

**THE EMERALD REVIEW OF INDUSTRIAL  
AND ORGANIZATIONAL PSYCHOLOGY**

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# **THE EMERALD REVIEW OF INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY**

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# Contents

Preface	<i>vii</i>
1. A History of I/O Psychology	<i>1</i>
2. Research Methods in I/O Psychology	<i>51</i>
3. Work Motivation	<i>103</i>
4. Work-Related Attitudes in Organizations	<i>175</i>
5. Occupational Stress	<i>213</i>
6. Social Processes in Organizations	<i>265</i>
7. Social Structures in Organizations	<i>315</i>
8. Groups and Teams in Organizations	<i>369</i>
9. Leader Emergence and Effectiveness in Organizations	<i>441</i>
10. Work Analysis	<i>495</i>
11. Criterion Development, Performance Appraisal, and Feedback	<i>535</i>
12. Employee Training and Development	<i>581</i>
13. Principles of Employee Selection	<i>625</i>
14. Constructs and Methods in Employee Selection	<i>675</i>
15. Epilogue	<i>739</i>
Appendix: What is I/O Psychology?	<i>751</i>
References	<i>767</i>
Index	<i>897</i>

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## Preface

My intent in this book is to provide a comprehensive review of the research, theory, and applications comprising the field of Industrial and Organizational (I/O) Psychology. I do not desire to write another introductory textbook. There are already books that do an admirable job of presenting the essentials of I/O psychology. Neither do I wish to write a handbook containing detailed technical reviews. Several handbooks are in print that provide exhaustive, meticulous examinations of specialized topics in I/O. Rather, my goal is to generate a book that falls somewhere between an introductory text and a handbook. I set out to write an in-depth and comprehensive review of the field of I/O that is accessible to a broad audience.

I cover many of the same topics contained in human resource management (e.g., staffing) and organization behavior (OB) (e.g., teams), but I do so as a psychologist. I/O is a specialized field within the larger discipline of psychology. I/O (also called Work and Organizational Psychology in Europe or simply Organizational Psychology) is the scientific study of how individuals and groups behave in the performance of work activities and in the context of organizations. It is also the application of this research to improve the effectiveness and the well-being of people. I/O is part science, contributing to the general knowledge base of psychology, and part application, using that knowledge to solve real-world problems. The business of I/O psychology is NOT simply business. I/O psychology is concerned with a various types of work, including service, manufacturing, professional, intellectual, physical, paid, and unpaid. I/O psychology is concerned with a variety of organizations, including, but not limited to, business, governmental, military, religious, educational, union, and not-for-profit organizations. I/O psychology is concerned not only with how to increase the productivity and efficiency of workers in the performance of their tasks and the effectiveness of the organizations to which they belong, but also the health and well-being of individuals who perform work activities and of society in general.

Psychology is the focus of this text, but any review of I/O psychology must acknowledge the contributions of other disciplines. All of the social sciences have contributed to the research, theory, and applications associated with the topics reviewed here, including anthropology, sociology, political science, communications, and economics as well as the business school specialties of human resources management and OB. In addition, other specialties within psychology are concerned to some extent with the topic, most notably social psychology, personality, and psychometrics. Clearly, I/O psychology is not the sole discipline concerned with human behavior in organizations, and, consequently, I have attempted to provide an interdisciplinary coverage in my review.

In this book, I emphasize the scientific nature of the field. As in any science, there are controversies, conflicting results, and theoretical disputes. Those who seek insight into a field that is continuing to evolve and who appreciate the competition of ideas may find this book more appealing than those who seek simple answers to the questions of human

behavior in organizations. The book does cover practical applications, especially in that section covering personnel topics. However, an underlying theme is that good practice follows from solid science. Moreover, science is an endeavor that is never completely finished but is always searching for alternative explanations and better theories. Also, no one study can provide a definitive answer and truth lies in the aggregate findings of many studies. Consequently, in reviewing the science, I rely on quantitative meta-analyses to show the cumulative results of research on the topics covered in this book. Meta-analyses provide the reader with a realistic picture of the state of research findings and are useful in identifying directions for future research.

In attempting to generate a science of human behavior in organizations, it is necessary to evoke abstract and generalizable constructs that transcend specific times and places. However, I try to bring the discussion down to earth by showing the relevance of the research, theory, and applications to current events. Major changes are occurring in society that will fundamentally change careers and the way organizations manage human resources. Corporate restructuring, globalization of business, and diversity of the workforce are only a few of the continuing changes that are reshaping work life. Examples are provided throughout the book of how these changes are affecting organizations and the implications for the nature of work and the management of people at work.

In this book I attempt to provide an integrative review of the field. The reader is exposed to a full range of organizational topics (the O in I/O), such as leadership, power, role theory, groups in organizations, conflict, and communication, as well as the traditional personnel topics (the I of I/O) of job analysis, selection, performance appraisal, staffing, and training. The separate I and O topics are usually presented as distinct categories of subject matter. I have attempted to cross reference throughout the book and frequently refer to the implications of research on organizational topics for topics in human resource management and vice versa. In addition, the organizational topics are placed before the human resource management topics to emphasize that the latter always occur in the context of the organization.

Finally, I have chosen not to emphasize potential cross-cultural differences. At one time, scholars in North America and England dominated the work on human resource management and OB. The most impressive development over the last three decades is the conduct of research by those outside these regions. A perusal of the professional journals reveals an explosion of research in China, Japan, Germany, the Netherlands, and other countries. The research contributions of scholars around the world have identified national and cultural differences that potentially moderate some of the findings of our research and theory as well as practical applications. Where there is evidence of cultural moderators, I discuss them. Nonetheless, the dynamics of human behavior at work and in organizations appear remarkably consistent across cultures. Where appropriate there is a discussion of cross-cultural limitations, but I do not believe the findings justify a splitting up of the field along cultural and national lines. As more cross-cultural research is conducted, I may be proven wrong, but for now, I see no reason to believe that many of the important findings in I/O psychology cannot be generalized across cultures.

The first two chapters provide historical and scientific contexts for the remainder of the book. In outlining the history and development of I/O psychology, I discuss the individual contributors to this history and the historical events that provided the impetus for scientific applications of psychology to work and organizations. The chapter on the scientific method is perhaps the most important in the text. What we know about some of the topics will change as new findings emerge; but the method of scientific research remains constant.

The next chapters cover the organizational topics (the O in the I/O and OB), including work motivation, attitudes, groups, social structure, social processes, leadership, and stress. Much of this literature comes from the research of social scientists who view organizations as complex social systems. The book covers the organizational topics prior to the personnel topics to provide a context for personnel psychology (the I in I/O or human resource management). For instance, the discussion of work motivation and social processes will set the stage for later discussions of performance appraisal and feedback. Despite this structure, each chapter stands alone and does not require the student to read any previous chapters. The only possible exception is the examination of research methods. Those not acquainted with this topic should probably read chapter 2 prior to the chapters in the second and third sections.

The last chapters cover topics that are usually lumped under the title of personnel or industrial (the I in I/O) psychology and human resource management. Included in this section are work analysis, employee selection, training, and performance appraisal. In contrast to the more theoretical slant of organizational psychologists, personnel psychologists are more practically oriented and devote much of their research to developing techniques to improve the fit between employees and the organization. Providing a “good fit” is in part an *attraction problem* in that you want to entice the most qualified people to seek employment in your organization. It is a *selection problem* in that you want to be able to choose the best-qualified people from those who apply. It is a *placement problem* in that once hired, you want to put people where they belong. It is a *training problem* in that you want to instruct those who are hired in how to perform the work properly. It is a *criterion problem* in that measures of performance provide the basis for a variety of human resource management activities, including the rewarding, promoting, and developing of employees. Work analysis is the foundation for all these activities.

The epilogue provides an overview of some major conclusions in the previous chapters and summarizes my personal views of the science and applications that constitute I/O psychology. As is always the case with any scientific endeavor, there are no final answers. Everything is a work in progress. I do not measure the success of this book against the number of definitive answers to crucial questions such as how we motivate workers. Rather, the book is a success if it challenges, intrigues, and even provokes readers to seek their own answers. I hope that you share some of the excitement associated with this relatively new field of psychology and are inspired to search for your own answers to the many questions that remain.

In closing I should acknowledge the influence and inspiration of two colleagues. William (Bill) C. Howell wrote a short volume entitled *Essentials of I/O Psychology* that was first published in the 1970s, followed by two revised editions that I co-authored in the 1980s. In the 1990s, we authored a new textbook, *Understanding I/O Psychology: An Integrated Approach* with Carlla S. Smith. By the time I decided to write the present book, both had passed away. Although *The Emerald Review of Industrial and Organizational Psychology* is a new book, Carlla and Bill had a major influence on how I approached several of the topics, especially the discussions of the history of the field and stress. To the extent that this text proves intellectually stimulating, entertaining, or in some other way beneficial, they should share in the recognition. To the extent that the text falls short, I assume total responsibility and they deserve none of the blame.

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# Chapter 1

## A History of I/O Psychology

### Introduction

This chapter reviews the development of industrial and organizational (I/O) psychology from the first crude attempts at application in the late 1800s to the sophisticated profession that constitutes modern I/O psychology. Understanding how the field developed requires a consideration of the contexts in which I/O psychologists have conducted their activities at various points in time over the last 150 years. These contexts include the historical and societal events, management theory and practices, and the development of the larger discipline of psychology.

Fig. 1.1 summarizes this evolution of I/O. The boxes outside the circle anchor four periods (early, middle, post-WWII, modern) and the historical and societal events occurring during these years. The chapter begins with the early years from 1870 to 1920 defined by the industrial revolution and the rise of the corporation. This era ends with WWI, a very significant event in the development of I/O psychology. The end of WWI signals the beginning of the middle years. During these years, there was the economic boom of the 1920s followed by the economic bust of the Great Depression in the 1930s and yet another war, WWII. After the end of WWII came the postwar years in which the United States, the dominant economic and military power in the world, was engaged in a Cold War with the Soviet Union and the People's Republic of China. This competition among the great powers spawned space exploration and unprecedented progress in science and technology. Also occurring during this period was the Civil Rights Movement, which had a huge impact on I/O psychology. Finally, the end of the Cold War and the collapse of the Soviet Union marked the beginning of the contemporary period. Global competition, the development of computer technology and the internet, terrorism, and climate change are some of the societal forces that are ongoing and characterize this period, which continues to the present time.

Over these four periods, psychology evolved and I/O emerged as one of its subdisciplines. The outer edge of the circle represents the development of I/O. Some of the major efforts of I/O psychologists to meet the needs associated with historical and societal events at the time punctuate this period. For instance, with the outbreak of WWI psychologists developed the first paper-and-pencil tests of cognitive ability to allow screening of prospective soldiers. The inner circle summarizes influential theories in psychology and management that were associated with what was happening in the field of I/O and the world at large. This timeline provides a context for the development of I/O psychology, but do not interpret this as a rigid chronology. For instance, the classical theories of management were dominant during the early years and less so today. Yet, this approach to thinking about management of people in organizations did not suddenly end with the middle years.

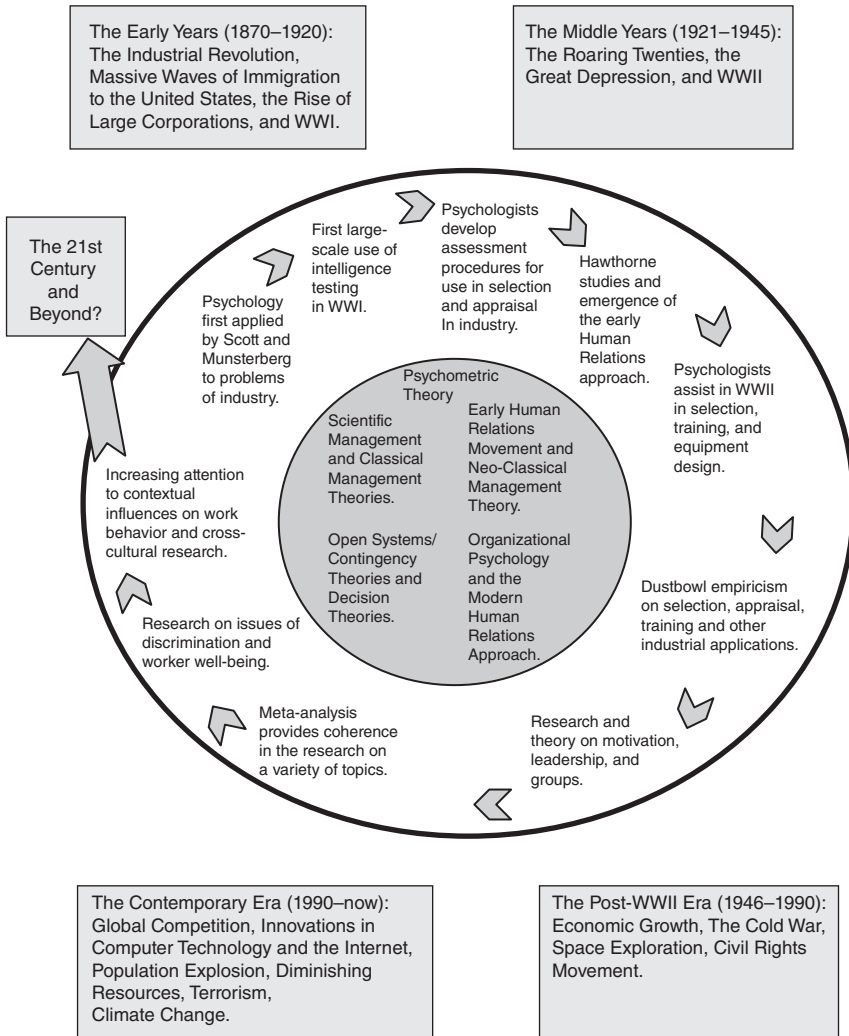


Fig. 1.1. The Evolution of Industrial and Organizational Psychology in the Context of Historical Events and Theory.

*Note:* The dominant theoretical orientations are in the inner circle. Some of the major contributions at each period in history are in the outer circle.

Indeed, Classical Theory and Scientific Management still influence thinking about how to manage people in organizations.

Still another caveat to consider when reviewing this chronology of events in I/O psychology is its U. S.-centric perspective. This admitted bias is because researchers and practitioners from the United States overwhelmingly dominated I/O psychology in the early and middle years. This has changed dramatically over the last two to three decades. I/O psychology is today a multi-national and cross-cultural discipline. There are active I/O societies on all the continents and the number of articles authored by those outside the

United States and published in the major I/O journals is increasing at a rapid rate. However, because the focus of this chapter is on the past rather than the future of I/O, the developments occurring in the United States are the primary focus. For a more detailed account of the development of I/O psychology in the United States and around the world, you should read *A History of Industrial and Organizational Psychology* (Bryan & Vinchur, 2012) and *Historical Perspectives in Industrial and Organizational Psychology* (Koppes, 2007).

## **The Early Years (1880–1920)**

Prior to 1880, owners of business managed the people who worked for them. They gave little thought to how to hire, train, motivate, or evaluate their employees. No systematic theories existed to guide the management of people at work, the organization of tasks, or the structuring of reporting relationships in organizations. There were no business schools as we know them today. Psychology was part of philosophy and did not exist as an empirical science. All this changed in the late 1800s. Owners no longer managed but instead hired people who specialized in planning, organizing, staffing, coordinating, and controlling employees to facilitate the accomplishment of the objectives of the organization. Psychology emerged as a separate discipline during this period and from the beginning, psychologists were applying what they had learned about human behavior to problems of management. I/O psychology became the subdiscipline that took the lead in these early applications.

### ***What Were the Major Forces Shaping Work during the Early Years?***

Industrial and Organizational Psychology emerged at the time of the transition of the U. S. economy from an agrarian society to an industrial society. Mass production, the rise of the corporation, consumerism, and massive immigration to the United States marked these early years.

### **Industrialization and Mass Production**

The Industrial Revolution began in the late 1700s with technological innovations such as the cotton gin and steam engine ([https://en.wikipedia.org/wiki/Industrial\\_Revolution](https://en.wikipedia.org/wiki/Industrial_Revolution)). It continued through the 1800s and early 1900s with the invention of the telephone, the sewing machine, the automobile, the incandescent light bulb, the diesel engine, the airplane, the Bessemer process and open hearth in steel making, and the spread of the telegraph. Unlike the European nations where railroad systems connected existing cities, the rapidly growing network of railroads was responsible for creating cities in the United States.

