligence (EI): A cluster of abilities involving the control and recognition of emotions in one's self and others.

Emotional labor: A requirement of a job to exhibit a particular emotion, most frequently enthusiasm and happiness. Common with customer service jobs, such as sales. Also called emotion work.

Empirical biographical inventory: A biographical inventory developed by conducting statistical analyses of a large number of items to see which ones predict job performance.

Engineering psychology: The branch of psychology concerned with the interaction of people and technology; also called ergonomics and human factors.

Equity theory: A motivation theory that bases work motivation on the balance between perceived contributions (inputs) and rewards (outcomes).

Ergonomics: The branch of psychology concerned with the interaction of people and technology; also called engineering psychology and human factors.

Error: According to classical measurement theory, the part of an observed score that does not represent the construct of interest.

Error variance: Variability among subjects in the same experimental condition.

Essential function: A job task that an employee must be able to perform.

Ethical leader: A leader who maintains high ethical standards for their own behavior and that of others.

Executive coaching: A training technique in which a high-level executive or manager is paired with a consultant who provides one-on-one training to enhance management skills.

Expectancy: The belief that effort will lead to good job performance.

Expectancy theory: A motivation theory that bases work motivation on a person's expectancy that behavior will lead to desired rewards.

Experience sampling: A research design in which a sample of individuals are assessed repeatedly over a short period of time, typically 3–4 times per day for one or more weeks.

Experiment: A research design in which subjects are randomly assigned to conditions or treatments created by the researcher.

Expert power: Influence based on the perceived expertise of the individual.

Face validity: What a measure appears to assess.

Facet: A dimension of job satisfaction, such as pay or supervision.

Factorial analysis of variance (ANOVA): A statistical technique for analyzing data from experiments with more than one independent variable.

Factorial design: An experimental design for a study that has two or more independent variables.

Fairness theory: A theory suggesting that people make judgments about situations being fair or unfair based on negative outcomes that are seen as purposeful and unreasonable.

Feedback: Information given to a person about his or her performance.

Fiedler's contingency theory: A theory that considers leader effectiveness to be a joint outcome of the leader and the leadership situation.

Field experiment: An experiment conducted in the setting in which the behavior in question naturally occurs.

Field setting: A research setting in which behavior naturally occurs.

Flextime: A work schedule that allows employees to choose some of their work hours.

Force: The term in expectancy theory that represents the level of motivation to engage in a behavior.

Formal role: An established role in an organization, such as supervisor.

Four-fifths rule: The threshold for adverse impact. If the percentage of a minority group hired is less than four-fifths that of the majority group, the four-fifths rule has been violated.

Frame of reference training: A form of training for raters who conduct performance appraisal in which they are given a common and consistent frame of reference on which to base judgments.

Galatea effect: A type of self-fulfilling prophecy in which a belief in being able to do something well results in better performance by an individual. It is similar to self-efficacy.

Gamification: Introducing elements of a game into an activity that is used for a serious purpose, such as assessing job applicants or training employees.

General principles: A general overview of the area being taught that should be given to trainees.

Generalizability: The extent to which findings in a study can be extended to other settings.

Glass ceiling: The phenomenon that minorities and women can progress only to a certain level in organizations.

Goal orientation: An individual's focus on either enhancing knowledge and skill (learning orientation) or enhancing performance on job tasks (performance orientation).

Goal-setting theory: A motivation theory that considers motivation to be enhanced by the setting of goals.

Graphic rating form: A performance appraisal technique in which employees are rated on dimensions of performance, such as work quality or work quantity.

Group cohesiveness: The attraction that group members have toward the group; the importance of the group to group members.

Group polarization: The tendency of a group to take more extreme positions than the mean of individuals' positions.

Group test: A psychological test administered to groups of individuals at the same time.

Groupthink: Poor decision making that results from certain group processes.

Growth need strength (GNS): A personality variable from job characteristics theory that concerns the level of a person's need for things that can be gotten from complex work, such as recognition and sense of accomplishment.

Halo error: The tendency for a rater to give an individual the same rating across different dimensions of performance.

Hawthorne Effect: Study results that are produced by the subjects' knowledge that they are research participants.

Health circle: An organized group of employees who meet to formulate recommendations to improve employee health and well-being.

Hired hands: In leader–member exchange (LMX) theory, the individuals who are not favored by the supervisor.

