
PSYCHOLOGY and INDUSTRY TODAY

Second Edition

An Introduction to Industrial and
Organizational Psychology

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PSYCHOLOGY and
INDUSTRY TODAY

To Sydney Ellen

PREFACE

The second edition of *Psychology and Industry Today* retains the basic theme and approach that seems to have been responsible for the gratifying reception accorded the first edition. The book is written as an introduction to the field of industrial/organizational psychology and is designed as a text for courses in industrial, business, applied, or personnel psychology.

My purpose in this book is not to train people to become industrial psychologists, but rather to acquaint students—most of whom will work for some kind of organization—with the principles, practices, problems, and occasional pretenses of industrial/organizational psychology. In addition, I believe that it is important to show students how psychology will aid them in their careers, and how the findings of industrial/organizational psychologists will directly influence their everyday lives as job applicants, employees, managers, and consumers.

Research methods and findings are discussed within the framework of actual work problems rather than as academic or theoretical exercises. The focus throughout the book is on contemporary, practical, and on-the-job situations. Research studies using workers rather than college students as subjects have been used.

Because *Psychology and Industry Today* is intended for undergraduate classroom use, it is written expressly for students. They are the ones who must read, underline, and study the text, and I would like them not only to learn about industrial/organizational psychology but also to enjoy reading about it. I have attempted to combine readability with thorough, accurate coverage.

The level of the discussion in this edition is particularly suitable for students who are not psychology majors, who often constitute a large portion of those enrolled in this course. It is appropriate for use by departments of psychology and schools of business administration at the four-year college and university level, and at junior and community colleges.

The second edition contains significant changes. Much of the book has been rewritten to increase clarity and to eliminate sex-biased language (in recognition of the fact that women now constitute nearly 48 per cent of the

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work force), and the entire book has been substantially updated to reflect current practices, problems, and trends.

The thirteen chapters have been grouped in five sections, with introductory remarks providing a meaningful framework for the chapters in each section. A new chapter on organizational psychology points out the impact of the style of the organization on working life. The chapters on leadership and motivation in the organizational psychology section have been revised to reflect the importance of organizational psychology. Overall, the general quality of working life, especially the trend toward the humanization of work, is stressed. Also, increased use is made of studies and applications of industrial/organizational psychology in countries other than the United States.

Two changes are introduced specifically to aid students in learning the material. First, chapter summaries have been added that emphasize important topics, issues, and studies. Second, the suggested readings for each chapter have been greatly expanded to provide guidance for students who wish to pursue particular topics.

In addition to these broad changes in the second edition, many new topics are discussed. These include, among others, behavior modification in industry, organizational development (OD), participatory democracy at work, classic and modern theories of organization, effects of worker participation and organizational climate on the role and status of the leader, the role of power in leadership, harmful effects of merit pay plans and salary secrecy, work space design for the handicapped worker, environmental psychology and office design, selection techniques such as job previews, videotape interviewing, forced-choice reference checks, and assessment centers, computer-assisted testing and instruction, reactions of children to television commercials, and the effects of price on buying behavior.

A manual of multiple choice and essay examination questions is available for the instructor, along with a list of multimedia instructional aids for each chapter.

I wish to thank the students and instructors who used the first edition of the book and who took the time to tell me their reactions to it. Their comments were of great help in preparing the second edition. It is also a pleasure to record my gratitude to my wife, Sydney Ellen, whose bibliographic skills were responsible for securing the research materials required for this edition, and whose editorial skills sharpened its style. From the beginning of the book to the end, each page testifies to her abilities, patience, and dedication.

Duane P. Schultz

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INTRODUCTION

Principles, Practices, and Problems

SCOPE AND IMPORTANCE OF INDUSTRIAL PSYCHOLOGY

The field of industrial psychology exerts a tremendous influence on the quality of our lives. No matter where and how we live and work, or at what level of society we function, what we do with our lives is affected by this vital part of psychology.