Although the invention of new machines was a driving force of the industrial revolution, innovations in the management of people were as important as advances in hard technology. A crucial development in management was the idea that employers should divide the work that employees perform into narrow, specialized tasks. This was not “discovered” in the 1800s. Division of labor had appeared in times past, but what were unique were the refinement, systematization, and formalization of the principle. One of the earliest applications was by Josiah Wedgwood who revolutionized the manufacture of pottery in the 1700s (McKendrick, 1961). The old methods of pottery making were becoming obsolete in meeting consumer demand:

The family craftsman stage had already given way to the master potter with his journeymen and apprentices recruited from outside the family, and this

in turn was becoming inadequate to deal with the growing complexity of potting production. (McKendrick, 1961, p. 31)

Wedgwood introduced one of the first examples of the assembly line:

His designs aimed at a conveyor belt progress through the works: the kiln room succeeded the painting room, the account room the kiln room, and the ware room the account room, so that there was a smooth progression from the ware being painted, to being fired, to being entered into the books, to being stored. Yet each process remained quite separate. (McKendrick, 1961, p. 32)

Rather performing all the tasks that constituted this assembly line, each worker specialized in one specific task:

His workmen were not allowed to wander at will from one task to another as the workmen did in the pre-Wedgwood potteries. They were trained to one particular task and they had to stick to it. (McKendrick, 1961, p. 32)

In addition to division of labor, Wedgwood advocated piece rate incentives, the organization of supervision in the hierarchical layers, and the use of rules to discipline workers. In his famous economic treatise *Wealth of Nations*, Adam Smith (1776) attributed much of the prosperity achieved in the industrialized nations to the application of these principles.

The division of labor, the assembly line, and other management innovations introduced by Wedgwood and others were notable but were not widespread. It was not until the late 1800s and early 1900s that these techniques emerged as dominant methods of organizing and managing work. The most publicized and famous of the applications of the assembly line was in 1913 when Henry Ford introduced a moving assembly line procedure at his Highland Park, New Jersey plant in the United States.<sup>1</sup> According to numerous books and articles, the assembly line was the primary cause of the increases in productivity and decreases in costs that occurred in manufacturing during the first few decades of the 1900s. Reductions in the cost of goods enabled the working and lower socioeconomic classes to purchase all sorts of goods and fueled an economic boom. A bundle of innovative management practices that included incentives, rules, and supervisory approaches accompanied the introduction of the assembly line at the Ford plants (Williams, Haslam, Williams, Adcroft, & Johal, 1993; Wilson & Mckinlay, 2010). Part of the bundle of changes introduced by Ford was an increase in wages for workers who worked on his lines. In 1914, he decided to double the wages of his assembly line workers to \$5.00 a day, a remarkable increase in wages for that time. He also reduced the workday to an 8-hour day from the 10–12 hours per day that was more typical in the early 1900s. The increased wages and reduced working hours attracted huge numbers of workers to his plants and along with the assembly line procedures allowed the mass production of vehicles. The increased wages also created customers for these automobiles. The business community severely criticized these innovations, but after seeing the positive impact on productivity, they were soon imitating Ford's increase in wages and reduced working hours.<sup>2</sup>

### **Massive Waves of Immigration**

Factories in the booming cities of the United States needed workers. The demand for labor led to a huge wave of immigration of Europeans to the United States (27.5 million

immigrants between 1865 and 1918, 89% from Europe) and a movement of farmworkers within the United States to the cities to work in the mills. Throughout the world, but especially in the United States, technological innovation transformed what had been a predominately rural and agricultural existence into societies dominated by large cities and manufacturing.

### **Rise of the Corporation**

As important as technological innovation, the assembly line, and urbanization was the rise of the large corporation. Prior to the industrial revolution, the dominant work organization was a small entrepreneurial firm in which the owners were the managers. A new organizational entity emerged to deal more efficiently with the larger scale of operation that characterized industry in the mid- to late 1800s. The owners were shareholders with little contact with the firm, and they hired managers to run the firm and serve as agents of the shareholders. This new form of organization is the corporation. The corporation as a legal entity was controversial when it first emerged 150 years ago and remains controversial. For an interesting documentary on the emergence of the corporation and the continuing controversies, you may wish to check out the documentary *The Corporation* on YouTube.<sup>3</sup>

A highly significant event occurring in the United States in 1886 was the *Santa Clara County v. Southern Pacific Railroad* Supreme Court decision that gave corporations the same rights and protections given to people under the U. S. Constitution.<sup>4</sup> This included the right of management to use the corporation's wealth to influence the government. This case set the precedent for the U. S. Supreme Court's recent decision in *Citizens United* in which attempts to reform campaign finance were declared to be a violation of the constitutional right of free speech.<sup>5</sup> During the latter part of the 1800s, governments did not regulate business practices, and corporations could take ruthless actions to eliminate their competition and create monopolies. They could also crush attempts to form unions by firing, harassing, or even physically threatening workers who tried to organize. The period in the United States that followed the end of the Civil War in 1865 and continued until the early 1900s was the era of the "robber barons" such as Andrew Carnegie, John D. Rockefeller, and Jay Gould. These men amassed enormous wealth by destroying their competitors, subjugating their employees, and ignoring public interests.

### **Rise of Consumerism**

During the late 1800s and early 1900s, American industry was enjoying the combined benefits of a host of positive business conditions. These included technological innovations such as mass production, seemingly unlimited natural resources, cheap labor immigrating from Europe, strong government support, expanding markets, and a social climate that lionized material success. All the ingredients for rapid growth and prosperity were in place. The great American experiment was working! Evolving business organizations, like the country itself, saw themselves as virtually invulnerable to outside forces. If a firm, or an individual for that matter, did not succeed, only it (or he/she) was to blame. Initiative and growth could overcome virtually any obstacle that might arise. With natural resources, cheap labor available, and virtually no restrictions on corporations, the United States became the economic, industrial, and agricultural leader of the world. The rise of the large urban area and manufacturing brought pollution, poverty, crime, disease, and large economic inequalities, but also dramatically improved the economic status of the industrial worker. The average annual income of nonfarm workers improved

dramatically with the average annual income rising by 75% from 1865 to 1900, and by 33% from 1901 to 1918 (U. S. Bureau of the Census, Historical Statistics of the United States, 1976, series D726 and D736, pp. 164–165). The availability of cheaper goods coupled with the rising income of workers led to consumerism. Consumerism is an economic and social phenomenon in which people are driven to purchase more than they need. Consumerism has had critics (e.g., the sociologist Thorstein Veblen (1934/1899) coined the term conspicuous consumption to refer to irrational buying behavior of people seeking status by means of possessions). Despite the critics, there is no doubt that consumerism fueled the economic growth and increasing prosperity of the late 1800s and early 1900s. Supporters of consumerism argued that the creative waste of money on goods that were luxuries fueled economic progress and raised the living standard of all socioeconomic classes. The practice of purchasing on installment plans became a popular form of buying. To create the demand that would lead people to go beyond their means in making purchases, advertising and marketing emerged as professions. Advertising changed from merely informing consumers of the existence of various products to creating the need for these products. Psychology became the source of ideas for advertising, and early psychologists such as Walter Dill Scott<sup>6</sup> and John B. Watson<sup>7</sup> were pioneers in the study of consumer behavior.

### ***What Were the Early Theories of How to Organize and Manage Work?***

Because of what was occurring in the 1800s and early 1900s, a variety of disciplines began to pay attention to what constitutes the most effective ways of managing work. Classical, scientific management and bureaucratic theory emphasized efficiency and felt that employers could obtain the cooperation of workers by assigning them to specialized tasks, closely supervising their performance of these tasks, and motivating them with financial incentives. There were significant differences among these three conceptual approaches, but they all viewed employees as passive and primarily motivated by economic concerns. At the same time, psychology was emerging as a discipline and some of the early psychologists looked for applications to the rapidly changing workplace.

To successfully compete in the early years required that managers of organizations met the demands for producing goods in the most efficient way possible. Classical Organizational Theory (also called Administrative Theory) and Scientific Management emerged as the two dominant theories. There were differences between the two theories. For instance, the Classical Organizational Theories focused more on how to structure reporting relationships and the entire organization, whereas Scientific Management focused on how to organize tasks and motivate the employees performing these tasks. Despite these differences, the two approaches were quite similar. They both were closed system approaches that were inward oriented and ignored the world outside the organization and the context in which workers performed their tasks. Both approaches stated universal rules for managing work and organizations believed to be applicable in all situations. Both stressed the management of the individual worker and mostly ignored the fact that workers belonged to groups. Both emphasized monetary incentives and paid little or no attention to the other factors motivating a worker. These theorists assumed that organizations and the people who belonged to these organizations operated in a rational manner. The assumption was that if management structured the situation so that workers benefitted from working hard to achieve organizational goals, these workers would act rationally and do what management wanted them to do. Perhaps the most important common feature was the belief in the efficacy of a strict hierarchy of

authority in which managers had the right to give orders and subordinates were obligated to obey.

Classical Organizational Theory and Scientific Management reflected what some corporate leaders were already doing to increase efficiency and productivity. Thinking about how to organize and manage work had been around for centuries (e.g., read Exodus 18: 17–27 in the Bible to see classic organizational principles at work). After all, work organizations have existed throughout recorded history, and it is not surprising that advice would exist on how to create and manage these organizations. The advice on how to manage organizations, however, was not seriously investigated until the nineteenth and twentieth centuries. The classical and scientific management approaches that emerged during 1870–1920 were explicit and systematized systems of thought that delved more deeply into the underlying dynamics of organizations and work than any previous theorizing. These first formal theories of organization were the creation of both practitioners, such as chief executive officers, and scholars from a variety of academic disciplines, including psychologists, sociologists, economists, and political scientists. Three theories that are most representative of the Classical and Scientific Management approaches were Henri Fayol's Administrative Management Theory, Frederick Taylor's Scientific Management, and Max Weber's Ideal Bureaucracy.

### **Fayol's Administrative Management Theory**

The existing knowledge about work organizations derives from a variety of sources, both scientific and experiential. In the beginning were practicing managers who communicated their insights in the form of universal management principles. The most influential of these was a book first published in 1916 by a French manager, Henri Fayol, *Administration Industrielle et Générale*, in which he spelled out 14 principles that he saw as key to successful management (Fayol, 1936).<sup>8</sup>

- *Division of labor*: every employee performs a specialized set of activities.
- *Parity of authority and responsibility*: every employee is given just enough authority to carry out his or her responsibilities, no more, no less.
- *Discipline*: employees have a duty to submit to the rules and procedures dictated by the organization.
- *Unity of command*: each employee should report to one and only one supervisor.
- *Unity of direction*: work is divided into groups of activities and the employees in each group report to one manager and have one common goal and one plan for achieving the goal.
- *Subordination*: individual interests should be taken in second place to those of the organization.
- *Remuneration*: employees are paid a fair wage in return for their services.
- *Centralization*: those higher in the organizational hierarchy are in charge and have the largest amount of authority in making decisions.
- *Scalar chain of command*: require that all communications flow through the hierarchy so that no subordinate bypasses his or her boss but goes through that boss.
- *Order*: each employee has a specific position and the organization ensures that people are hired and trained to fit these positions.
- *Equity*: managers have a responsibility to treat subordinates with kindness and fairness.
- *Stability of tenure*: employee turnover should be minimized; the human resource management function is responsible for orderly succession and replacement.

- *Initiative*: opportunities for showing initiative should be provided for employees who are willing and able to originate and carry out their own plans.
- *Esprit de corps*: promote team spirit to build harmony and unity.

A number of other books appeared that carried much the same message as Fayol's book. This philosophy of management became known as Classical Organization (or administrative or management) Theory (Bedeian, 1980; Dessler, 1980).

Collectively these works formed the basis for academic training in management. The classical philosophy focused on the formal structure of organizations: clear and efficient division of labor, lines of authority, and communication. The idea was to divide work up into clearly defined jobs, put them together in the most efficient way, and make sure workers performed according to plan by imposing a military-like system of authority over them. The only legitimate goals were productivity and efficiency, and people were mere instruments of achieving these goals. Ensuring that the organization was productive required that management provide clear direction and tight control. Beware of stereotyping classical theory as inhumane or brutal. Fayol's principles contain some of the same practices that today we consider innovative and humanistic (e.g., team building, participative decision-making).

### Scientific Management

As early management theorists formed these ideas, classical theory received an important boost from a most unlikely source: a mechanical engineer named Frederick Taylor who sought to extend engineering principles to the design and management of work (Taylor, 1911).<sup>9</sup> He did not believe that employees were unwilling to work harder but instead blamed the sloppy management practices of the time that allowed inefficiencies. His approach was to determine through precise measurement ("time and motion studies") the most efficient ways to carry out work operations, to clearly specify and standardize these procedures, and to enforce them through the exercise of explicit management functions; that is, managers were there to issue orders and workers were to follow those orders. Scientific Management, as it came to be called, provided concrete techniques for implementing the classical philosophy. Needless to say, managers came to love it more than did the workers, many of whom saw Scientific Management as just another attempt by management to exploit them (Gies, 1991).

Value judgments aside, Taylor's approach was anything but scientific except in the narrow sense of measuring things and using data in place of opinion. True science, as discussed in the next chapter, is much more than that: its aim is to understand natural events. "Scientific management" was concerned with putting into practice a specific theory of management that its proponents accepted as valid. Like classical theory, it had nothing whatsoever to do with a search for knowledge, and in fact represented the antithesis of scientific inquiry.

Taylor's scientific management contained four premises (Dessler, 1980):

- (1) Finding the "one best way" to perform the job. This typically meant simplifying the job to enable employees to accomplish their tasks more easily and quickly. Time and motion studies were crucial to determining the most efficient way of performing the tasks in the job.
- (2) Systematic personnel selection and placement to match the best worker to each job.
- (3) Strict division of labor between management and workers. Managers were supposed to manage and plan the work, while workers were to do the work and enact the plans. Organizations rigidly guarded the boundaries between labor and management.

- (4) Monetary incentives to attract and motivate workers to perform optimally. Systematic selection and simplification of jobs served as only a baseline for efficiency. The profit motive provided the balance.

For a video showing the early applications of Scientific Management to the assembly line, typing, and labor jobs in a steel mill check out the Wikipedia entry, *Ford and Taylor Scientific Management*.<sup>10</sup> Unlike the typical, despotic management practices of the nineteenth century, Taylor grounded his ideas in an ethic of worker–management cooperation in which Scientific Management would benefit both. Even if his motives were irreproachable, his assumptions about human motivation and attitudes were not. Based on his personal experiences working in steel mills, he was convinced that the average worker performed far below what he or she was capable of performing and was unlikely to improve unless management took the necessary steps:

Hardly a competent workman can be found who does not devote a considerable amount of time to studying just how slowly he can work and still convince his employer that he is going at a good pace. (Taylor, 1911, p. 6)

Taylor assumed that if workers were shown the most efficient way of performing their tasks and then paid wages linked to productivity, they would strive for peak performance to make more money. Taylor’s approach was to pay workers per unit of productivity and then to provide an incentive by increasing the amount for every unit produced beyond a level of productivity that the average workers should be able to achieve using the best way of performing the work (known as a differential piece rate system).

Taylor’s work inspired numerous scientific management practitioners. Among the most notable of these were Frank and Lillian Gilbreath.<sup>11</sup> Similar to Taylor, the Gilbreaths believed that the typical work methods were plagued by inefficiencies: “There is no waste in the world that equals the waste from needless, ill-directed and ineffective motions” (Gilbreath, 1915, p. 96). Unlike Taylor, however, the Gilbreaths believed the workers needed assurance that they would receive some guaranteed level of compensation and advocated a base wage that was independent of productivity in addition to providing incentives per unit of production beyond a standard. They also pioneered the use of motion pictures in determining the most efficient ways of working. For a fascinating silent movie showing the Gilbreaths and their early time and motion studies, check out the old motion picture in the Wikipedia entry on time and motion study.<sup>12</sup> *Cheaper by the Dozen*, a book written by their son Frank Gilbreath Jr., is a hilarious account of daily life with Frank and Lillian and their 12 children. Apparently, Frank applied principles of scientific management to not only the world of work but to the most mundane household activities as well. Lillian Gilbreath was one of the first women to earn a Ph.D. in I/O Psychology. She was also among the most well-known psychologists in the first half of the twentieth century and has the distinction of being the only I/O psychologist on a postage stamp and the only one whose portrait hangs in the U. S. National Portrait Gallery. Among her numerous contributions was a criticism of Taylor’s scientific management for ignoring the psychology of the workplace.