HR analytics: *See* People analytics.

Human factors: The branch of psychology concerned with the interaction of people and technology; also called engineering psychology and ergonomics.

Humanitarian work psychology: A movement within I/O psychology to assist in humanitarian efforts—for example, to fight poverty.

Hygiene factors: In two-factor theory, the job factors that fall outside the nature of the work itself, such as pay and other rewards.

Hypothesis: A researcher's best guess about the outcome of a study.

Identical elements: In training, the correspondence between responses made in training and responses necessary on the job.

Illegitimate task: A stressful job condition in which an employee is given a task that violates norms of what is appropriate to ask someone in that position to do, either because the task should be done by someone else (unreasonable task) or the task doesn't have to be done at all (unnecessary task).

In-basket exercise: A simulation exercise used in an assessment center; asks the assessee to show what he or she would do with a series of items that might be found in a manager's in-basket.

Incentive system: A compensation system in which employees are paid for their level of productivity.

Incivility: Rude and demeaning behavior when often the intention of the actor is ambiguous; a mild form of mistreatment.

Independent variable: The variable in an experiment that is manipulated by the researcher.

Individual test: A psychological test administered to only one person at a time.

Individualism: A culture value referring to the focus a person has on the self as opposed to others. It is the opposite of collectivism.

Industrial/organizational (I/O) psychology: An applied branch of psychology that is concerned with understanding people in organizations.

Inferential statistics: A branch of statistics that is concerned with generalizing results from the data at hand to all possible cases. It relies on statistical tests that are based on probability.

Informal role: A role that develops in a work group that was not intended by the organization.

Informed consent form: A consent form that explains a study to a potential subject before he or she agrees to participate.

In-group: *See* Cadre.

Initiating structure: A supervisory style characterized by concern with task accomplishment; one of the dimensions of the Leader Behavior Description Questionnaire that was developed during the Ohio State Leadership Studies.

Innovation: Implementing a new way of doing something at work, whether the individual creates the idea or borrows it from someone else.

Inputs: In equity theory, the contributions made by an employee.

Instrumentality: In expectancy theory, the belief that performance will lead to rewards.

Integrity test: A test designed to predict employee counterproductive behavior.

Internal consistency reliability: The agreement among multiple items in a test or multiple ratings by different raters.

Inter-rater reliability: The association between the ratings of two (or more) raters who rate the same subject on the same variable.

Interview: A face-to-face meeting between two or more people for the purpose of sharing information; used for data collection and employee selection.

Job analysis: A method for describing jobs and characteristics necessary for jobs.

Job characteristics theory: A theory that relates employee motivation and satisfaction to job characteristics.

Job Components Inventory (JCI): A method of job analysis that matches job requirements to characteristics of people.

Job Descriptive Index (JDI): A five-facet measure of job satisfaction.

Job evaluation: A mathematical procedure for determining the relative value of a job to an organization.

Job in General (JIG) scale: A measure of overall job satisfaction.

Job satisfaction: A person's attitudes and feelings about his or her job and facets of the job.

Job strain: A physical or psychological reaction to a job stressor.

Job stressor: A stressful job condition.

Job-oriented job analysis: Any job analysis method that focuses on the content of jobs.

Joint optimization: The concept from sociotechnical systems theory that the social system and technical system of an organization must be designed to complement one another.

Justice climate: The shared perception among employees that they are treated fairly or unfairly.

Knowledge: What it is necessary to know for a job.

Knowledge and skill test: A psychological test designed to assess a person's knowledge or skills; also called an achievement test.

KSAOs: The knowledge, skills, abilities, and other personal characteristics necessary for good job performance.

Laboratory setting: A research setting in which the behavior of interest does not naturally occur.

Leader Behavior Description Questionnaire (LBDQ): A scale to assess leadership style, including consideration and initiating structure.

Leader Match: A procedure based on Fiedler's contingency theory that trains leaders to modify situations to match their personal characteristics.

Leaderless group exercise: An assessment center exercise in which assessees are placed in a group without a leader to observe their interpersonal behavior.

Leader–member exchange (LMX) theory: A theory that views leadership from the perspective of individual leader–subordinate pairs.

Learning criteria: Methods of evaluating training by assessing how much trainees have learned from the training.

Learning orientation: A goal orientation that focuses attention on enhancing knowledge and skill.