Since the influence of industrial psychology is so pervasive, this may be one of the most personally important and relevant courses of your college career. Since our behaviors and attitudes are shaped, directly and indirectly, by the principles and practices of industrial psychology, you should be aware of the nature of this powerful influence.

Most of you, upon completion of college training, will work for some sort of organization—a business corporation, a manufacturing concern, the federal or state government, a hospital or university, or the military. No matter where you work, your entire career—from the day you approach the personnel office for your first interview until your retirement dinner—will be shaped and guided by the findings of industrial psychologists. Indeed, second to your own ability, industrial psychology will help determine the job you perform and the manner in which you perform it, your ultimate rank, responsibilities, and remuneration, and, most important, the kind of personal satisfaction you derive from your work.

We spend the greatest portion of our adult lives at some sort of employment and the nature of our working career determines not only how well we live financially but also our emotional security and happiness. Our work provides us with a sense of identity; it tells us, and others, who and what we are. It contributes to our sense of self-esteem, affiliation, and belonging. If we are frustrated or dissatisfied

in our job, we are also likely to be unhappy when we go home to our family at the end of the workday.

Unhappiness at work can also affect our physical and emotional health. A fifteen-year study of the aging process¹ found that the single greatest predictor of longevity was work satisfaction. Heart disease, ulcers, arthritis, psychosomatic illnesses, anxiety, worry, and tension have also been shown to be related to stress and dissatisfaction at work. Consequently, finding the appropriate kind of work may be the single most important decision you make in your life.

Industrial psychologists aid you initially in making that difficult decision because of their prominent role in job selection. Your first formal contact with industrial psychology will probably be the psychological tests and the other selection measures used by a potential employer to determine if you are the right person for the job and, of equal importance, if the job is the right one for you.

After you have satisfied a company and yourself about the appropriateness of the job, the contribution of industrial psychology to your work life continues. Your advancement in the organization depends on several criteria including your actual job performance (which will be periodically evaluated using techniques devised by psychologists), and your performance on additional psychological tests. In many businesses today, high-level promotions are never made without the recommendation of the company psychologist about a person's potential for handling increased responsibilities.

Because of your college training, you may assume a management position at some level within the corporate hierarchy. This means that you must be aware of and sensitive to the diverse motivational and emotional factors influencing the people who work for you. To learn how best to lead and motivate your subordinates, you may turn profitably to the findings of industrial psychologists. Indeed, you will probably find yourself in a training program that was established by psychologists to teach you how to motivate your subordinates and how to be an effective manager of the work of others.

Even if you do not assume leadership responsibilities—if you are an engineer, an accountant, a technician, for example, working in a staff capacity with no subordinates—you will still encounter problems of interpersonal relations. Whatever your job, most likely you will be working with other people and a knowledge of human relations skills (how to get along with others) is important. Awareness of the research findings of industrial psychologists can spell the difference between success and failure. The importance of getting along with others was recognized in one psychological study of several thou-

¹ *Work in America* (Cambridge, Mass.: MIT Press, 1973), pp. 76–96.

sand white-collar workers. Investigating the reasons why people were fired from their jobs, the researchers learned that only 10 per cent were dismissed for lack of appropriate technical ability. A staggering 90 per cent were fired because they could not get along with their fellow workers or with their supervisors. Organizations today devote a great deal of effort to improving their employees' interpersonal and human relations skills, training that you may well undergo yourself.

You will certainly be interested in seeing your employer grow and prosper since the more your company expands, the more opportunities there will be for you to advance within the organization. The company's output must be produced with as much efficiency and quality as possible. Therefore, the plant, equipment, and working conditions must foster a productive working climate. This is another responsibility of industrial psychologists; they participate in the design of machinery, the layout of assembly lines, and the arrangement of the working environment to assure maximum high-level production. The finished product of a manufacturing concern must be advertised and attractively packaged to entice people to buy it. Industrial psychologists play a role in these activities too.

At all levels of modern organizational life, industrial psychologists provide essential services to you and your employer. Psychology as applied to the world of work serves two masters—the individual and the company. It cannot benefit one without benefiting the other.