### **Weber’s Ideal Bureaucracy**

Max Weber (1946) was a noted German sociologist whose ideas, though consistent with the other classical theories and published about the same time, developed independently.<sup>13</sup>

Because he published his works in German and took a more academic than practical orientation, Weber did not influence the management literature until English translations appeared after WWII. Undoubtedly, the two world wars had something to do with this delay, a rather vivid illustration of how societal events have influenced both the theory and practice of management. The essence of Weber's position is that the most defensible way to design and manage an organization is through a rational–legal authority system:

Bureaucratization offers above all the optimum possibility for carrying through the principle of specializing administrative functions according to purely objective considerations. Individual performances are allocated to functionaries who have specialized training and who, by constant practice increase their expertise. "Objective" discharge of business primarily means a discharge of business according to calculable rules and "without regard for persons." (Weber, 1924/1947)

The key elements of the bureaucratic ideal include

- (1) Division of labor
- (2) Clear specification of roles
- (3) A hierarchical (military-like) authority structure
- (4) Explicit rules and regulations
- (5) Assignment of people to positions based on merit rather than social position, charisma, nepotism, or political clout (the chief ways in which people landed good jobs at the time).

Though very similar to the prescriptions set forth by Fayol and Taylor, Weber based his pronouncements on philosophical arguments and historical analyses rather than practical experience (Weber, 1946). Thus, when social science became embroiled in issues of organization and management, Weber's arguments gave scholarly credibility to the classical philosophy.

Weber saw the bureaucratic ideal as a means of achieving fairness and efficiency, advantages that alternative organizing schemes lacked. It is ironic that we vigorously criticize modern bureaucracies for violating these same criteria. To most of us, the word "bureaucracy" has come to mean red tape, waste, and mediocrity, the direct opposite of the efficiency and fairness Weber had in mind. It is important to distinguish the concept, as envisioned by Weber, from the way that government and business have implemented the concept. Perrow (1986) reminds us that despite its imperfections, and the prediction by its midcentury critics that its days were numbered (Bennis, 1966), bureaucracy has not only survived, but also has outlived all the competition. It stands today as the dominant form in both capitalistic and socialistic industrialized societies.

### ***The Emergence of Psychology as a Separate Discipline***

As industrialization, the corporation, and classical theories of management were emerging, psychology was evolving as a separate intellectual discipline. For centuries, philosophers and other scholars argued over the nature of mind and how it functions. However, the idea of using scientific methods to resolve such issues was what distinguished modern psychology. In 1879 Wilhelm Wundt, a professor at the University of Leipzig in Germany, opened the first laboratory devoted exclusively to the study of psychology. For a photo of Wundt and his colleagues at work in his Leipzig lab, check out the Wikipedia entry

Wilhelm Wundt.<sup>14</sup> He and his colleagues conducted experiments under carefully controlled conditions to answer basic questions about the human mind. Because most of the important first-generation psychologists studied under Wundt, the new discipline began as a basic science concerned mainly with laws of conscious experience.

At about the same time that Wundt was trying to describe the general laws that govern mental life, a British scholar and cousin of Charles Darwin, Sir Francis Galton, was studying how people differ from one another mentally. He devised the mental test as a means of indexing individual differences in cognitive ability. Although Galton's attempts at measuring cognitive ability were unsuccessful and misguided, his work spawned the mental testing movement that developed largely in parallel with Wundt's mental science (Hothersall, 1984).

Testing for individual differences and doing experiments to discover general mental principles have remained distinct approaches in psychology despite periodic efforts to draw them together (Cronbach, 1957, 1975). Wundt's mental science approach dominated early psychology in the United States, but the practical possibilities of testing were what captured industry's interest. Hence, the individual differences approach became dominant in early industrial psychology and remained so for the next several decades.

In the early years, psychologists debated grand, theoretical perspectives. Early on, the emphasis was on describing the general laws that governed conscious experience. Using introspection as a research tool, psychologists such as Wundt attempted to analyze and describe the contents of conscious experience (e.g., sensations, images, feelings) similar to the way a chemist might analyze the elements of matter. This paradigm was structuralism, and it focused on the structure of mental content. During this period, Sigmund Freud's theories on the nature and treatment of mental disorders and the role of unconscious events in mind and behavior were also beginning to attract a great deal of attention (Hothersall, 1984).<sup>15</sup> Freud's work on the unconscious shifted attention to the more dynamic functional properties of mind. From the late 1920s until the 1940s, therefore, the emphasis was on the mental and biological underpinnings of functions such as motivation, emotion, learning, and perception. The primary concern of functionalists was how humans and other living organisms adjust to their environment.

This school of thought constituted America's first unique paradigm and became known as American functionalism (Hothersall, 1984). It was a much less restrictive school of thought than structuralism and much more appreciative of applications of psychology to practical programs. Functionalism in psychology and pragmatism in philosophy provided a context in which the individual differences approach and applied psychology developed. William James was a Harvard professor who was perhaps America's most influential psychologist in the early years.<sup>16</sup> He was among the founders of American functionalism and the leading proponent of philosophical pragmatism. According James (1907), "Truth in our ideas means their power to work." In addition to providing a philosophical basis for applied psychology, he also recruited and trained many of the psychologists who would serve as the founding fathers of American psychology. One of his recruits at Harvard University was Hugo Munsterberg, a German psychologist who is often called the father of I/O psychology.<sup>17</sup>

### ***The Early Applications of Psychology to Work***

In these early years, psychologists confined their work to the realm of academic research and held application in disdain. Many psychologists felt that any attempt to develop a field of applied psychology would harm the development of psychology as a science. Nevertheless, the pressures to use the findings and methods of this new discipline to assist in the

management of work proved irresistible. The potential uses of psychology were obvious, and in the 1800s, psychologists rose to the challenge by applying the methods, theories, and body of knowledge to practical problems of industry. The work on individual differences, behaviorism, and functional psychology nicely complemented the principles of Scientific Management. Psychologists developed job analysis techniques to analyze the work and identify the best ways of doing the job. They generated a variety of tests to facilitate finding the right person to do the work. They also developed training techniques to make sure that workers learned the best ways of doing the work. The schedules of reinforcement discussed by Watson and B. F. Skinner were compatible with what Taylor said about paying people by the piece of work produced. Most important of all, psychologists provided the research tools for evaluating the effectiveness of alternative approaches.

In the early years, applied psychologists emphasized improving productivity and efficiency, the primary concerns of management at the time. They sought ways of increasing profitability through increasing human reliability, interchangeability of employees, and work output. The principles of work standardization and simplification coupled with tight management control made sense in the societal and historical context of this period. In addition, the prospect of using paper-and-pencil testing to weed out the most incompetent or unreliable workers prior to hiring them was especially attractive. Classical Organization Theory, Scientific Management, and applied psychology provided tools for lowering unit production costs just as surely as new machinery did. Applied psychology also provided tools for identifying how best to persuade consumers to buy products or services. Interestingly, John Watson not only established the behaviorism school of thought in psychology but later in his career also pioneered applications of psychology to marketing and advertising.

### **The Founders of I/O Psychology**

The applications of psychology to industrial problems began in earnest in the early 1900s with the work of two students of Wundt, Hugo Munsterberg and Walter Dill Scott. Munsterberg (1913) was concerned primarily with industrial efficiency and was impatient with academic psychologists who believed that it was too early to apply psychologists to practical problems:

For the sciences of the mind the time has come when theory and practice must support each other. An exceedingly large mass of facts has been gathered, the methods have become refined and differentiated, and however much may still be under discussion, the ground common to all is ample enough to build upon. (Munsterberg, 1913, p. 7)

Scott (1908) also applied psychology to a wide range of problems but is best known for his contributions to advertising.<sup>18</sup> Both wrote the first books on industrial applications of psychology, and the topics they covered still occupy I/O psychologists today. But don't forget the women! Several important contributors to the early development of I/O just happened to be women. Lillian Gilbreth, Mary Hayes, Elsie Bregman, and Marion Bills were among the early female pioneers (Koppes, 1997).

### **The First Standardized Cognitive Ability Test**

A French psychologist, Alfred Binet, was another pioneer in applying psychology to practical problems.<sup>20</sup> He is best known for designing the first mental ability test and creating

the concept of intelligence quotient (IQ). The idea of computing an IQ by dividing mental age by chronological age was discarded long ago but the idea of general cognitive ability and the use of testing to measure it are still with us. Given the current concerns about the unfairness of standardized testing, it is instructive to note that Binet saw testing as a means of providing assessments that were fairer than the assessments that teachers were using. Binet devised an objective method of assessing the cognitive ability of elementary school students so that teachers could identify low cognitive ability students and provide them with special education. Previously, teachers made these decisions based on subjective judgments that were vulnerable to bias. A teacher might treat students from a minority ethnic group unfairly based on the belief that they were incapable of learning. Binet constructed an objective, standardized test he believed eliminated these biases and provided a rough means of distinguishing those children in need of special education. He did not believe the score on his test reflected the innate and immutable level of a child's intelligence. Instead, he viewed it as a measure of the areas of knowledge and skill needing improvement and believed special education would allow correction of the deficits identified with his test. His test served as the prototype for all future mental testing, but Binet himself feared that the emphasis on intelligence as an unchanging trait among psychologists in the United States would lead to stigmatization of those with low scores (Gould, 1981). His fears proved prescient as mental tests became a primary tool of the Eugenics Movement.

WWI provided the setting for the first large-scale application of psychology. The United States and the other countries on the both sides faced the daunting task of processing millions of people to serve as soldiers. U. S. President Woodrow Wilson called upon psychologists to help in this endeavor and in May 1917, his administration formed the Psychological Examination of Recruits Committee consisting of the top people in psychological research on individual differences at the time including Walter Bingham<sup>21</sup>, Robert Yerkes<sup>22</sup>, and Lewis Terman<sup>23</sup> (Carson, 1993). Within two months, they had constructed a written paper-and-pencil test, the Army Alpha test, to assess recruits who could read and write. Another test, the Army Beta, was a nonverbal test for illiterate and non-English speaking recruits. By the end of WWI, over two million army recruits had taken the Army Alpha and Beta (Kevles, 1968; McGuire, 1994). Although psychologists did not scientifically evaluate the Army Alpha and Beta, these were the first practical tests administered to large groups of people. Within two decades of the development of the Army Alpha, cognitive ability testing became a major tool used in hiring and college admissions decisions.

An unfortunate consequence of cognitive ability testing during the first few decades of the twentieth century was in providing data on racial differences in cognitive ability that the Eugenics Movement used to encourage discrimination against ethnic minorities and immigrants (Gould, 1981; Helms, 2012). The Eugenics Movement believed there were distinct human races differing on their innate cognitive ability and a host of other attributes, such as health and personal character. Italians, Jews, Eastern Europeans, Asians, Irish, and Africans were all considered mentally inferior to persons of Anglo-Saxon and Germanic stock. Moreover, members of these ethnic minorities were believed to possess weak moral characters and to carry disease. The cognitive ability test became a primary tool in eugenics research. In a typical study, immigrants coming to the United States took cognitive ability tests, and researchers interpreted lower scores as evidence of the genetic inferiority of entire groups. Ignored were language differences and the fact that most of the immigrants had never taken a paper-and-pencil test of cognitive ability. Legislators used work such as this to justify laws against interracial marriage and forced sterilization of those judged as mentally and morally inferior. It is easy to look back now and view the Eugenics Movement as complete nonsense and the worst kind of

pseudo-science. There is a tendency to ignore the fact that some of the most prominent U. S. social scientists of the late nineteenth and early twentieth century were proponents. The U. S. Eugenics movement appeared to influence Adolph Hitler, and there was even concern among his Nazi henchmen that the Third Reich was falling behind the United States in research on racial differences (Kloutke, 2016). The work of some U. S. psychologists provided a pseudoscientific foundation for some of the horrendous actions of Nazi Germany including the forced internment, sterilization, and extermination of those judged racially inferior. The movement was not confined to Germany and the United States. According to Kloutke (2016, p. 270):

The eugenics movement was indeed a transnational phenomenon: almost simultaneously, societies and associations for the promotion and study of eugenics were established in the industrialized nations in the early twentieth century, with the United Kingdom, Germany, the USA, France and the Scandinavian countries at the forefront. By the 1920s, the eugenics movement had become a truly global phenomenon and was institutionalized in Australia, the Soviet Union, China, India, Brazil, Mexico and Argentina, in Poland, Czechoslovakia and Romania.

Scientists no longer consider the Eugenics Movement a legitimate area of research, but controversy over whether cognitive ability testing is racially biased continues to this day (Alderfer, 2003; Anderson, 2007; Ossorio, 2011). Those debating ethnic differences on cognitive ability tests seldom reflect on the early years in which racist theories of cognitive ability dominated psychological research and application. Helms (2012, p. 176) suggested that the specialty of I/O psychology

has a moral responsibility to change the nature of the question underlying racial-group comparisons by acknowledging and repudiating the eugenics, racism, and hereditarianism that underlie misinterpretations of racial-group differences in test scores as signifying something conceptually meaningful about intelligence and ascribed racial groups.

### **Psychometric Theory**

At the same time psychologists were developing measures of cognitive ability management could use in making practical hiring decisions, other psychologists and statisticians were working on the theoretical foundations for these applications. The conceptual framework that emerged during this early period was Classical Test Theory (CTT), which would dominate thinking about the use of individual difference measures for decades to come. It continues as an influential framework in I/O psychology. CTT presumes that underlying a score on a measure of a psychological construct is a true score. Psychological measures reflect not only the true score but also some error. These measures are fallible to varying degrees and psychometric theory provides the conceptual foundation for practical means of assessing the fallibility of psychological measures. Reliability and validity, the two primary bases for evaluating psychological measures, were the products of CTT.

The emergence of the discipline of statistics made possible psychometric theory. The historical roots of the field of statistics are traceable to as far back as the 1600s, but it was during the 1800s and the early 1900s that the discipline emerged as the quantitative

foundation for a variety of social sciences including sociology and psychology. Earlier there was a discussion of Gauss and his notion of the normal distribution. He also introduced statistical concepts and procedures, such as standard deviation, correlation, and regression. In the late 1800s and early 1900s, Karl Pearson, Ronald Fisher, and Charles Spearman pioneered the statistical procedures that researchers continue to use in deciding whether relations among variables deserve attention. Tests for statistical significance were controversial at the time they were conceived, and they remain controversial today (Krueger, 2001).

## **The Middle Years (1920–1945)**

The classical theories of management and Scientific Management, along with the practical tools developed by psychologists, succeeded in helping managers control labor costs. Moreover, the emphasis on hierarchical structure and strict obedience to the boss were effective in managing the masses of workers and large-scale manufacturing dominant during the early years. Economic boom, depression, and another world war marked the middle years. These and other societal forces required that social scientists and managers rethink some of their assumptions about the best way to manage people at work.

### ***What Were the Major Forces Shaping Work during the Middle Years?***

Labor unions were emerging during the early years but were weak and seemed manageable. Where necessary, corporate tycoons could hire private armies to prevent unions from forming, and if that failed, management could bring union members into line by threatening to dismiss them. If a strike still occurred, management could simply replace the striking workers. Were some liberal politician or newspaper editor to take issue with these methods, as some did, corporate leaders could handle that as well by the proper application of money or pressure in the right places. In short, there was little apparent reason to worry about societal change, and the only real issue in managing people was ensuring that their humanness interfered as little as possible with their output.

In the years between the end of WWI and the end of the WWII, there were huge changes that forced managers to reconsider how they dealt with people. These included the “Roaring Twenties” and the economic crash of the Great Depression years. During this period, there were dramatic increases in the educational levels of American workers, the rise of populism, socialism and unionism, and WWII. I/O psychology continued to grow during these years building on the successes of the early work on industrial efficiency. Additionally, the societal forces at work during this period led to new ways of thinking about the management of workers. McGregor (1960) would call this new way of thinking “Theory Y” and contrasted it with Theory X, the way of thinking reflected in the Classical and Scientific Management approaches.