Least Preferred Coworker (LPC) scale: A measure used to assess a personality characteristic of a leader. The LPC is an important component of Fiedler's contingency theory.

Lecture: A training method in which trainees listen to a presentation.

Legitimate power: Influence based on followers' beliefs that a person has the right to ask for compliance, usually based on rank or title.

Leniency error: The tendency for a rater to give everyone high ratings across dimensions of performance.

Life satisfaction: A person's attitudes about his or her overall life.

Locus of control: A personality variable that refers to people's tendencies to attribute rewards to themselves (internals) or to other people or things (externals).

Longitudinal design: A design for a study in which data are collected at different times.

Management by objectives (MBO): An organizational change technique that involves setting interrelated goals throughout an organization.

Masculinity: A culture value reflecting an emphasis on achievement as opposed to the well-being of others.

Massed training: Training in which sessions take place over a relatively short period of time. It is the opposite of spaced training.

Mean: *See* Arithmetic mean.

Measurement: The process of assigning numbers to characteristics of people or things.

Median: A measure of the center of a distribution; the middle score in a rank-ordered group of observations.

Mediator variable: A variable that intervenes in the process by which two variables are related and explains that relationship.

Mental model: A person's conception or cognitive representation of something, such as how a computer works.

Mentoring: The kind of workplace relationship in which experienced employees assist less experienced employees in career development.

Merit pay: Pay based on level of job performance.

Meta-analysis: A mathematical summary of the results of several samples or studies of the same phenomenon.

Micro-break: A short break during the workday that allows an employee to rest and recover from fatigue or stress from the job.

Micro-learning: A short 5-minute or less online training session that teaches a single element that employees can complete on the job when needed.

Minnesota Satisfaction Questionnaire (MSQ): A 20-facet job satisfaction scale.

Mixed Standard Scale (MSS): A behavior-based performance appraisal method.

Mobbing: Occurs when one or more employees harass and mistreat a particular individual at work; similar to bullying.

Modeling: A training method in which the trainee first observes someone executing a behavior and then practices it.

Moderator variable: A variable that affects the relation between two other variables.

Motivation: The underlying force that explains why people engage in a behavior.

Motivation Potential Score (MPS): From job characteristics theory, the overall complexity or scope of a job.

Motivator factors: In two-factor theory, the job factors that are inherent in the job itself.

Motor task: A task that involves body movements, such as placing pegs in holes or walking.

Multiple hurdles: A selection method whereby applicants must achieve a certain score on each predictor to be hired.

Multiple regression: A statistical procedure for combining several predictors to forecast a criterion.

Musculoskeletal disorder (MSD): An injury to the muscles, bones, and connective tissue caused by either an acute episode (e.g., lifting) or repetitive strain.

Need hierarchy theory: A motivation theory that considers motivation to be based on a hierarchy of five basic human needs.

Negative affectivity (NA): A personality variable that refers to a tendency to experience negative emotions across many different situations.

Nominal group: Several noninteracting people who serve as a comparison to an interacting group in group research.

Norm: A standard of behavior in a group of people.

Normative commitment: A type of organizational commitment in which a person feels he or she has to stay at an organization out of a sense of obligation or values.

Observational design: A research design in which people are observed on the job.

Obtrusive method: A data collection method in which subjects are aware that they are being studied.

OCB: *See* Organizational citizenship behavior.

Occupational commitment: Attachment to one's occupation or profession regardless of employer or organization.

Occupational health psychology (OHP): An interdisciplinary subfield of psychology concerned with employee health, safety, and well-being.

Occupational Information Network (O*NET): The U.S. Department of Labor's extensive database on jobs and worker requirements for jobs.

OHP: *See* Occupational health psychology.

On-the-job training: A training method in which the trainee learns the job while doing it.

Open system theory: A theory that describes organizations as having all the features of an open system.

Open-ended test: A test that requires the test taker to write out his or her answer, such as an essay examination.

Organizational citizenship behavior (OCB): Behavior that is not required of employees but that benefits the organization. Also called contextual performance.

Organizational climate: The behaviors that are encouraged and supported in organizations through policies and practices.

Organizational commitment: The attachment that a person has for his or her job. *See also* Affective commitment, Continuance commitment, *and* Normative commitment.

Organizational constraints: Conditions in an organization that prevent employees from performing well.