A note of caution. As vital as the field of industrial psychology is, as influential as it will be in your career, it is primarily a tool. And any tool is only as valuable as the skill of the person who uses it. Improperly used by management, inadequately understood by employees, the findings of industrial psychologists can do more harm than good. Proper use of this tool by competent managers and employees will profit everyone.

But there is more to industrial psychology. It also affects your daily life away from the job; its effects are not limited to the factory or office. Industrial psychology influences your role as a consumer. We noted the use of industrial psychology in packaging, marketing, and advertising a company's products. Whether we like it or not, advertising is an integral part of our society and a necessary cornerstone of our multibillion-dollar economy. On radio and television, in magazines and newspapers, on billboards and even in the sky, we are continually bombarded by messages urging us to buy this and try that.

What governed your choice of a toothpaste, breakfast cereal, or car? Most likely it was the psychological image created for the product, the attractiveness of the package, or the emotional need satisfied by a particular brand. Advertising has told us, successfully, that we will be more popular, nicer to be near, or more kissable if we wear these

jeans or use that after-shave lotion. And many of the professionals who create our needs, and design the packages and slogans to satisfy them, are psychologists.

The same kinds of psychological techniques designed to rid us of bad breath and heartburn are also used to sell political candidates. Psychology has entered the political arena to create images for candidates that will induce you to vote for them. Also, public opinion polls are widely used to inform political leaders about how people feel on various issues. Polling techniques are used by psychologists in other areas. For example, the ratings that determine the television programs we watch are based on scientifically conducted polls of cross-sectional samples of television viewers.

If you have an automobile, your driving behavior is influenced by the industrial psychologists who assisted design engineers in the layout of the instrument panel so that knobs and controls are easy to use and visual displays (such as the speedometer) are easy to see and interpret. The shape and color of road signs are a result of research by psychologists on highway safety.

The list of contributions of industrial psychologists to daily living both on and off the job is a long one, but I think the point has been made. Since you are so affected by this field, no matter where you are or what you do, you should try to learn something about it, if only for self-defense!

DEFINITION AND METHOD OF INDUSTRIAL PSYCHOLOGY

We can define industrial psychology quite simply as *the application of the methods, facts, and principles of psychology to people at work*. As such, industrial psychology is one of many fields of the discipline of psychology. Now, as so often happens with definitions, we must define the term *psychology* in order to adequately understand our initial definition.

Psychology is the science of human and animal behavior. As a rule, however, industry is not overly concerned with animal behavior (except in those rare but delightful instances where chimpanzees have been trained to work on assembly lines and pigeons trained to inspect pills). Although much useful knowledge in psychology has come from animal research, some of which is applicable to the world of work, industrial psychologists are little concerned with animal behavior.

Industrial psychology, then, involves *the application of the methods, facts, and principles of the science of human behavior to people at work*.

The fact that industrial psychology is a science tells us a great deal about its manner of operation. A science deals only with observable fact—that which can be seen, heard, touched, measured, and recorded. Hence, science is empirical; that is, it relies on observation and experience, not on opinions, intuitions, pet notions, or private prejudices. It follows that science is objective in its approaches and results. The observed facts must be public; that is, capable of being seen and confirmed by other scientists working independently. Chapter 2 examines the methods by which the science of psychology gathers and analyzes its facts or data.

One point to remember throughout this book is that industrial psychology, in its methods and procedures, is just as scientific as physics or chemistry; a science is known by its methods not by its subject matter. When industrial psychologists observe the behavior of people at work, they do so in the best time-honored traditions of science—objectively, dispassionately, and systematically.

Since the method of the science of industrial psychology is objective, so must be the focus of its observation—human behavior. Overt behavior—our movements, speech, and creative works—are the only aspects of human existence that can be objectively seen, heard, measured, and recorded. Therefore, psychologists concentrate on overt behavior in order to understand and analyze the people they are studying. However, something more must be involved since psychology also deals with intangible human aspects such as motivations, emotions, thoughts, and wishes. These facets of our inner or subjective life cannot be observed directly.