### **Economic Boom and Bust**

Few periods in history have influenced government structure, size, and economy more than the “Roaring Twenties” and the “Great Depression.” The optimism and greed of the immediate post-WWI years and the subsequent economic collapse that occurred in the 1930s bore a striking resemblance to the recent economic booms and busts in the 1990s and early 2000s. The events of the middle years shaped thinking about management of people and the field of I/O psychology.

**The Roaring Twenties.** WWI profoundly affected U. S. industry in the 1920s. European immigration had almost come to a standstill during the fighting, and new immigration restrictions in 1921 and 1924 left cities with insufficient European immigrants to man factories. African-Americans from the South, looking for a better life, migrated to urban areas and exchanged sharecropping for factory jobs. Widespread economic prosperity ensued as cities eclipsed small towns and rural areas in overall population.

Mass-produced technology products were within the reach of the majority of Americans, whose incomes continued to rise during the 1920s. Every home was a market for electrical appliances of all kinds – refrigerators, washing machines, vacuum cleaners, etc. Advertising convinced Americans they needed products, some of which they had never heard of before. Electricity production soared throughout the 1920s as more of the United States joined the electric grid, and most coal-powered industries switched to electricity. Assembly lines produced Henry Ford's automobiles at prices most Americans could afford. Mobile Americans enjoyed freedom as they took to thousands of miles of new, paved roads. Charles Lindbergh traveled the highway in the sky in 1927, becoming the first person to fly solo across the Atlantic.

Actions in the 1920s led to the depression in the 1930s, which led to the New Deal in 1933–1938. The economic causes of the Great Depression originated in the events surrounding WWI and its aftermath. WWI exhausted people. Grief, loss, and hard work made the people ready for a change. The 1920s brought this in a number of ways. Consumerism reached its height in this period. The “flapper” epitomized consumerism with her makeup, readymade clothes, and cigarettes. Entertainment soared and morals began to slide. At the same time, inflation raised its ugly head and the prices of goods and services surged. Rises in workers' salaries did not match the rate of the price increases, and farmers were forced further into debt. National economics also suffered with income taxes being the lowest for those who were the wealthiest. In 1924, the U. S. placed limits on immigration, reducing the number of workers in the economy. When the stock market crashed in 1929, all the economy's weaknesses became clear. This was not, however, the start of the Great Depression but just a signal of its onset.

Also rising during the 1920s and 1930s was the educational level of the worker. There was a steady increase in the proportion of the 5–19-year-old population enrolled in school from 1850 to the 1990s.<sup>24</sup> In 1870, 57% of the U. S. population between the ages of 5 and 17 were enrolled in school. By 1900, this had risen to approximately 72%, and by 1930, it was over 82%. In 2008, over 92% of persons 5–17 years of age were enrolled. Once educated, people expect that their job opportunities and their treatment at work will change. An educated workforce is also less submissive to autocratic management and more likely to question such practices.

**The Great Depression.** The other event bringing attention to the need to take into account worker rights and attitudes was the Great Depression. The dramatic worldwide economic collapse of the 1930s most drastically affected national morale by eliminating jobs. In 1929 only 3% of the U. S. workforce was unemployed; by 1933 this had reached 25%. Since a quarter of the nation was out of work, people stopped spending money. Many durable goods, such as automobiles, housing, and appliances, did not sell, forcing people who worked in those industries out of their jobs. People with jobs had to accept pay cuts and many felt lucky just to have a job. Banks lent out more money than they had and many people lost their savings. Family life also changed drastically, with marriage and birth rates falling rapidly while divorce rates grew. All of this kept the economy in a shambles with no hope of relief. Then came the New Deal.

After taking office in 1933, U. S. President Franklin Delano Roosevelt sought to bring change to the nation by increasing the role and power of the government in ways that the previous president, Herbert Hoover, had not. Hoover had been reluctant to use welfare programs to help those in need and did not establish many public works projects. Roosevelt, however, used both of these programs generously. At this time, the United States also abandoned the gold standard and put more money into circulation, meaning there was more cash circulating than there was gold bullion. Trust in banks was one of the first things Roosevelt sought to restore. This happened with the “bank holiday” and the Emergency Banking Act. The Federal Deposit Insurance Corporation also helped to restore trust by ensuring the safety of people’s money in case the bank failed. The Public Works Administration appeared at this time as well. The federal government built dams, bridges, and other public buildings, creating more jobs for unemployed people. Work camps were also set up to help people find jobs. The New Deal not only helped alleviate misery, but it also was part of an expansion of the role of government that was occurring in other nations such as Great Britain. Assistance provided by charitable organizations such as churches to help the unemployed, homeless, and displaced now became government programs.

The financial crash of 1929 followed by the depression of the 1930s shattered both the myth of rugged individualism and the national spirit of self-confidence. The suspicion arose and spread that perhaps unfettered capitalism was not the answer to all organizational and social problems. Clearly, there were forces at work in society powerful enough to bring down even the biggest and strongest. U. S. society began to recognize that neither individuals nor organizations were the complete masters of their fate. The Great Depression of the 1930s was a worldwide economic phenomenon that led to a host of societal changes. For example, it undoubtedly contributed to conditions in Germany that culminated in the next epoch-making event, WWII. Further, it reinforced the growing recognition that for all its success, the United States was not immune from foreign influence. This, unfortunately, has remained a difficult lesson for Americans to learn in the twenty-first century.

For present purposes, it is sufficient to mention some direct consequences of the depression for corporate America in the 1930s. First, government influence became a force that corporate leaders had to reckon with in business decisions affecting union relations, personnel management, and consumers. President Franklin D. Roosevelt’s sweeping reform programs (the National Recovery Act, his reshaping of the Supreme Court, the New Deal, etc.) put serious restrictions on the free enterprise system and created a favorable climate for organized labor. During the 1930s, union membership grew to nearly 30% of the non-agricultural workforce (Kochan & Barocci, 1985). No longer could management dominate labor–management relations as it had in the past.

Second, public support for these government programs signaled a dramatic shift in society’s attitudes. For the first time, the public could identify with the plight of the downtrodden worker. Because misfortune had touched everyone, it was no longer limited to what society perceived as the ignorant, the lazy, and the largely “foreign element” that dominated the working class (who in society’s view probably deserved mistreatment). Corporate greed and abuses became an alternative explanation, and sentiment shifted from supreme confidence in big business to distrust and a plea for government intervention.

Finally, organizations began to feel pressure from a variety of sources to shoulder more responsibility for employee welfare. Massive unemployment did nothing to hurt their favorable labor market; labor became even cheaper and the desperate economic times made people even more willing to submit to authority. Nevertheless, there were mounting pressures from government and changing social norms on the business community to address

the rights and welfare of their employees. In addition to social and government pressures, the research and theory of anthropologists, sociologists, and psychologists led to fundamental changes in the way managers thought about work.

**The Rise of Unionism, Populism, and Socialism.** Other sources of the increased concern for worker rights and welfare were the three “isms”: populism, unionism, and socialism. Populism can come in the form of both right-wing and left-wing movements and reflects a rejection of elitism (e.g., the “Hollywood elite” by the right and the “1%” and “corporate elite” by the left) and an assertion of the rights of the ordinary working person (<http://gildedage.lib.niu.edu/populism>). Populism had begun prior to the WWI in the form of the progressive movement and culminated among other things in the winning of the vote for women in the United States in 1920. With the greed and corruption of the gilded age during the late 1800s, social critics brought attention to the abuses of large corporations, and were instrumental in mustering public opinion in support of greater government oversight of corporations. Theodore Roosevelt was the first U. S. president to act as a champion for the progressive cause. In the Square Deal, the name of his domestic plan, he advocated Federal regulations and laws to prevent the unfair business practices of the large monopolies.

Also responsible for an increased concern with worker rights and welfare was the growing strength of organized labor. Early examples of labor–management clashes in the United States were The Great Railroad Strike of 1877 organized by the Knights of Labor, the 1892 strike at Carnegie steel works in Homestead, Pennsylvania led by the Amalgamated Association of Iron, Steel and Tin Workers, and the strikes by Pullman Palace Car Company employees organized by the American Railway Union. Socialism and powerful unions such as the Industrial Workers of the World (IWW) or “Wobblies”) raised the fears of corporate leaders that unions would force them to negotiate wages, work conditions, working hours, safety, and other issues with their employees (Cole, Struthers, & Zimmer, 2017). Not only did employers see this seen as a threat to their profits, but, more importantly, as a threat to their power.

Even more threatening to corporate leaders was the rise of socialism, which was a system of thought advocating social ownership of property (Harrington, 2011). There are many gradations in this philosophy. An extreme form is communism where there is total state ownership of property. The overthrow of the Russian czar and the imposition of a Marxist state raised the anxieties of corporate leaders around the world that private ownership and economic competition would eventually end. Contrary to these fears, few countries experienced the bloody totalitarian overthrow that occurred in Russia. However, the democratically guided reforms that were on the march in the 1920s and 1930s were just as threatening to many capitalists. Milder forms of socialism led to the progressive income tax, social security, and universal education. Post-WWI reforms in Great Britain also included the nationalization of a large proportion of industry, the National Health Service, and public housing. Confronted with unionism, populism, and socialism, many corporate leaders gave serious attention to providing better working conditions for employees and reconsidered the iron-fisted, autocratic form of supervision that had dominated management practices during the 1800s and early 1900s.

### **WWII Leads to Widespread Applications of Psychology**

Ultimately, it was WWII, not the New Deal, that ended the Depression in the United States. In 1940, the unemployment rate was still at 15%. WWII produced many more jobs and finally got the United States and some other nations back to full employment. The evolution of I/O psychology from a minor offshoot to a recognized specialty within the

field of psychology was a consequence of several influences, but none more important than WWII. The demands of this massive war effort, representing dramatic changes in the doctrine and technology of warfare, called for radical changes in the management of human resources. The government summoned psychologists of all kinds to help, and in the course of doing so, they discovered a great deal about the potential applications of their specialized knowledge and techniques. All branches of psychology made huge advances under the exigencies of war – an ironic twist for a discipline pledged to the promotion of human welfare.

In addition to selection, classification, and training developments, WWII fostered the creation of a completely new subdiscipline of I/O Psychology that was based on an entirely different strategy for improving human effectiveness. The essential idea behind this new subdiscipline was that “human error” or poor performance is not always a matter of incapable or poorly trained personnel, but often reflects insufficient consideration of human characteristics in the design of the machines that people must operate. The field survived the war, and eventually emerged as a separate, formally recognized discipline that was no longer subsumed under I/O psychology. Today it is known in the United States as human factors or engineering psychology and in the rest of the world as ergonomics. It encompasses a variety of human-oriented and design-oriented specialties that incorporate the psychological component (Howell, 1991).

WWII also further reinforced the growing concern in the United States for worker rights and welfare. To succeed, it was vital that the vast defense industry was kept running smoothly without interruptions. The manufacture of airplanes, guns, ammunition, uniforms, and all the other stuff of war could not afford strikes, walkouts, slowdowns, and other forms of resistance so often associated with autocratic management. To maintain harmony and avoid costly labor–management conflicts, the U. S. federal government imposed rules and procedures and created entire bureaucracies dedicated to implementing these rules and procedures. It was during the war years that employers and the government created wage and salary administration practices to ensure fairness in compensation of employees. It was also during the war years that labor arbitration and mediation began to avoid and resolve labor–management disputes. Human resource management dramatically changed during WWII from a function primarily engaged in record keeping to a function more broadly concerned with human relations. Not surprisingly, psychologists had a lot to say about how this new human resource management function should operate.

### ***What Was Happening in Psychology during the Middle Years?***

The field of psychology built on the early advances and continued to grow during the middle years. During this period, behaviorism emerged as a dominant school of thought. Behaviorism was an offshoot of functionalism and developed as a distinct area of psychology under the leadership first of John B. Watson<sup>25</sup> who completely denied the importance of individual differences in ability as a factor in determining success. His belief in the power of external reinforcement is exemplified in his famous quote:

Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select – doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors. (Watson, 1930, p. 89)

B.F. Skinner<sup>26</sup> built upon the work of Watson and became the leading advocate of radical behaviorism, a school of thought that explained all behavior as shaped by external reinforcement contingencies (Hothersall, 1984). Behaviorism held that both the content and functions of mind are unsuitable subjects for scientific study because neither is open to public view. Because science only advances through objective observation, psychologists should limit their research to observable behaviors (responses) and the environmental conditions (stimuli) that control them. In its most radical form, behaviorism denied the very existence of mind and maintained that all behavior is reducible to simple stimulus–response (S–R) laws.

WWII provided massive evidence of the value of testing for selection and assignment of people according to job requirements. Naturally, industry recognized the potential applications of these techniques, and the use of testing increased dramatically after both wars. In addition, WWII produced important advances in techniques used to train people, many of which found peacetime application. Educational, experimental, and industrial psychologists all contributed significantly to the design of these training programs. One notable example was simulation training, a technique in which trainees could practice the basic operations required in a job (e.g., flying an airplane) on a replica of that job’s environment (i.e., a simulator) without the risks and costs associated with learning in the actual situation. Today, the simulation approach has spread to the training of managers, professionals, and skilled technicians, and it remains a cornerstone of pilot training, both military and commercial.

### ***What Theories of Work Behavior Emerged in the Middle Years?***

What were social scientists and in particular, psychologists, doing during the post-WWI and WWII years? One important development during this period was the conduct of empirical research to test alternative approaches to management. This was in contrast to the prescriptions of Classical Theory and Scientific Management, which seldom used rigorous scientific methods. An extremely influential program of research, the Hawthorne studies, stretched over two decades and fueled a rethinking of the Classical and Scientific Management theories that dominated the early period. Two streams of thinking emerged in the middle years: the Human Relations Movement and the neo-classical theories. Both schools of thought urged more attention to the needs of employees and questioned the assumption that employees will necessarily obey and submit if employers implement the principles of Classical Theory and Scientific Management. While raising questions, the Human Relations and neo-classical theorists accepted, for the most part, the organization as it was and the need for management to make the decisions. They were not avid proponents of allowing employees to participate in important decisions or decentralizing to empower those at the lower levels of the hierarchy. Rather, both approaches advocated ways of reducing resistance to managerial orders and took a more people-oriented approach for achieving this objective.

### **The Hawthorne Studies**

The true scientific approach made a tentative entry into the field as early as the 1920s in the “Hawthorne Studies” conducted at the Chicago Hawthorne plant of Western Electric (Roethlisberger & Dickson, 1938). These studies began in 1924 and continued through the early 1930s. A variety of researchers participated including Clair Turner, Fritz J. Roethlisberger, W. J. Dickson, and Elton Mayo.<sup>27,28</sup>

The illumination studies began in 1924 as a typical industrial engineering question about the relationship between worker productivity and the level of illumination in the work environment. The prevailing organizational philosophy that money and working conditions are the primary causes of worker behavior guided the research. In the initial experiment, researchers exposed workers in three departments to varying lighting levels. To their surprise, the researchers discovered that productivity did not always decline when they lowered illumination. Intrigued, the researchers conducted two more illumination studies, each with tighter experimental controls than the first. Even with the systematic manipulations of lighting levels, worker productivity did not decline relative to the amount of illumination present. In one group, productivity continued to increase as illumination decreased, even to the point that the workers complained that they were hardly able to see what they were doing.

These results led to the second phase of the Hawthorne studies, the relay assembly room studies.<sup>29</sup> In these studies, the researchers isolated small groups of workers to control for factors they believed biased the illumination studies. The job the researchers chose to study was the assembly of telephone relays. Putting together the assembly fixture was highly repetitive but required considerable motor skill. During the course of these experiments, the researchers tested the effects of many different types of work–rest cycles. For example, manipulations included 5-minute breaks in the morning and afternoon, 10-minute breaks in the morning and afternoon, a series of six 5-minute breaks, and a 15-minute break in the morning and a 10-minute break in the afternoon. Regardless of the type of rest break introduced, productivity increased over the baseline levels found prior to the interventions. In the next phase of the relay assembly studies, the researchers investigated the effects of shortening the workday on worker productivity. The manipulations included shortening the workday by 30 minutes (with rest pauses) and the workweek by one-half day (with rest pauses). Again, productivity rose regardless of the changes in the length of the workday.