Organizational culture: The physical and social aspects of organizations reflected in employee assumptions, beliefs, and values that can be seen through artifacts, customs, and symbols.

Organizational development (OD): One of a family of methods used to improve the functioning of organizations.

Other: In equity theory, the person used for comparison of inputs and outcomes.

Other personal characteristics: Characteristics of people relevant to jobs other than knowledge, skill, or ability.

Outcomes: In equity theory, the rewards a person gets from a job.

Out-group: *See* Hired hands.

Overlearning: Training that continues after a trainee first reaches a criterion of learning the skill.

P hacking: Conducting a series of statistical analyses on the same data until statistical significance is achieved.

Paper and pencil test: A written test that requires either indicating the correct answer from several choices or writing an answer to an open-ended question.

Part training: Training of individual subtasks one at a time. It is the opposite of whole training.

Path–goal theory: A leadership theory that emphasizes how leaders can enhance subordinate motivation by clarifying the paths between behavior and rewards.

Pearson product–moment correlation coefficient: The most frequently used measure of association between two continuous variables.

People analytics: The use of statistical and computing methods to predict important organizational outcomes that informs managerial decisions.

Performance appraisal: The formal procedures that an organization uses to assess job performance of employees.

Performance orientation: A goal orientation that focuses attention on enhancing performance on specific job tasks.

Performance test: A test that requires the test taker to perform tasks involving manipulation of objects.

Performance-level criteria: Measures that indicate how well training is transferred to the job.

Personality test: A test designed to assess people's patterns of behavior or feelings.

Personality trait: The tendency of a person to engage in certain types of behavior or respond to situations in particular ways.

Person-oriented job analysis: Any job analysis method that focuses on characteristics necessary for a job.

Piece-rate system: A system that pays employees for each unit of production.

Political skill: The skill of being able to influence others to accomplish either personal or organizational objectives.

Position Analysis Questionnaire (PAQ): A job analysis method that describes jobs and necessary job characteristics along common dimensions.

Positive affectivity (PA): A personality trait that reflects an individual's tendency to experience positive emotions such as enthusiasm or joy.

Power: The ability to influence other people.

Power distance: A culture value reflecting tolerance for large power and status differences among levels in an organization.

Power test: A test without a time limit.

Predictive validity study: A study in which predictor information is used to forecast a criterion that is assessed at a later time.

Predictor: A variable that is used to forecast a criterion.

Prescriptive theory: An organizational theory that explains how organizations should function.

Presenteeism: When an employee comes to work when ill.

Pretest–posttest design: A research design in which the same criterion variable is assessed before and after the treatment occurs.

Procedural justice: The form of justice concerning the fairness of the process by which rewards are allocated.

Process loss: Time spent by group members that is not devoted to task accomplishment.

Programmed instruction: A training method in which trainees work at their own pace.

Protected classes: Groups of people who are given special legal protection because of past discrimination against them.

Proximal motivation theory: A motivation theory that deals with variables that are closely linked to behavior, such as goals or intentions.

Psychological test: A standardized series of problems or questions that measure characteristics of people.

Psychomotor ability test: A psychological test designed to assess physical abilities, such as eye-hand coordination.

Qualitative method: Research that minimizes the use of quantitative and statistical methods.

Quality circle: A group of employees who meet to discuss ways to improve their work.

Quasi-experiment: A research design that has some but not all the features of an experiment. For example, there might not be random assignment of subjects to conditions.

Questionnaire: A paper and pencil or online instrument used to collect information; can be completed by respondents themselves.

Random assignment: Placing subjects into treatment conditions in an experiment so that each subject has an equal chance of being in each condition.

Random selection: Choosing subjects for a study so that every possible subject has an equal chance of participating.

Rater error training (RET): A training program designed to familiarize individuals who rate performance with rating errors and techniques to avoid them.

Rational biographical inventory: A biographical inventory based on theory and research concerning the prior experiences that would be expected to relate to job performance.

Reactions criteria: Methods of evaluating training by assessing trainee reactions to the training.

Realistic job preview (RJP): Information given to job applicants to let them know what the job and organization are like.

Reasonable accommodation: A principle from the Americans With Disabilities Act that requires organizations to provide reasonable assistance or modifications to the job or workplace so that people with disabilities can perform the job.

Referent power: Influence based on the subordinate's liking for the supervisor.

Regression equation: A mathematical equation that allows the prediction of one variable from another.

