



Seventh Edition

PAUL E. SPECTOR

# Industrial and Organizational Psychology

Research and Practice

WILEY



# Industrial and Organizational Psychology

RESEARCH AND PRACTICE

Seventh Edition

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**WILEY**

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*To Gail and Steven Spector*



# PREFACE

Industrial/organizational or I-O psychology is an exciting field that has been enjoying continual growth in the United States and throughout the industrialized world during its almost 100-year history. In fact, in 2015 the U.S. Department of Labor listed I-O as the fastest growing occupation in the United States. What began as a tiny subspecialty of psychology, known only to a few practitioners, human resource 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 to 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 One 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 Two 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 Three 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 Four 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 Five, 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 development and organizational theory.

### **Special features**

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 three 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 Seventh Edition**

My goal with all seven editions is to provide a text that is as current as possible, covering both the traditional core material of the field as well as 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 100 new references with almost all of them from 2011 or later. The overall organization of the book retains the original 14 chapters.

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

- Abusive supervision (Chapter 13)
- Computer adaptive testing for noncognitive tests (Chapter 5)
- Credit checking (Chapter 5)
- Experience sampling (Chapter 2)



Illegitimate tasks (Chapter 11)  
 Justice climate (Chapter 8)  
 Research integrity (Chapter 2)  
 Respite (Chapter 11)  
 Veteran reintegration (Chapter 7)  
 Underemployment (Chapter 9)

In order to make room for new material, a few old topics were deleted. In chapter 1 I deleted the section on Internet resources. When this section appeared in the first edition, the Web was new and so a guide to where online resources could be found was timely. That is no longer true as students today have access to a wealth of online information that we could not have imagined in the early 90s. I deleted functional job analysis and the long discussion of the Dictionary of Occupational Titles that is mostly of historical significance. Its replacement, the O\*NET is more prominent. In Chapter 7 I condensed the section on overlearning to focus mainly on new developments showing that overlearning doesn't necessarily result in long-term retention. In Chapter 10 I deleted the short section on labor unrest. Although this topic is important, it is given little attention within the I-O literature. In Chapter 11 I deleted the section on noise exposure, as it has more to do with physical than psychological issues, and I deleted the section on machine pacing, which is old and receives little attention today. Finally, the appendix on applying to graduate school has been removed, and it can be found on the Wiley textbook support website for this book.

## Acknowledgments

In writing all seven editions of this book, I was lucky to have had advice and assistance from many people. I express my sincere thanks to the many colleagues and students who provided such help, as well as the Wiley people who did a superb job.

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# PART 1

## Introduction



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## Introduction

### OUTLINE

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Activities and Settings of I-O Psychologists  
I-O Psychology as a Profession  
I-O Psychology as a Science  
History of the Field of I-O Psychology  
I-O Psychology Beyond the United States and the United Kingdom  
What It Takes to Become an I-O Psychologist  
Ethics of the I-O Field  
Humanitarian Work Psychology  
Chapter Summary  
Learning by Doing

Most people in the industrialized world come into direct or indirect contact with organizations every day. If you go to a supermarket to buy groceries, that store is part of an organization. On a given day, you might encounter a few employees, such as the produce manager who helps you find some fresh grapes, the checker who rings up your order, and the bagger who puts your items in bags. The organization, however, might employ thousands and even tens of thousands of individuals who are collectively responsible for seeing to it that the products you wish to purchase are continually available at each of its stores. This requires the coordinated action of many individuals, likely from many countries. Needless to say, managing such a complex enterprise is extremely difficult. The managers responsible hire a great many specialists to assist them. They often turn to industrial/organizational (I-O) psychologists for help with many of their employee-related problems. For example, I-O psychologists have helped:

AT&T develop assessment centers to choose the best managers.

General Electric (GE) develop systems to provide job performance feedback to employees.

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 application form that you will fill out 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, 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, and covers the major activities and employment settings for I-O psychologists and 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). 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.

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**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.

## What Is I-O Psychology?

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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 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-concern with the happiness and well-being of employees, as well as understanding human behavior in organizational settings. Even though the I- and O-areas 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 and problems. **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 hiring a clinical psychologist to help with such problems as employee alcoholism or post-traumatic stress disorder (PTSD).

## Activities and Settings of I-O Psychologists

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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. The practice activities involve the use of psychological principles to solve real-world problems, such as excessive job stress or poor job performance. 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

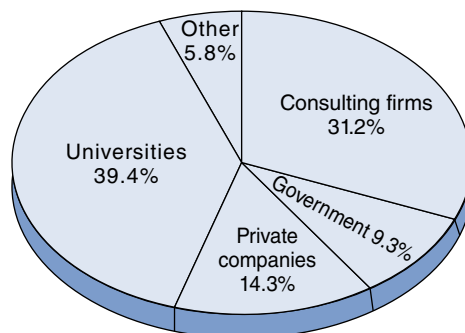
is done with practice in mind, however. Some psychologists study work behavior just to learn why people do the things they do at work. As with all forms of basic research, often the findings of such activities can be applied to important human problems.

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 don't 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 are in psychology departments, but frequently they can be found in colleges of business administration or other places on campus as well. 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,
- Develop courses,
- Keep up with their field,
- Help administer the teaching function of their university.



**FIGURE 1-1** Percentage of I-O psychologists who work in various settings. *Source:* From *Society for Industrial and Organizational Psychology 2011. SIOP 2011 Membership Survey Report*. Bowling Green, Ohio.

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,
- 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

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According to the United States Bureau of Labor Statistics (2015), I-O psychology is the fastest growing occupation on a percentage basis in the United States. It 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 United Kingdom), 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.

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. It has more than 8,684 members, with about 46% of them being student affiliates. Although SIOP is an American association, it is rapidly becoming international, with about 12% of its members from other countries, which represents a doubling in the international membership since 2006. 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, there are many regional (e.g., Southern Management Association) and metropolitan associations of I-O psychologists. These metropolitan associations can be found in many areas, including Michigan, 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 very relevant to I-O psychologists is the International Association of Applied Psychology, Division of Organizational Psychology, which is the largest division. I-O psychologists from around the world, and especially those with interests in cross-cultural and international issues, are members.

## I-O Psychology as a Science

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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 company that has a high employee turnover (quitting) rate. Other research focuses on understanding some organizational phenomenon, such as the cause of employee theft or the effect of job attitudes. Results of these sorts of research studies are presented at professional meetings and published in 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.

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 John Wiley & Sons, 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 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

TABLE 1-1

**Journals That Publish I-O Research and Theory**

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

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.

## History of the Field of I-O Psychology<sup>1</sup>

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.

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,

<sup>1</sup> Unless otherwise noted, this section is based on Katzell and Austin’s (1992) history of the I-O field.



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.

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