The tendency of workers to increase their productivity regardless of the changes made in the rest breaks and length of the work day suggested to the researchers that there were social forces influencing work output more than the factors in the physical environment that they previously considered so important. To test this possibility they launched the bank wiring room studies. Based on observations of 14 men engaged in the assembly of wiring banks, the researchers found that the workers had developed a concept of a “proper day’s work” and pressured any peer who did not comply with the group’s standard. This social pressure was particularly evident for those workers who attempted to exceed the group’s output quota, that is, the “rate busters.” Researchers and management expected that higher pay for higher output would increase productivity and were surprised that incentives did not produce these results. The rational course of action was to produce more to make more money, but the workers apparently went against their own best interests to win the approval and avoid the criticisms of their co-workers. These and other observations led them to conclude that social factors indeed were a powerful influence on individual worker productivity.

The research produced a new perspective on work organizations (Dessler, 1980). The results of these studies made behavioral scientists aware for the first time that monetary incentives and the physical work environment are not the only factors that affect worker behavior. Indeed, the results suggested that peer pressure, informal group dynamics and recognition, and personal feelings of freedom and self-worth are more important than impersonal structural features, such as work methods and management control. Although these studies were flawed, they provided a fascinating example of how psychologists can

apply the scientific method to organizational questions. The cumulative findings of the entire series of studies conducted at the Hawthorne plant led to several radical insights that departed from Classical and Scientific Management (Roethlisberger & Dickson, 1939):

- (1) Employee attitudes and morale are crucial to employee productivity. A satisfied worker is a productive worker.
- (2) Employees' work more for acceptance and social recognition than for money.
- (3) The informal work group is a major determinant of productivity.
- (4) It is employees' perceptions of the situation that are important, not objective reality. For instance, after being asked what they thought of the food in the cafeteria, some employees perceived improvements even though nothing had been done.
- (5) The technical and human components of the organization are interrelated and interdependent. Management must consider both when implementing changes.
- (6) In dealing with worker resistance, management does not need to relinquish control or change the organization. Instead, good human relation practices reduce resistance and increase workers' acceptance of management's goals.

### **The Early Human Relations Movement**

We know Mayo, Roethlisberger, and the other researchers in the Hawthorne studies as the founders of the Human Relations movement. According to this school of thought, the manager should possess skills for diagnosing the causes of human behavior at work, interpersonal communication, and motivating and leading workers. The focus became satisfying worker needs. If worker needs were satisfied, wisdom held, productivity would rise. Thus, the Human Relations school focused on issues of communication, leadership, motivation, and group behavior, and this thinking still influences management theory and practice.

Some basic ideas of the Human Relations movement (also called Mayoism) were:

- (1) Supervisors should act as friends and counselors to the workers. They should use humor to engage workers in friendly interactions. By satisfying employee needs for acceptance and security, such treatment will motivate them to cooperate with management.
- (2) The primary concerns of managers are the people, not productivity. Showing concern for people will achieve higher levels of productivity in the end than an overriding concern for productivity.
- (3) Managers should ask workers how they feel about their work and their supervisors. They can survey worker attitudes through informal conversations as well as in formal interviews and surveys.
- (4) Management should consult workers before changing things in the workplace. Allowing employees to participate will reduce resistance to management.
- (5) Managers must accept and encourage group dynamics in the workplace. Groups are not an impediment to productivity but are vehicles for achieving high levels of productivity.

The Human Relations movement, especially in the form of "Mayoism", did not escape criticism. Skeptics questioned the soundness of both the science and the thinking underlying this approach (Bruce & Nyland, 2011). To the extent that the

movement relied on the findings of the Hawthorne studies, critics have noted that the researchers gave a one-sided interpretation to the data collected in this research and overemphasized the need for worker–management harmony. Critics also have targeted the flaws in the design and execution of the experiments and the many deviations from good research design. Perhaps the most glaring error was that there was never an attempt to randomly assign workers to experimental and control groups. Instead, workers were chosen for the experimental groups because they were congenial and productive. In the course of the experiments, the researchers and management gave preferential treatment to these already superior workers. The number of workers actually studied was so small that sample size precluded any generalizations to the larger organization.

Other criticisms of the Human Relations movement included:

- (1) It was a “cow psychology” in which workers were treated as contented cows to increase their milk production.
- (2) It did not acknowledge that there were genuine conflicts of interest between management and employees within organizations. These conflicts required serious negotiation and simply smoothing over the conflicts with human relations was not likely to resolve them.
- (3) It was manipulative. The human relations approach often accepted management decisions as given and the objective of human relations was to reduce resistance to these decisions.
- (4) It was based on degrading and humiliating assumptions about workers. They were viewed as irrational children whose management could coax into high levels of productivity through human relations.

Bruce and Nyland (2011) described Mayo and the Human Relations Movement as treating “workers as irrational, agitation-prone masses susceptible to ‘socialistic’ radicalism and, so, unfit for “voice” in the workplace. ... he likened workers to shell-shocked soldiers in need of serious psychological/psychiatric attention. Crucially, Mayo dismisses workers’ calls for better wages and conditions and a “voice” as ‘socialistic radicalism’ and as symptomatic of some deeper psychosocial maladjustment”. (p. 289)

In spite of these well-warranted criticisms of the Hawthorne studies and the Human Relations approach, both had a profound and enduring influence on the study of worker behavior. Their significance lies not so much in the specific results or conclusions, but in the ways they shaped future research. Indeed, the topics of work motivation and job attitudes probably would not have emerged – at least not in their present forms – if the Hawthorne studies had not convinced behavioral scientists of the pervasive effects on both organizational and personal functioning.

### **The Neoclassical and Other Notable Organizational Theorists**

Other theorists emerged during the middle years who questioned whether management should accept the Classical and Scientific Management approaches completely. Similar to the Human Relations movement, none of these theorists rejected outright the ideas of centralized authority, specialization, and many of the other principles of the early years. However, they all pointed to limits of these approaches and advocated a kinder, gentler, and somewhat looser form of the Classical and Scientific Management approaches. These

were the Neoclassical theorists. They approached organizational theory from a new perspective but kept many of the tenets of the classical approach.

**The unanticipated consequences of bureaucracy.** During the 1930s, 1940s, and 1950s several social scientists, including Merton (1940), Selznick (1949), and Gouldner (1954), identified unintended consequences of implementing the recommendations of the Classical and Scientific Management theorists, based on intensive case studies of organizations. Merton (1940) observed that efforts to control behavior of employees in an organization following the dictates of Classical and Scientific Management generally succeed in increasing the reliability and predictability with which employees meet customer or client demands. In the end, however, the same factors that improve customer service lead employees to depersonalize clients, internalize the rules of the organization, and ignore alternative solutions to problems. Other unanticipated consequences include defensiveness and concern with organizational status.

Selznick (1949) observed that there are unanticipated consequences associated with the classical principles of specialization and departmentation in the design of the organization. Fayol and others recommended as part of their principles that the CEO create functional units or departments (e.g., marketing, production, human resource management, accounting, etc.) and delegate to the heads of those departments the authority to make important decisions. Middle and lower management use strategies and policies to guide their day-to-day decisions, thereby reducing the workload of the top person. Management assigns specialized duties to employees, trains them to perform these activities, and gives them subgoals to pursue that are compatible with overall organizational goals. All of this sounds fine, but an unanticipated consequence is that the employees within these specialized units and roles tend to lose sight of the overall organizational objectives and place increasing importance on their own subgoals. Conflict among units ensues. Each unit attempts to justify and rationalize actions in a way that distorts reality and detracts in the end from effective performance.

Gouldner (1954) focused on the unanticipated consequences of general and impersonal rules. Specific rules define what employees should and should not do. They improve the reliability of performance but also identify minimally acceptable behavior. For instance, salespersons given a rule to make at least three cold calls to potential customers per day may then focus on this minimum and do no more than three cold calls. This unanticipated consequence then provokes closer supervision and this, in turn, increases the interpersonal conflict and tension between supervision and employees. The conflict only further increases the closeness of the supervision and the cycle continues to the detriment of employee performance.

**Barnard's cooperative systems view.** Chester Barnard was an executive with extensive experience in both public and private sector management.<sup>30</sup> Yet, unlike the early classicists, the emerging work of social scientists shaped his views in addition to his personal experience. In fact, his principal contribution was the attempt to reconcile the contradictory Classical and Human Relations views through his concept of natural cooperation. For Barnard (1938), the essence of organization is the existence of a shared goal or purpose, and the primary responsibility of the executive is to:

- (1) to create and maintain a sense of purpose and moral code for the organization;
- (2) to establish systems of formal and information communication; and
- (3) to ensure the willingness of people to cooperate.

An organization is effective to the extent that employees are loyal to the goals of the organization. Unless members put the organizational goals ahead of personal goals, the organization has little to offer society or its members and is unlikely to survive. A basketball team exists primarily to win games; a business, to make a profit; a government, to serve its public. If the members are preoccupied with scoring points, amassing personal wealth, or achieving political power to the detriment of the shared objective, no one wins. At the same time that members must share objectives, an organization also must recognize the needs of its members, and the fulfillment of these needs is often in direct conflict with the shared purpose. Moreover, formal authority is of little value unless subordinates accept it. Disgruntled workers can restrict production, engage in sabotage, or simply quit. It is management's responsibility, therefore, to give individuals a fair return on their personal investment in terms that matter to them. In so doing, it ensures their compliance. It is also management's responsibility to "sell" subordinates on the collective purpose and to help them see their stake in it. The college coach must convince her recruits that they must pass off more often and concentrate on defense if they are to win at the college level even though her players were all-star point scorers in high school. Barnard believed that organizations needed rules, procedures, reporting relationships, managerial authority, and all the other recommendations of the Classical and Scientific Management approaches. However, he also believed that these were not enough to ensure success unless the recipients of those orders and directions were willing to cooperate. Barnard distinguished among three types of orders:

- First are those that lie within what he called the zone of indifference. Subordinates accept these orders without question and always obey them. Habit, conventional norms, and apathy are among the reasons that an individual might accept an order without question. There are many orders involving routine duties that are in an employee's job description and that they perform without resistance. An employee working an 8–5 schedule is unlikely to question showing up for work by 8 am and leaving at 5 pm. Moreover, a supervisor does not need to tell the employee each day when to show up and when to leave.
- Second are orders that may lie within the zone of indifference but come close to being unacceptable. These are orders that employees may or may not follow. Employee characteristics and the informal organization define what is acceptable and unacceptable. An employee working an 8–5 schedule may have reservations when told to come in an hour early. He may go ahead and do so. Much depends on whether he believes the early arrival is necessary and compliance will not lead to exploitation. If management continues to order an early arrival, however, it eventually falls outside the zone of indifference and the employee resists.
- Third are those orders that are outside the zone of indifference and are not acceptable to employees. They will result in disobedience.

The key point in Barnard's theory is that all facets of an organization (individual and social, formal, and informal) are concerned with achieving cooperation in pursuit of a common goal. In essence, both workers and managers take their orders from the requirements of the situation. An employee arbitrarily told to show up early and work late eventually balks at the order. Good leaders seek the middle-of-the-road positions where cooperation is assured or extend the zone of indifference through persuasion and good human relations. They avoid those issues that are far outside the zone of indifference.

**Mary Parker Follett (1868–1933).** Follett was a Harvard professor of social work who was among the very few women in the early years who rose to prominence as a management consultant.<sup>31</sup> Consistent with Barnard, she advocated a focus on human relations in which managers would use power as a principle of “with” rather than a principle of “over.” The power of the manager did not accrue as the result of asserting rewards and punishments of the legitimacy of the office held. Rather the power of the manager derived from how the manager functioned in the position. She was also the first to identify the groupthink effect, brainstorming as a creativity exercise, an early form of MBO (Management by Objectives), and the notion of Total Quality Management/Continuous Quality Improvement (TQM/CQI). She was a strong advocate of empowering employees by sharing power with them. In *Dynamic Administration* she observed that “The best leader knows how to make his followers actually feel power themselves, not merely acknowledge his power” (Metcalf & Urwick, 1942). Although Follett did not influence U. S. management practices as much as Barnard did, Japanese managers discovered her writings in the 1950s and credit her for helping them rethink their management styles.

### **The Post-WWII Era (1945–1990)**

Accelerating change and turmoil marked the post-WWII years (1945–1990). The field of I/O psychology matured into a distinct subdiscipline of psychology along with other more established subdisciplines such as clinical, social, and experimental psychology. During this period, I/O psychologists increasingly identified with the human resource management wing (the I of I/O) or the Organizational Development wing (the O of I/O). The scientific method guided the efforts of both wings, leading to an explosion of research on leadership, group dynamics, personnel selection, performance appraisal, and all the other topics covered in this book. Much of the work during the two decades following WWII built on the contributions of psychologists during the 1920s, 1930s, and WWII. For instance, some psychologists were busy developing and evaluating psychological tests and constructing increasingly sophisticated statistical tools. Other psychologists were engaged in research testing notions about leadership and group behavior that sprung from the Human Relations Movement.

#### ***What Were the Major Forces Shaping Work during the Post-WWII Years?***

These changes did not occur in a vacuum but in a context defined by historical, social, and economic changes. Three events seem particularly important in the two decades following WWII: economic growth and the dominance of the United States, the Cold War, and the space program.

#### **Economic Growth and the Dominance of the United States**

The post-war period ushered in a sustained economic boom that was to extend, with minor fluctuations, over most of the next three decades. The birth rate rebounded dramatically from the depressed rates of the 1930s (the so-called “baby boom”). Labor unions continued to grow in membership and influence and the standard of living in the United States became the envy of the world. Buoyed by military success, yet conscious of the devastation that the war had wrought on friend and foe alike, the old spirit of self-confidence returned, together with a healthy sense of compassion.

Before WWII, Americans believed they could do nicely without the rest of the world and that they should not attempt to influence the affairs of other nations. Subsequent events overwhelmed the isolationist position. Comprehensive economic aid plans for war-torn Asia and Europe were implemented and supported enthusiastically by the public. Undoubtedly, forward-looking business leaders also realized that such restoration represented an initial step toward opening vast new markets for their wares, although this was of little immediate consequence given the pent-up demand for goods and services at home. What even the most enlightened failed to anticipate was that the restoration of Japan and Western Europe would also bring serious economic competition.

### **The Cold War**

Among the most significant of all the consequences of the war were the economic and political division of the world along capitalistic-communistic lines, the emergence of the Soviet Union as a superpower, and the threat of nuclear war. For the next 45 years, the Cold War isolated Eastern from Western societies and created on both sides a sustained atmosphere of fear, political competition, and military escalation. Military spending became a dominant force in the economies of both the United States and the Soviet Union as U. S. President Dwight Eisenhower foresaw when he warned in his farewell address against uncontrolled growth in the military-industrial complexes ([https://en.wikipedia.org/wiki/Eisenhower%27s\\_farewell\\_address](https://en.wikipedia.org/wiki/Eisenhower%27s_farewell_address)). Psychological research was a beneficiary of this spending as the military services sought behavioral means to improve the effectiveness of fighting forces.

### **Space Exploration**

Closely associated with the Cold War was the space exploration race between the former Soviet Union and the United States. In the 1950s, the apparent winner was the Soviet Union, and the threat of Soviet military platforms orbiting the earth and on the moon triggered a massive effort on a national level to upgrade education at all levels. Fueled by fears that the Soviet Union would dominate space, President John F. Kennedy in 1961 set as a goal the landing of a man on the moon by the end of the decade<sup>32</sup>. The National Aeronautic Space Administration (NASA) funded research on such topics as team behavior, human stress, and other topics critical to the success of manned space-flight and was a major stimulus to I/O psychology research, theory, and application. In the end, the United States won the race to the moon, but the application of I/O in this area continues.

NASA consisted of teams of engineers, scientists, and technicians engaged in what seemed an impossible mission: developing and launching manned spacecraft and landing men on the moon by the end of the decade. This was a daunting technological challenge that required new approaches to managing human performance and organizational structure. A spinoff of the NASA achievements was the matrix organization. The old classical model in which managers and employees were held to a strictly hierarchical chain of command did not work in coordinating the efforts of engineers and scientists on a task as complex as transporting men to the moon. An organizational design was needed that would allow teams of employees to coordinate their efforts in the various details of the space mission, encourage creativity, and at the same time maintain control over the entire process. NASA created a new type of organizational structure to meet these demands – the matrix organization. This new type of organization required a much more complex view of the organization than those set forth in the classical and human relations approaches.