Reinforcement theory: A motivation theory that considers behavior to be a function of rewards.

Reliability: The consistency of a measure; how well scores for the same subject are replicable across repeated measurements of the same variable.

Repetitive strain injury: An injury brought on by making the same motion continuously, such as typing on a computer keyboard.

Research design: The structure of a research study.

Respite: A break from work such as a vacation.

Response rate: The percentage or proportion of contacted people who participate in a survey.

Results criteria: Methods of evaluating training by assessing the impact of the training on the organization, such as profits.

Reward power: Influence based on giving rewards.

Role: A person's position in a group or team.

Role ambiguity: Employee uncertainty about what is expected of him or her on the job.

Role conflict: Incompatible demands placed on an employee.

Role play: A training technique that involves having the trainee pretend to perform a task.

Safety climate: The organizational policies and practices that encourage safe and discourage unsafe employee behaviors.

Salary survey: A survey of employers to determine salary levels for certain jobs.

Sample: The subjects chosen for a study.

Satisfaction mirror: When two people interact, the satisfaction of one influences the satisfaction of the other in a reciprocal way that leads to increasing satisfaction for both parties over time.

Schemata: Cognitive categories or frames of reference.

Scientific management: The application of scientific principles to managing people's job performance; developed by Frederick Winslow Taylor.

Satisfaction mirror: How people's satisfaction affects their behavior in such a way that it affects the satisfaction of others that explains how job satisfaction relates to customer satisfaction.

Scope: The complexity and challenge of a job.

Selection ratio: The proportion of job applicants who are hired for a job.

Self-efficacy: The belief that a person has in his or her ability to perform a task well.

Self-efficacy theory: A motivation theory based on the idea that people perform well when they believe they are capable of doing the job.

Servant leader: A leader who has a desire to serve others and puts his or her own needs behind those of followers. Maintains high ethical and moral standards.

Severity error: In performance appraisal, the assignment of low ratings to all ratees.

Sexual harassment: Behavior of a sexual nature that adversely affects a person's ability to do his or her job.

Simulation: A training method that allows people to practice a skill in an artificial and controlled situation.

SIOP: *See* Society for Industrial and Organizational Psychology.

Situational interview: An interview in which interviewees are asked to explain how they should or would respond to a series of hypothetical work situations.

Situational judgment test: A test of decision making quality that asks test takers to choose the best and worst actions in a series of hypothetical situations.

Skill: How well a person is able to do a task.

Skill variety: A dimension of the job characteristics model that involves the number of skills required to do a job.

Social facilitation: The improvement in performance that sometimes occurs when in the presence of other people. Research has shown that simple or well-learned tasks are facilitated by the presence of others, whereas performance on complex or new tasks is inhibited. *See* Social inhibition.

Social inhibition: The decline in performance that sometimes occurs when in the presence of other people. Research has shown that complex or new tasks are inhibited by the presence of others, whereas performance on simple or well-learned tasks is facilitated. *See* Social facilitation.

Social loafing: A group phenomenon whereby the larger the group, the smaller the effort made by each member on a task.

Social stressor: A stressful job condition that arises from interactions among people, such as bullying or interpersonal conflict.

Society for Industrial and Organizational Psychology (SIOP): The division of the American Psychological Association that is the world's largest association of I/O psychologists.

Sociotechnical systems theory: A theory that states that organizations should consider both the human and the technological demands of tasks in designing work environments.

Spaced training: Training in which sessions are spread out over time. It is the opposite of massed training.

Span of control: A principle of bureaucracy theory that is concerned with the number of people that a supervisor can oversee.

Speed test: A test with a time limit.

Standard deviation: A measure of dispersion for a distribution of scores; the square root of the variance.

Statistical significance: A rule of thumb for evaluating the results of a statistical test.

Statistical test: A quantitative procedure based on probability that allows for the interpretation of study outcomes.

Stress: Physiological and psychological responses to demands that are perceived to be challenging or threatening.

Structured interview: An interview in which the questions are standardized across interviewees.

Subject matter expert: A person who is knowledgeable about a topic.

Survey design: A research design in which subjects are asked to answer questions, usually with an interview or questionnaire.

Survey feedback: An organizational change technique in which employees are surveyed and the survey information is fed back to all levels of the organization.

Task feedback: Information about whether a task is being performed correctly that is obvious from doing the task, e.g., if you shoot a basketball free-throw, you can see if the ball goes through the hoop.