Ford and Randolph (1992, p. 272) provide a working definition of a matrix organization: “cross-functional organizational overlays that create multiple lines of authority and that place people in teams to work on tasks for finite periods of time.” The matrix organization is an attempt to capitalize on the advantages of organizing around projects and functional organization while minimizing the downsides to each. In the traditional functional organization, each part of the organization (e.g., marketing, research, and manufacturing) may lose sight of the products or services that the organization is trying to generate. In the project organization, there are usually inefficiencies in coordinating the various functions. To avoid the downsides of each type of organization, the matrix organization combines the project and functional structures. Each project manager in this structure is responsible for completing the project. The functional managers are responsible for marshaling the functional resources needed at various stages of the project. In violation of the classical principle that each employee reports to one and only one manager, each employee in a matrix organization reports to two managers. In Fig. 1.2 there is a functional structure represented by research, production, marketing and research and a project structure represented by three project teams. Each employee reports to a functional manager as well as a project manager. The complexity of the matrix made it apparent that these organizational structures would require new approaches to managing people and new ways of thinking about organizations.<sup>33</sup>

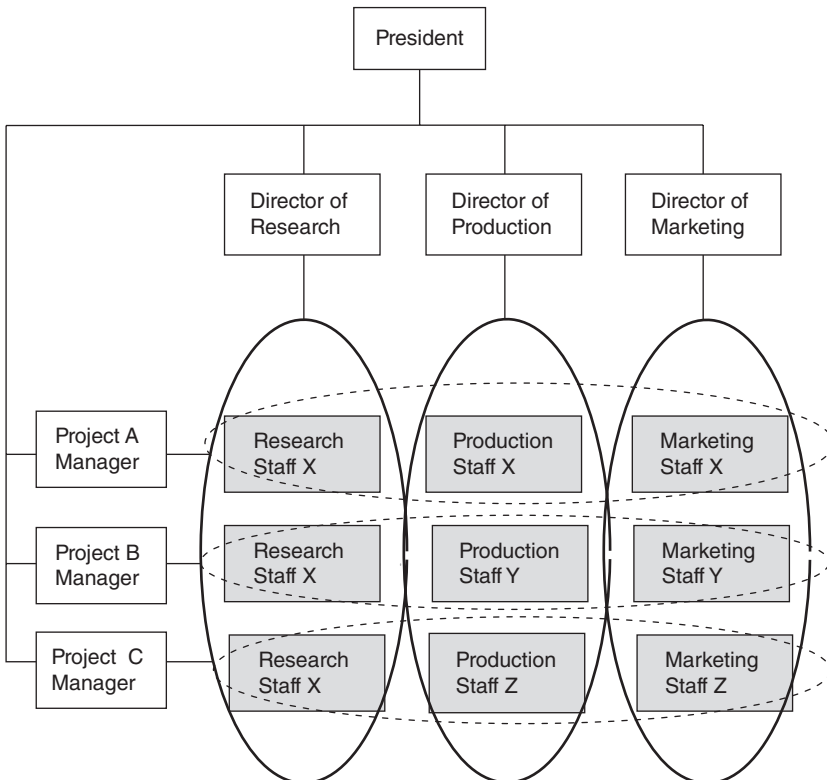


Fig. 1.2. A Matrix Organizational Structure.

### **Protest and Social Activism**

Although the immediate post-WWII period was one of sustained prosperity in the United States, the contrast between the “haves” and “have nots” was never more visible. The United States and other nations were forced to come to grips with their discriminatory treatment of minorities and women. And, most disturbingly of all, a society that prided itself on its orderly, civilized institutions of governance and justice suddenly found itself replacing leaders through assassination and forcing change through violent protest. The whole fabric of U S society seemed to come apart at the seams. Violent disagreement over the Vietnam War, civil rights, economic policy, environmental policy, consumer affairs, and many other issues split society into polarized factions. The baby boomers, the most vocal demographic group, forced the United States and other societies to take a hard look at the collective values that had been taken for granted.

The implications of all this for organizations and I/O psychology were profound. The prevailing attitude among young people about to enter the workforce was that profit-making organizations and many other institutions were immoral. They saw them as part of the establishment that gave us war, poverty, discrimination, and pollution purely to satisfy selfish motives. Companies found recruiting very difficult, and the young people they were able to attract were difficult to assimilate into the traditional corporate culture. This new breed of employees had its own ideas about personal appearance, lifestyle, and corporate values. They tended to question authority. It was not an easy time for managers raised in the classical tradition. Other longstanding traditions were challenged as well, such as the organization’s prerogative to hire, promote, and fire whomever it wished. Out of the turmoil came a mass of legislation and case law on civil rights, and a federal agency, the Equal Employment Opportunity Commission (EEOC), to implement it. Companies were forced to break old patterns of discrimination against women and minorities, although in most cases not without considerable resistance.

Not surprisingly, the management philosophies and personnel management techniques that were dismissed in earlier years as impractical resurfaced under these chaotic circumstances. The climate was right for organizations to consider new ways of managing their affairs. In many instances they had no choice. The new generation of employees, civil rights laws, declining productivity, and foreign competition were the new realities; something had to be done.

### ***What Was Happening in Psychology during the Post-WWII Era?***

Psychology continued to grow and thrive after WWII, but the early dominance of the behavioristic school of thought gave way to theory that emphasized the role of human thought. The cognitive revolution, which began in the 1960s and continued through the 1970s and 1980s, emphasized how people perceive and make sense of their world as a cause of their behavior (Neisser, 1967). All of the subdisciplines of psychology were affected, including clinical, social, and I/O psychology. Perhaps the best example was the work of Albert Bandura and Walter Mischel at Stanford University. Bandura’s social learning theory proposed that people more frequently learn from observing others rather than from the rewards and punishments they receive. Moreover, people process information and derive meaning from what they observe, and the resulting mental states determine their subsequent behavior. For instance, Bandura, Ross, and Ross (1961) found that children were more likely to behave aggressively after observing models act aggressively and receive rewards for their behavior. Mischel, Ebbesen, and Zeiss (1972) conducted a famous experiment on delay of gratification in which they found that children who were

able to delay gratification did so by means of cognitive processes. Tversky and Kahneman (1974) found that people rely on cognitive heuristics or shortcuts in processing information, research that ultimately led to the award of a Nobel Prize. These and other psychologists convincingly debunked the radical behaviorist notion that all behavior could be explained with objective stimuli and responses without resorting to intervening mental processes.

### ***What Were the Theories of How to Organize and Manage Work in the Post-WWII Era?***

Turbulence and rapid change led to the emergence of more complex views of organizations in the 1960s. In contrast to the closed systems assumptions of the Classical/Scientific management and the Human Relations movement, theorists increasingly viewed organizations as open systems. To understand and effectively manage people in organizations one had to take into account the cultural, political, economic, and technological contexts of the organization. Moreover, managers had to approach the organization as an interdependent set of systems consisting of people, groups, organizational structure, and technology. Changes in one part of this system had implications for other parts of the system. Rather than asserting one-best way solutions, the research identified the conditions under which a Classical/Scientific management or a Human Relations approach is effective. Rather than universalistic theories, contingency theories of organizations and management tended to dominate thinking and practice.

### **The Rise of Organizational Psychology**

In the decade following WWII, I/O psychologists concentrated on human resource management (the I side). They conducted research on assessment tools and programs management could use in job analysis, compensation, performance evaluation, personnel selection, and training. This work lacked a theoretical foundation and led to accusations of “dustbowl empiricism” in which psychologists accumulated data without any unifying conceptual frameworks to provide coherence to the mass of findings. With the emergence of organizational psychology, the focus shifted to theory and research that examined the interplay among individual, group, organizational, and contextual factors. Organizational psychologists realized that no one discipline had the complete answer either to the question of what organizations are or how management should design and manage them. They drew liberally from disciplines besides psychology, including anthropology, sociology, political science, and even economics. Three organizational perspectives were dominant in the post-WWII years: the Modern Human Relations, Decision, and Open Systems/Contingency theories.

### **Modern Human Relations Theorists**

In the post-WWII years, a new human relations movement emerged. Perhaps the most important difference between the Modern Human Relations theories and the earlier movement was that the modern approaches advocated changing the organizational structure to increase employee participation and involvement, in contrast to the earlier approaches that saw human relations as a way of gaining cooperation without changing the organization. The applied field of Organizational Development emerged using the Modern Human Relations theories as the conceptual foundation and the organizational psychologist as change agent. Kurt Lewin, Douglas McGregor, Rensis

Likert, Chris Argyris, and Warren Bennis were five of the more important of these theorists.

The leading intellectual leader of the Modern Human Relations movement was Kurt Lewin, a social psychologist who immigrated to the United States from Germany in the 1930s.<sup>34</sup> His research and theory provided the foundations for the study of group dynamics, attitude change, and leadership. In the late 1940s, he helped establish the National Training Laboratories in Bethel, Maine (the United States). According to Lewin, to change organizations, groups, and individuals, the change agent analyzes the current situation as an equilibrium point and identifies the forces that are working for and against the change. The agent acts to unfreeze the target, implements a move to the desired position, and then refreezes the target at a new point of equilibrium. Often this means creating new group norms and using member pressures to promote and maintain change.

Douglas McGregor was a professor at the MIT Sloan Management School who was influenced by Lewin's research and theory and became a leading proponent of the Modern Human Relations movement. McGregor proposed that assumptions about human nature were responsible for management's treatment of employees.<sup>35</sup> Theory X, as he called the traditional approaches, assumed workers are untrustworthy, lazy, and motivated primarily by money. These assumptions were probably appropriate at the time, but in the post-WWII years, McGregor believed a Theory Y approach was needed in which employees were assumed to desire challenge, autonomy, and responsibility. If management creates a work environment that allows fulfillment of these needs, employees will respond with high levels of motivation and creativity. Unlike the older Human Relations Movement, McGregor proposed fundamental changes in organization to incorporate Theory Y. These included employee participation in decision-making, job enrichment, goal setting, autonomous work teams, and employee development. He stated his views in *The Human Side of Enterprise*, a bestseller and one of the most influential management books of the twentieth century (Head, 2011). McGregor (1960, p. 56) stressed that:

Acceptance of Theory Y does not imply abdication, or "soft" management, or "permissiveness"... Theory Y assumes that people will exercise self-direction and self-control in the achievement of organizational objectives to the degree that they are committed to those objectives

Rensis Likert (pronounced Lick-urt), a University of Michigan professor and social psychologist, was another proponent of the Modern Human Relations movement and was among the most influential social scientists of the era.<sup>36</sup> He distinguished among four leadership styles. The exploitative authoritative imposes a decision and motivates through fear. The benevolent authoritative also makes decisions without follower input but motivates with rewards. The consultative seeks follower input but makes decisions without any real engagement of followers. The participative leader fully engages followers in making decisions and seeks to build strong teams. According to Likert (1967, p.64):

a manager who has high performance goals and excellent job organization but who relies solely on economic needs and direct pressure to motivate his men is very likely to be to be disappointed by their achievements ... the greater the loyalty of the members of a group toward the group, the greater is the motivation among the members to achieve the goals of the group, and the greater is the probability that the group will achieve its goals.

Likert advocated participative leadership as the most effective approach. In a famous case study, he and his colleagues completely overhauled the management style of Weldon Company, a failing textile manufacturer. Although there are alternative explanations for what happened at Weldon, its profitability did improve and the increased supportiveness and participation of management were widely cited as reasons (Likert, 1961; Marrow, Bowers, & Seashore, 1967). The Weldon study was widely publicized, and the hit musical *The Pajama Game* used the factory as a model for the workers depicted in the movie and Broadway production.<sup>37</sup> Rensis Likert (1903–1981) is perhaps best known for inventing a 7-point rating scale called the Likert scale. He also advocated structuring organizations around linking pin positions consisting of managers who are leaders of one unit and members of another unit. Structuring the organization around overlapping groups and the use of linking-pin positions to manage the boundaries to facilitate lateral relationships are consistent with matrix organization thinking.

Chris Argyris (1964) was another psychologist who contributed to the Modern Human Relations movement.<sup>38</sup> He theorized that normal healthy progression in human development is often reversed when adults enter an organization. Healthy human growth moves from passivity and dependence as an infant to increasing self-determination and the assumption of responsibility during the adult years. When a person enters an organization, he or she is assigned to a narrow set of tasks and is forced to regress to a state of childlike dependence. According to Argyris (1957, p. 1):

formal organization is defined by the use of such principles as task specialization, unity of direction, chain of command, and span of control, then employees work in a situation in which they tend to be dependent, subordinate, and passive to a leader. This type of situation may create frustration, conflict, and failure for the employee. He may react by regressing, decreasing his efficiency, and creating informal systems against management.

The principles of management advocated in classical management theory frustrate the inherent needs of humans to grow as individuals and as a defense mechanism, the employee becomes passive, withdrawn, and apathetic. Consequently, the lazy worker stereotype of the autocratic manager becomes a self-fulfilling prophecy in which the autocratic actions of the manager are responsible for the perceived laziness of the worker. Similar to Likert and others in the human relations movement, Argyris recommends a managerial style of openness, authenticity, and employee participation.

Warren Bennis (1969) is a fourth organizational psychologist who was an advocate of the Modern Human Relations movement.<sup>39</sup> He proposed that with an increasingly complex society and technological innovations, organizations need to become more democratic and engage employees as partners in decision-making rather than as subordinates. He described democratic management in terms of the following characteristics:

- authentic and open communication among all employees, regardless of their rank.;
- resolving conflict through problem solving and consensus rather than by forcing solutions or avoiding conflicts;
- influencing people through personal expertise and technical competence rather than using rewards, punishments, and one's office or title; and
- creating an organizational climate where people feel free to express emotion.

Bennis stressed the role of the visionary leader:

I believe all exemplary leaders have six competencies: They create a sense of mission, they motivate others to join them on that mission, they create an adaptive social architecture for their followers, they generate trust and optimism, they develop other leaders, and they get results (2007, p. 5).

Other scholars in addition to these individuals could be discussed, including Alfred Marrow, John French, Kurt Lewin, Stanley Seashore, and John Coch. All of them contributed to the growth of organizational psychology (the O of I/O psychology) in the decades after WWII. Unlike the proponents of early Human Relations Movement, these Modern Human relations scholars were researchers as well as theorists. Also, in contrast to the focus on the supervisor–subordinate relationship in the early Human Relations Movement, the organizational psychologists of this period also targeted the organization. Organizational psychologists still adhered to the humanistic principles of the Human Relations Movement, but consistent with open systems thinking, they brought attention to the fact that simply changing supervisor behavior is unlikely to succeed without changing other aspects of the organization.

### **The Decision Theorists**

Another group of psychologists who proposed radical new ways of thinking about organizations in the post-WWII years were the information processing and decision-making theorists. Their ideas were partly economic and partly psychological. They conceived of organizations as decision-making entities but departed from the assumption of classical economic theory that individuals and organizations operate as rational economic creatures who attempt to maximize positive outcomes in their choices. In contrast to this traditional view, a school of thought championed by Herbert Simon, a Nobel-prize-winning psychologist/political scientist, and James March, an organization theorist, argued that neither people nor organizations make strictly rational decisions (Cyert & March, 1963; March & Simon, 1958). They have limited information-processing and gathering capability and only a vague sense of what they really want. People “satisfice” rather than “optimize,” to use Simon’s (1957) terms. People make decisions based on what Simon (1957) called “bounded rationality”:

Whereas economic man maximizes – selects the best alternative from among all those available to him, his cousin, administrative man, satisfices – looks for a course of action that is satisfactory or “good enough.” (Simon, 1976, p. xxix)

The organization behaves even less like a rational, goal-directed entity than individuals. Composed of a host of individual and collective goals, many in direct conflict with each other, it functions as a loose, shifting coalition that makes do in the present rather than following a charted course to some future goal. When it succeeds, it does so by incremental improvements over its present condition, not by systematic pursuit of a well-defined objective. March and Simon’s (1958) view suggests, among other things, that a person must understand human cognition, motivation, and influence mechanisms to manage effectively. Moreover, designing organizations to function optimally in a rational sense cannot begin to achieve the hoped-for results if it ignores the satisfying nature of human decision-making.

A theorist who based his own theory of organizations on these developments in decision-making and information processing was the sociologist James D. Thompson

(1967). He proposes in *Organizations in Action* that a basic human desire to reduce uncertainty drives the design and management of organizations and the decision-making of managers. Closed systems models of organizations reflect this tendency to reduce uncertainty by imposing universal assumptions about human nature. For example, Classical/Scientific Management assumes that money motivates all people and management must closely supervise them. The Human Relations School assumes that social needs motivate all people management should make them feel wanted and loved.

To quote Thompson:

the organization has a limited capacity to gather and process information or to predict the consequences of these alternatives. To deal with situations of such great complexity, the organization must develop processes for searching and learning, as well as for deciding. The complexity, if fully faced, would overwhelm the organization. Hence, it must set limits to its definitions of situations; it must make decisions in bounded rationality. This requirement involves replacing the maximum-efficiency criterion with one of satisfactory accomplishment - decision-making now involves satisficing rather than maximizing. (Thompson, 1967, p. 9)

### **The Open Systems/Contingency Approach**

So far, I have discussed two contrasting approaches that emerged from the experiences, research, and theorizing of managers and social scientists in the first half of the twentieth century. As already discussed, the Classical and Scientific Management theories were dominant in the early years. These theories depicted the organization as a machine that runs best when there is authoritarian leadership, highly specialized tasks, technical supervision, a focus on individual employees, a hierarchical structure, centralized decision-making, and the use of monetary incentives. The early Human Relations Movement (i.e., Mayoism) suggested psychological ways of gaining acceptance and reducing resistance to this approach. The Modern Human Relations approach emerged during the post-WWII years and viewed the organization differently. This approach stated that organizations are not machines but collections of people whose needs and attitudes are important. From this perspective, the ideal organization is participative, engages employees in interesting and challenging work, emphasizes the human relations skills of supervisors, is focused on managing groups of employees rather than individual employees, uses an organizational structure that contains relatively few levels and is decentralized, and uses higher-level human needs such as social and self-esteem needs to motivate employees.

All of these approaches had insights into the management of people in organizations that were correct, useful, and fit the societal events occurring at the time they emerged. All were also simplistic in light of the turbulence and instability of the post-WWII period. In a closed system, there is relative certainty about what is happening and what managers should do. Closed systems thinking is tempting because there is little need to worry about unexpected events inside and outside the organization. Such thinking probably made sense in simpler times, but in the context of the increasingly complex and unstable environments with which organizations must contend, closed system thinking is vulnerable to disastrous, unexpected events.

An understanding of the true complexity of work organizations gradually began to emerge in the post-WWII years and the insufficiency of simplistic prescriptions such as

those offered by either the mechanistic or the Human Relations Movement became apparent. The research in the two decades after WWII made clear that while each is appropriate in some situations, neither approach is universally correct. You cannot ensure effective management by making workers happy and capitalizing on informal group processes any more than you can by planning and directing their every move. The best way of designing and running an organization depends on a host of considerations at the individual, group, and macro-organizational levels. This general philosophy is the Open Systems/Contingency approach. This third approach combines many of the elements of the organizational psychologists of the 1945–1965 period and the decision theorists. It evolved directly from the knowledge accumulated from scientific research and remains dominant to this day (Scott, 1987). Open Systems/Contingency theorists reject universality, identify contingencies, and attend to the interdependencies among subsystems and between the organization and the environment.

**Contingencies.** Open Systems/Contingency approaches assume that there are alternative ways of reaching the same goal and reject the universality of the solutions proposed in the Classical and Scientific Management as well as the Human Relations Movement. In the Open Systems/Contingency approach, the best approach is contingent on the situation. What works in one situation may not work in another and in deciding what to do you must carefully consider the situational factors at work. Determining these situational factors requires research. Much of the discussion in this book is devoted to the findings of research that led to contingency statements about work motivation, work-related attitudes, motivation, work groups, leadership, selection, performance appraisal, stress, and other topics in I/O psychology.

**Open Systems Are Embedded in an Environment.** As depicted in [Fig. 1.3](#), the open systems approach depicts the organization as existing in various environments. The Classical and Scientific Management theories as well as the early and Modern Human Relations movement ignored the environments of the organization. The environment of the organization refers to all those things that are outside the organization that influence how the organization functions, including the economic, political, legal, cultural, technological, and other contexts in which the organization must operate. Unlike a closed systems approach, an open systems perspective recognizes what is outside the boundaries of the system and the organization's attempt to adapt to the environment. If there are changes in the customer base, labor market, prime interest rate, or government regulations, the system knows about it and responds. In fact, it attempts to anticipate the changes to respond early enough to cushion or avert the blow. For example, an auto manufacturer might conduct market surveys to determine how potential buyers (customers) would like a proposed change in the design of its automobiles. If the results indicated a strong negative reaction, the company might think twice before implementing it and avoid a costly mistake. It is important to recognize that the boundary separating the system from its environment is more than just the physical limits within which it operates. A boundary can have symbolic, cultural, and psychological features as well. Indeed, conceptual boundaries rather than physical boundaries, define political action groups such as the U. S.-based Black Lives Matter or the Tea Party movements. Environments also exist at the subsystem levels of the organization including the individual worker, work group and other departmental units, the technologies used, and other component levels of the organization. At the

level of the people in the organization, the environment includes contexts within the organization such as the work group, the department, and the organization as a whole, as well as contexts outside the environment.

**Interdependencies among Subsystems and with the Environment.** A supervisor using closed systems thinking can decide how to manage his workers without worrying about other workers in the plant, other work units, the nature of the technology, or events occurring outside the organization. The CEO using closed systems thinking can decide how to run the entire organization without worrying about outside forces or the complex interdependencies within the organization. Open systems thinking requires recognition of the interdependencies among component elements of the organization and forces outside the system (see Fig. 1.3).

Interdependency between two entities means that each influences the other. Interdependency exists between the internal components of the organization and the environment of the organization. Increased foreign competition is an environmental factor that may require the organization to change the size and composition of its workforce, its job descriptions, its compensation schedules, its management structure, and a host of other internal characteristics to continue functioning effectively. The existence of a strong labor union is another potential environmental factor that influences the people, technology, structure, and leadership of the organization. Still another potential environmental factor is government regulation of the selection, training, compensation, supervision, and other aspects of the management of employees in an organization. Other environmental factors, in addition to these, shape the people, technology, strategy, structure, and leadership of the organization. These internal factors, in turn, influence to some degree what

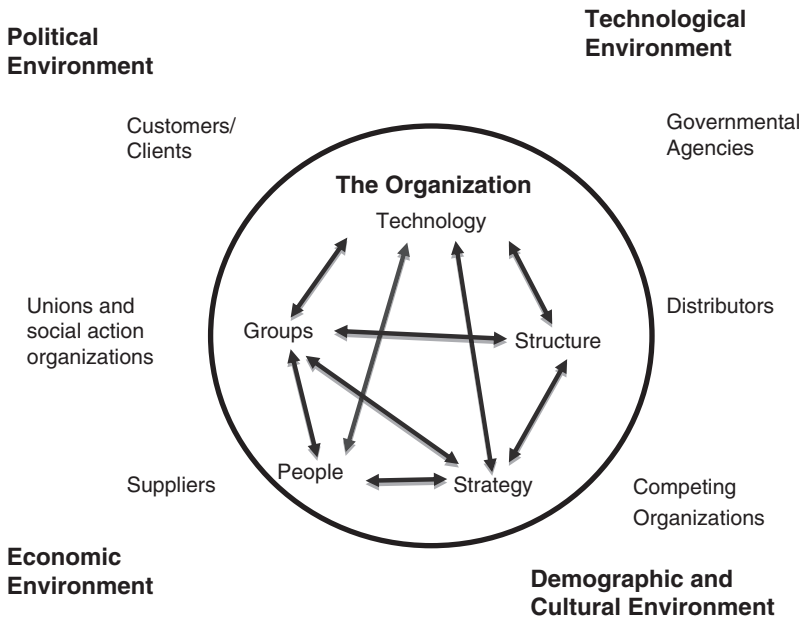


Fig. 1.3. Interdependence among Subsystems of the Organization and between the Organization and External Environments.

happens outside the organization. There are also interdependencies among the internal components of the organization (e.g., the people, technology, structure, strategy, and leadership of the organization).

An implication of interdependency is that changes in any one component (e.g., enrich or simplify the jobs, change leadership, introduce new technology, change the structure of the organization in the direction of more or less centralization) require taking into consideration the other interdependent components.

**Predictions from an Open Systems/Contingency Approach.** Open Systems/Contingency approaches propose that organizations will naturally evolve to cope with and adapt to the environment. How well organizations perform depends on whether the ways that they evolve fit the environment. Organizations characterized by high uncertainty tend to adopt structures and practices more in align with a human relations or humanistic model. On the other hand, organizations operating in environments characterized by certainty and routine tend to adopt mechanistic structures such as those proposed in the classical/scientific management theories. Not only do organizations tend to adopt these structures but also those organizations that deviate from these tendencies do not appear to perform as effectively as those that conform to these tendencies. Lawrence and Lorsch (1967) provided one of the earliest demonstrations. These researchers compared the structures adopted by successful and unsuccessful firms in two different industries. Firms in the container industry operated in more stable environments, and successful firms tended to have structures consistent with a mechanistic model (classical/scientific management). Firms in the plastic industry had to contend with more unstable conditions. The firms that were successful within this industry tended to have structures more in line with a humanistic model (i.e., a model consistent with a Human Relations approach).

Organizational theorists such as Tushman and Nadler (1978) attribute these differences to the information processing and decision-making occurring in each environment. Managers could use a vertical approach to these two tasks, such as advocated in Classical Theory and Scientific Management. An alternative is a horizontal approach such as advocated in the Human Relations (humanistic) approach (see Fig. 1.4). In organizations operating in environments where there is relatively little competition, a low level of technological innovation, and other characteristics of a simple, stable environment, the vertical mechanisms dictated in the Classical and Scientific Management approaches may well suffice. Consistent with these approaches, top-level managers could (1) require that all important matters pass through their hands for consideration, (2) impose rules, procedures, and other bureaucratic tools, (3) specialize work activities, and (4) motivate workers with monetary incentives. These vertical strategies emphasize efficiency of operations at the cost of flexibility and innovation. Vertical strategies also require respect for authority.

In a relatively simple, stable environment, all of this may work quite well. What happens, however, as environmental complexity and instability increase? A likely consequence is that top-level managers are unable to process the information or keep up with the rapid changes occurring in the environment of the organization. At this point, they attempt to process the information through horizontal procedures more characteristic of the Modern Human Relations approaches. Management could consult with workers and allow them to participate in decision-making. Managers may encourage communications that are more open rather than adhering strictly to the chain of command. These deviations from the hierarchical rule of an organization rely on the cooperation of the people involved, and to gain this cooperation, managers need to pay attention to



It is apparent that I/O psychologists are rising to the challenge in their research, theory, and applications.

### ***What Are the Major Forces Shaping Work during the Contemporary Era?***

Anyone 18 or older is familiar with the major events of this period. While the first two decades after WWII were characterized by U. S. economic and military dominance, unprecedented economic growth and optimism in the future, other events beginning around 1965 and continuing to the present time are reshaping both I/O and thinking about organizations. The “contemporary” begins in 1990 when the Cold War ended. The major forces shaping I/O psychology include globalization, computer technology and the internet, terrorism, and increases in population and resource scarcity.

#### **Globalization**

So far, discussion has focused on the dominance of the United States, politically, economically, and militarily. Although the United States is still the most powerful nation in the world, it now has competitors. Foreign competition in trade began to make significant inroads into the United States’ unchallenged leadership as supplier of the world’s manufactured goods. Former vanquished foes in WWII, the Japanese and Germans, are now major economic competitors. China and other nations in the Pacific Rim have emerged as the fastest growing economies in the world. In search of cheaper labor, many U. S. manufacturers have moved their operations overseas resulting in a major decline in employment in the areas of the United States such as Pennsylvania, Michigan, Ohio, and Indiana that were the centers for the production of automobiles, steel, and a variety of other goods. Due in part to increased global competition, the growth in productivity that the United States and the other major economic powers took for granted has steadily declined (<http://oecd.org>). In the past, corporations around the world were identified with one nation (e.g., U. S. Steel with the United States, British Petroleum with Great Britain). Most corporations now have a strong international component with operations and employees around the world. Among the implications of the globalization of trade is that I/O psychologists can no longer afford to look at human behavior in the workplace through exclusively North American lenses. I/O psychologists and other social scientists involved in the study of organizations were almost exclusively North American and British prior to the 1980s, but over the last three decades, academic programs in I/O and other organizational studies have emerged in Asia, Europe, and even the Mideast. Also occurring in the last three decades is a large increase in cross-cultural research on all the topics covered in this book.

#### **Computer Technology, Robotics, the Internet and Artificial Intelligence**

Another remarkable event is the accelerating change in computer technology in the workplace. Computers, which were once incredibly expensive machines occupying entire buildings, became tools accessible to the general population. Almost overnight in the 1980s, the computerized checkout counter became a standard retail store fixture and the computer workstation replaced the typewriter on every secretary’s desk. Now workplace technology includes computer networking, mobile technologies, and virtual reality, to name only three. It is hard to fathom the impact that computer technology has had on organizations and the workplace and even harder to project the future effects.

Information processing and decision-making demands are driving changes in organizational structure and management practices. Innovations in computer technology and the internet have increased the amount of data available to decision-makers and the capacity to process it quickly. This may dramatically change organizational design. The classical form of organization was one in which people are arranged in a pyramid with those at the top possessing the most authority and power. Orders and directives flow downward and communications are required to follow chain of command. The more complex the tasks and environments of the organization, the more levels in the hierarchy and the more specialization of the tasks were required to deal with the massive amount of information to process. Those at the bottom of the organization were responsible for day-to-day decisions about small matters, following the rules, procedures, and policies imposed from on high. Exceptions to the routine way of operating that were not covered by existing rules, procedures, and policies were kicked upstairs. This allowed those at the top to deal only with the important matters and avoid an overwhelming load of information and decisions. The fact that there were often many links separating those at the top from those doing the work at the bottom reduced the capacity of the organization to respond quickly to change or to deal with unexpected events.

In a simpler time, the hierarchical structure served us well, but the increasing complexity of modern times has forced a move away from a strict hierarchical form of organizational structure toward structures such as the matrix organization of NASA that can provide more effective processing of information. Transportable, affordable computers with massive computing power has allowed those at the operational level to instantaneously communicate with those at all other levels of the organization and to collaborate across vast distances. Take, for example, the development of network centric warfare in the military<sup>42</sup>. Using this approach a soldier on the ground in Afghanistan carries a computing device and feeds information to operators in command centers in the United States who, in turn, launch and control drone weapons. These innovations in computer technology and the networking applications of this technology are having dramatic effects on how leadership, teamwork, personnel selection and training, and a variety of other HRM and OD functions are viewed (e.g., Bias & Bogue, 2015; Lin, 2011; Miles, Snow, Fjeldstad, Miles & Lettl, 2010; Teo, Reinerman-Jones, Matthews, Szalma, Jentsch & Hancock, 2018; Thomas, 2014).

Social scientists are speculating on consequences of technology for the workforce and the management of human resources (Cascio & Montealegre, 2016; Colbert, Yee & George, 2016; Sheridan, 2016). The knowledge, skills, abilities, and other characteristics required of workers are likely to change dramatically, and I/O psychologists will need to develop new methods of assessing these requirements. Computer technology is revolutionizing the design and delivery of training, and an increasing amount of research is exploring how to best inculcate skills and foster learning with these new technologies. Computer-mediated communication is replacing face-to-face collaboration and communication, and new approaches are needed to facilitate how employees can use these technologies to work together to accomplish their tasks. Consequently, the importance of complex problem solving and collaborative problem solving are becoming much more important in the twenty-first century workplace than they were in the past (Neubert, Mainert, Kretschmar & Grieff, 2015). There are potential downsides to the new technologies. Robots and artificial intelligence may displace massive numbers of employees in a variety of occupations including the professions (*The Economist*, 2015a, b; Waytz & Norton, 2014). New technologies can have the effect of deskilling tasks, leading to less intrinsically satisfying and fulfilling work (e.g., Ikeler, 2016). Computer technologies

have enabled the surveillance of employees and customers, thus threatening privacy and autonomy (Chory, Vela & Avtgis, 2016). The hyperconnectivity of the emerging workplace is providing new sources of stress and has the potential to threaten employee health, performance, and well-being (Tarafdar, Pullins & Ragu-Nathan, 2015). There are even concerns that the widespread use of computer technology is harming the quality of interpersonal relationships in organizations by reducing empathy and helping (Colbert et al., 2016).