Task identity: A dimension from the job characteristics model that identifies the extent to which a person does an entire job.

Task inventory: A job analysis technique that produces a detailed list of the tasks for a job.

Task significance: A dimension from the job characteristics model that represents the extent to which a particular job impacts other people.

Team building: A procedure that is used to improve the functioning of work teams.

Team commitment: The attachment a person has to his or her team and teammates.

Team mental model: The cognitive conception a team member has about the various tasks each member of the team has and how the various tasks interrelate.

Telepressure: See Workplace telepressure.

Test–retest reliability: The consistency of a measure when it is repeated over time.

T-group: An organizational change technique that has employees attend training sessions over a period of days to learn interpersonal skills.

Theoretical criterion: The conceptual definition of what constitutes good job performance.

Theory X/Theory Y: A theory that proposes that how a manager views subordinate characteristics affects his or her approach to supervision.

Theory Z: The Japanese style of management for large organizations that assumes employees will spend their entire careers with one organization.

Time and motion study: An analysis of task performance involving the observation and timing of subject motions. The purpose is to determine ways to eliminate or modify motions to make performance more efficient.

Total Worker Health: A program by the U.S. National Institute for Occupational Safety and Health to promote worker health, safety, and well-being both on and off the job.

Training-level criteria: Measures that indicate how well a trainee does in training.

Transfer of training: The application of what was learned in training to the job itself.

Transformational leader: *See* Charismatic leader.

True halo: The extent to which a person's performance across different dimensions is at the same level.

t-test: A statistical test used to compare two means.

Turnover: An employee's quitting of his or her job.

Two-factor theory: A motivation theory that considers job satisfaction and dissatisfaction to be separate factors rather than opposite ends of the same continuum.

Uncertainty avoidance: A culture value reflecting tolerance for ambiguity and uncertainty, which is reflected in the tendency to be rule oriented.

Underemployment: A situation in which an individual is working at a job that is of lower quality than they are capable of doing. Economic underemployment is a job with low compensation, whereas skill underemployment is a job with tasks that are below the individual's skill level.

Uniform Guidelines on Employee Selection Procedures: A document produced by the U.S. government that describes appropriate and legally defensible selection procedures.

Unit control of variances: A principle of sociotechnical systems theory that recommends allowing employees who encounter problems to solve them.

Universal Precautions: Suggested safety procedures for health care workers to reduce chances of accidental exposure to infectious diseases such as AIDS/HIV and hepatitis B.

Unobtrusive method: A method of research in which subjects do not know that they are being studied.

Utility analysis: The analysis of the financial benefits to an organization of taking a course of action, such as implementing a particular selection system.

Valence: In expectancy theory, the value or worth a person gives to an outcome.

Validation study: A study undertaken to determine if a predictor is related to a criterion.

Validity: The interpretation given to the meaning of a measure.

Validity generalization: A principle that states that if a predictor is a valid indicator of a criterion in one setting, it will be valid in another similar setting.

Variable: A characteristic of a person or thing that varies.

Variance: The degree to which scores differ among individuals in a distribution of scores.

Violence prevention climate: A shared perception by a group of employees that their organization has policies and practices to protect them from workplace violence.

Virtual team: Two or more individuals who have interdependent tasks and separate roles and who interact remotely via e-mail, telephone, and other technologies.

Vocational interest test: A test that matches the interests of test takers to those of people in various professions.

Vroom-Yetton model: A model that indicates the best approach to making decisions that involve subordinates.

Whole training: Training that focuses on an entire task at one time rather than on parts of the task. It is the opposite of part training.

Work group: Two or more individuals who interact and share common task goals.

Work sample: A test that includes tasks from a job.

Work team: A work group in which members have interdependent tasks and individual task-related roles.

Work-family conflict: A form of role conflict in which family demands and work demands conflict.

Workability: The ability of a person to continue to perform their job successfully. Often used to describe aging or disabled workers.

Workplace telepressure: The urge to monitor and respond to workplace e-mails and other forms of electronic communication while not at work.

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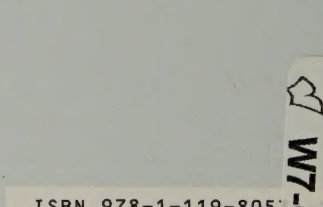
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