### **Terrorism**

With the end of the Cold War, the dismantling of the former Soviet Union, and the embrace of capitalism in socialist societies such as China, one might have expected a period of peace and security. However, the threat of nuclear annihilation by the great powers, which was dominant in the two decades after WWII, was replaced by a new threat...the use of terrorism by small groups with radical agendas. The bombing of the Federal building in Oklahoma City by right-wing terrorists in the United States and the 9/11 attack by fundamentalist Islamic groups are only two of the many acts of terrorism that have occurred over the last three decades. The attempts of the United States and other countries to increase homeland security and to protect against such attacks are having a continuing influence on I/O psychology and the management of organizations. An important function of I/O psychology has always been the reduction of uncertainty associated with the use of people in the workplace. When employers hire people for jobs they are never entirely certain of how the person will perform. Even more of a concern in many organizations since 9/11 is whether the persons hired are trustworthy and honest individuals or potential threats to the well-being of the organization, customers, and other employees. Since 9/11, I/O psychologists have been called upon to devise assessment tools that can screen out those who might perform terrorist acts and to devise training procedures for the increasing number of employees who are engaged in security roles (e.g., Halbherr, Schwaninger, Budgell & Wales, 2013). Employers now routinely use computer technology to monitor the everyday activities of employees and customers. This has raised concerns about privacy and civil rights and research is underway on the impact on employee attitudes (Holland, Cooper & Hecker, 2015). I/O psychologists and other social scientists are beginning to conduct research on the impact of the threat of terrorism on organizations and employees (e.g., Malik, Abdullah & Uli, 2014; Malos, 2010; Nissen, Nielsen, Solberg, Bang Hansen & Heir, 2015; Ryan, West & Carr, 2003). Shirom, Toker, Shapira, Berliner & Melamed, 2008).

### **Differences Between Poor and Rich Countries in Population Growth**

The world's population reached 7.6 billion in 2017 and is projected to grow to 9.8 billion in 2050 and 11.2 billion in 2100.<sup>41</sup> Population growth will create additional challenges for organizations, but differences in the growth rate across nations seem likely to be a more important factor than the world population. The rate of growth varies widely with Europe, the United States, and Japan growing a much slower rate than developing areas such as Africa. If the plummeting fertility rates in advanced countries lead to shortages of workers, it may prompt improvements in compensation and working conditions. It is also possible that labor shortages will negatively affect the status of workers by prompting employers to accelerate the replacement of human workers through automation. At the same time, the population explosion in the developing

world threatens these countries with starvation, disease, and overcrowding. The need for workers in the advanced nations coupled with the problems of overpopulation in the poorer nations may increase immigration to the advanced nations as people in developing countries seek economic opportunity and security. Increased immigration may ease worker shortages but also may increase prejudices based on nationality and race (Hainmueller & Hopkins, 2014). Although the consequences of population growth are hard to predict, it seems safe to assume that there will be important consequences that will require rethinking of how we structure organizations and manage people.

### **Diminishing Natural Resources**

Many commodities are likely to become increasingly scarce as the population and consumption increases. Fossil fuel shortages have received the most attention. An embargo in the Middle East in the 1970s shocked the United States into the realization that it was dependent on foreign governments, many of them unstable at best, for its most vital source of energy. Gasoline shortages, dramatic increase in the price of everything related to energy (gasoline, electricity, heating oil, manufactured products, etc.), and the search for alternative sources of energy became issues that some argued should constitute the highest national priority. Moreover, the energy crisis exacerbated a worsening economic trend that saw inflation growing, productivity declining, national debt soaring, and the balance of payments (value of exports over imports) becoming negative. The United States was about to relinquish its position as the world's largest lender nation to become the world's largest debtor nation. With recent declines in oil prices, improved technologies for retrieving oil and gas, and a worldwide glut in oil supplies, fears about running out have diminished. However, dropping prices will lead to greater consumption, and there is no guarantee that the world will not eventually run into the difficulties encountered in the 1970s.

In addition to fossil fuel scarcities, shortages also appear likely for other resources including clean water, minerals, metals, and food. In the next 50 years, many parts of the world will face food shortages unless there are dramatic increases in food productivity.<sup>42</sup> Other shortages are expected in phosphorus, rare earth elements,<sup>43</sup> and water.<sup>44</sup> Two-thirds of the world population lives with severe water shortages at least one month a year and a half billion face water shortages all year long (Mekonnen & Hoekstra, 2016). Although natural resources are diminishing, the problems created by scarcity are not likely to be equally shared among regions of the world. Underdeveloped countries such as the African nations are likely to suffer more than the more developed nations of Asia, North America, and Europe.<sup>45</sup> Shortages in natural resources will affect how organizations are run and how people are managed. Increasingly the structure, policies, and management of organizations have incorporated as a primary mission the protection and stewardship of the environment to ensure sustainability.<sup>46</sup>

### **Climate Change**

The climate changes created by the growing use of fossil fuels in not only the United States but in the developing countries present still another challenge to organizations as they move forward into the twenty-first century. Increasingly, individuals and organizations are adopting more environmentally sustainable practices to deal with the decline in resources and to slow the harmful effects that carbon emissions are having on the climate. The effects

of climate change are potentially catastrophic and eventually may lead to a host of negative consequences including the extinction of species, water scarcity, shoreline flooding, disease, starvation, and war. I/O psychologists around the world are beginning to contribute with their research and practice to knowledge about how to promote and encourage environmental practices in the workplace (Aguinis & Glavas, 2013; Dilchert & Ones, 2012; Ones & Dilchert, 2012).

### **Immigration**

A phenomenon that has emerged since 1990 is the increase in international migration (Elliott, Mayadas & Segal, 2010). About 3% of the world's population migrates each year, mostly from less developed to more developed countries. A variety of factors is driving this increase in migration. For one, the boundaries among countries are more permeable and policies have become more lenient. Labor shortages driven by dropping fertility rates in developed countries is another factor. Still another factor is political instability and war. This is most apparent in the migration occurring from the Middle East to Europe. Climate change seems likely to add to migration in the coming years. The United Nations (2016) reports that the countries with the largest number of people leaving in 2015 were India (16 million), Mexico (12 million), the Russian federation (11 million), China (10 million), Bangladesh (7 million), Pakistan (6 million), and Ukraine (6 million). The countries serving as the primary destinations of migrants are North America, Oceania, and Europe. Undocumented migration in which migrants violate laws in entering another country is becoming more of an issue in the twenty-first century and is likely to increase (Donato & Massey, 2016). Migration is posing a completely new set of issues for the management of organizations that I/O psychologists have only begun to address (e.g., Binggeli, Dietz & Krings, 2013). What are the considerations for selecting among immigrants to meet the demands of future job requirements? How do we effectively train and socialize immigrants into the organization? What are the implications for social interactions and team performance? In addition, what are the biases against immigrants that can emerge in the workplace and what are the effects of these biases on organizational functioning (Binggeli, et al., 2013; Hanmueller & Hopkins, 2014)?

### **The Great Recession and Concerns about Corporate Corruption and Ethics**

The Great Recession began in 2008, lasted through 2010, and was the worst financial disaster since the Great Depression in the 1930s. The subprime mortgage crisis led to a worldwide failure of financial institutions, massive unemployment, and the precipitous drop in stock markets. A failure of government regulation, reckless speculation, faulty corporate governance, and unethical behavior of corporate leaders all contributed to the recession. The first decade of the twenty-first century was marked by numerous corporate scandals including Enron, Arthur Andersen, Chiquita Brands, Int., Kmart, Adelphia Communications, Bear Stearns, Lehman Brothers, AIG, Madoff Investment Securities, and Banco Espirito Santo (BES). In several cases, the firms were dissolved and top executives were sentenced to prison. Because of these scandals, increased attention is being given to causes and consequences of unethical and corrupt behavior in organizations (Chen, Chen, & Sheldon, 2016; Kish-Gephart, Harrison, & Treviño, 2010; May, Chang & Shao, 2015; Overall, 2016; Voliotis, 2017). In addition, there is more research in recent years on the personality traits associated with dysfunctional leadership including

narcissism, psychopathy, and Machiavellianism, the so-called dark triad (O'Boyle, Forsyth, Banks & McDaniel, 2012).

### **Increased Flexibility of Work Arrangements**

Much of the research in I/O psychology has focused on employees working for organizations in well-defined positions who are pursuing careers marked by distinct stages of upward progression in status and authority. Researchers could assume that employees performed their work under supervision, in one organization, and in one physical location. It seems obvious that the traditional work arrangements are declining. Increasingly, the traditional career and job is giving way to much more flexible work arrangements. Fixed work schedules are being replaced by flexible schedules in which employees can choose when they work. In place of fixed work locations, employees in many jobs now have options for where they work and more are choosing to work at home. Employers are increasingly outsourcing work and hiring temporary contingency workers. A type of contingency work is the gig defined as “a single project or task for which a worker is hired, often through a digital marketplace, to work on demand” (Torpey & Hogan, 2016). Although there is a lack of hard data on exactly how many gig workers are in the labor force, the number of employees working on a project basis without a labor contract and with no assurances of long-term employment has increased dramatically since the 1990s (Heller, 2017).

The increased flexibility of work arrangements has some apparent advantages over traditional, rigid arrangements. The increased autonomy and variety afforded in these arrangements is a strong motivator for some employees. In addition, it may allow the employee to better balance work and nonwork than a traditional 8–5 job. The downsides of contingency work are the lack of security, opportunity for upward progression in one's career, and benefits such as health insurance and retirement. Another potential downside that some scholars have associated with flexible work arrangements is the increased intensification of work. Surveys have shown that employees perceive that they are under pressure to do more in less time than they were in more traditional work arrangements (Paškvan & Kubicek, 2017).

### ***What Is Happening to Psychology during the Contemporary Era?***

Behaviorism was dominant during the middle years and the cognitive revolution was dominant during the post-WWII years. During the modern era, both behaviorism and cognitive psychology continue to influence psychology, but three new trends have emerged that are profoundly affecting research and theory. After two decades of the cognitive revolution, psychologists have begun to give more emphasis to emotion and affect (Lerner, Li, Valdesolo & Kassam, 2015). The cognitive psychology of the 1960s and 1970s addressed primarily conscious processes, but in the modern era, much more attention has been given to unconscious, implicit processes. In some ways, this seems a return to psychodynamic thinking, but not really. Freud conceived of the unconscious as primarily a reservoir of repressed thoughts, but researchers in the modern era approach the unconscious as an extension of information processing in the form of implicit cognition (Gawronski & Bodenhausen, 2006). Humans have a huge storehouse of information but their capacity to use this information is limited. Most of the time it resides below the level of conscious, but external and internal cues can activate schemas, memories, and emotions. The individual is often not aware of this process, but implicit associations can have a profound effect on

thinking, emotion, and behavior. In addition to the renewed interest in emotions and the unconscious, neuropsychology has emerged as a field of neuroscience. Imaging and other technologies have made brain functions accessible as objects of study.

### ***What Are Theories of How to Organize and Manage Work in the Contemporary Era?***

The theories emerging from the early, middle, and post-WWII years have not gone away, but are still quite relevant. With a new set of economic, technological, and societal changes, alternative models of organizations and people at work have emerged, but each new approach builds on previous views. Many of the insights of Classical and Scientific Management are still relevant today. Likewise, the early Human Relations school of the middle years, as well as the Open Systems/Contingency theories of the post-WWII years are still having an effect on the theory and practice of management. We have not seen a radical shift in thinking about organizations emerging from the modern era. If anything, the Open Systems/Contingency thinking of the post-WWII years still seems dominant but the forces at work since 1990 have led to some modifications. Complex systems theorizing have become more complex. I/O psychologists are incorporating multiple level perspectives in which they are attempting to account for the simultaneous operation of dynamics at work at the individual, group, and organizational levels (Fulmer & Ostroff, 2016; González-Romá & Hernández, 2017). Others are using nonlinear modeling to capture how systems evolve over time (Guastello, 1995; Hanges, Lord, Godfrey & Raver, 2002; Wang, Zhou & Zhang, 2016). Theories integrating nonlinear modeling with control theory have examined how individuals, groups, and organizations self-regulate using feedback from the environment (Johnson, Chang & Lord, 2006; Neal, Ballard & Vancouver, 2017). Another approach to capturing the dynamic nature of organizations is Event System Theory (Morgeson, Mitchell, & Liu, 2015). The theory describes how events occur at the level of individual, group, or organization and then stay at that level or reverberate through multiple levels. Corresponding to the increasing complexity of theorizing are increasingly complex research methodologies.

Changes that are currently underway and those yet to come will undoubtedly lead to new ways of thinking about organizations and how to manage them. These new theories are in the future, but I/O psychologists are hard at work conducting research and devising interventions to meet these challenges. The Open Systems/Contingency views of organizations are even more relevant in light of events that have occurred since 1990. However, the field of I/O psychology specifically and the organizational sciences more generally are a work in progress and no one knows what new paradigms will emerge as academics and practitioners attempt to deal with the changes that are occurring in the workplace.

Practical applications have not kept pace with the rapid development of new and more complex open systems/contingency theories. The theory and research of the early, middle, and post-war periods had direct and often obvious implications for interventions to improve organizations and the welfare of employees. The practical implications of nonlinear modeling, control theory, and many of the highly sophisticated quantitative methods that have emerged in recent years are not as obvious. Perhaps that will change, but so far, practical solutions are coming more from the theories and research findings of previous eras than from the more sophisticated theories of the modern period. Three themes that emerged during the post-WWII era are still quite relevant: (1) Organizations are open systems and subject to internal and external forces. (2) The effectiveness

of an intervention is contingent on the situation. (3) Empirical research identifies the contingencies.

## Conclusions

This chapter has reviewed how I/O psychology grew from a handful of academic scientists at the beginning of the twentieth century into the international, multi-faceted profession it is today. This chapter has examined the stresses and strains that have accompanied this growth. As we have seen, I/O psychology did not evolve in isolation. Political, economic, and social events have driven the research, theory, and applications of I/O psychologists and other organizational scientists. An analysis of the research literature shows that I/O psychologists have often focused on specific topics that reflected what was occurring in the outside world. To understand I/O, you need to consider the historical, cultural, and professional contexts in which the field was embedded. The early development of I/O psychology paralleled the emergence of the Classical Organizational Theories and Scientific Management. The focus was almost exclusively on individual differences and the use of selection techniques in these early days of I/O consistent with the classical theory of organizations and the needs of the military and industry to screen and select personnel whose personal characteristics fit job tasks. With the rise of labor unions and increased sensitivity to worker welfare, the early Human Relations approaches to organizations and management emerged and the research turned to topics such as job satisfaction, work motivation, and leadership. Modern thinking is dominated by the Open Systems /Contingency view, which recognizes the critical importance of the social, political, cultural, economic, and technical environments in which organizations operate. The hot topics in recent years have concerned teamwork, collaboration, and the impact of computer-based technologies. Content analyses of the I/O psychology research literature provide evidence that popularity of topics has varied over the years consistent with the time-line presented in this chapter (Cascio & Aguinis, 2008; Salas, Kozlowski & Chen, 2017). However, while topics may decline somewhat in importance, few go away entirely. For instance, personnel selection and individual differences remain a very important topic of research despite the emergence of new topics in recent years. The overall trend is in the direction of increased diversity of topics in which old topics continue to receive attention in research and theory while new topics emerge.

Global warming, terrorism, immigration, and other changes now underway may seem far removed from I/O psychology, but so did the world wars and the Great Depression of the 1930s. Dealing with the challenges and opportunities of the twenty-first century will require the creation of organizations that can assemble talented people and then energize and coordinate the efforts in the solution of these problems. Staffing, motivating, evaluating, and training the people in these organizations will need the insights gained from research and theory in I/O psychology and the other organization sciences. The unifying theme throughout the history of I/O psychology is the scientist/practitioner philosophy that has helped define I/O's niche in the overall picture of modern psychology. The turbulence and change that the twenty-first century promises to bring will undoubtedly lead to further changes in the field, but this core commitment will remain as a guiding principle. It is appropriate then that, before examining the specific topics constituting I/O psychology, we first explore I/O's use of the scientific method.

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