For example, motivation. We cannot see motivation—it is an internal driving force inaccessible to observation. How can psychologists know anything about motivations or drives? While it is true that motivation itself cannot be seen, the *effects* of motivation can be observed. An angry person may openly exhibit this motivation in overt behaviors such as a flushed face, rapid breathing, or clenched fists.

We cannot see intelligence directly but we can see the overt behavioral manifestations of various levels of intelligence. Psychologists can observe objectively that one person performs (or behaves) at a higher level on an intelligence test than does another person. From these facts it can be inferred that the first person possesses greater intelligence than the second.

Inference based on observed behavior enables us to draw conclusions regarding various human states or conditions even when these aspects cannot be seen directly.

This is how industrial psychologists function. They observe the behavior of the worker on an assembly line, the secretary at a desk, or the executive at a meeting, under well-controlled and systematic con-

ditions. They record the person's behavioral responses—the number of parts produced each hour, the number of words typed per minute, the quantity and quality of decisions made. They vary the conditions under which the job is performed and look for any resulting differences in performance. They use these and other techniques to seek a better understanding of human behavior but, over all, the essence of the scientific method is simply that psychologists *observe*. They look, listen, measure, and record with objectivity, precision, and dispassion.

A BRIEF HISTORY OF INDUSTRIAL PSYCHOLOGY

Industrial psychology was born of, and is nurtured on, necessity. The urgency of a practical problem needing a solution gave the initial impetus to the field, and the continuing demands of crisis and need have stimulated its growth and influence.

Psychology itself is approximately one hundred years old and industrial psychology had its formal beginning only in the early years of the twentieth century. It is difficult to determine the precise origin and founder of any field of study but many accord the honor in this case to Professor Walter Dill Scott who, in 1901, spoke out on the potential uses of psychology in advertising. Responding to the urgings of the advertising industry, Scott wrote additional articles and, in 1903, *The Theory of Advertising*, a book generally considered to be the first dealing with psychology and an aspect of the world of work. In 1913, a second book appeared: *The Psychology of Industrial Efficiency* by Hugo Münsterberg, a German psychologist teaching at Harvard University. This work dealt more broadly with the field of industrial psychology. These books generated a modest degree of interest, but it was the request of the U.S. Army for help during World War I that marked the emergence of industrial psychology as an important and useful discipline. Faced with the necessity of screening and classifying millions of recruits, the army commissioned a number of psychologists to devise a general intelligence test so that persons of low intelligence could be identified and eliminated from training programs. Two tests were developed: the Army Alpha for literates and the Army Beta for nonliterates.

Success in that endeavor quickly led to the development of other tests for use in selecting candidates for officer and pilot training, and for other military classifications requiring special abilities. The formulation of these tests was an extremely difficult task since there were no precedents, but the psychologists of the day successfully met the challenge.

This military experience provided the basis for a dynamic proliferation of industrial psychological activities following the war. The public, businesses, school systems, and other organizations requiring classifying and screening techniques, became aware of the successful use of tests and eagerly clamored for more and better testing techniques. The tests that had been used by the army were adapted for civilian use and new ones were designed for a variety of situations. A widespread and intensive program of psychological testing in the public schools, in industry, and in the military, to which we are now routinely exposed (perhaps overexposed), began.

Thus, the initial contributions of industrial psychologists centered around what is usually called *personnel psychology*—the proper selection and placement or matching of the right individual for the right job.

The scope of the field broadened considerably in 1924 with the commencement of the most famous series of studies ever conducted in industrial psychology. Called the Hawthorne studies (because they were conducted at the Hawthorne, Illinois, plant of the Western Electric Company),² these research programs took industrial psychology beyond the selection and placement of workers to the more complex problems of human relations, morale, and motivation.

The research began as a reasonably straightforward investigation of the effects of the physical aspects of the work environment on worker efficiency. The researchers asked such questions as: What is the effect on production of an increase in the level of illumination? Do temperature and humidity affect production? What happens if rest periods are introduced?

The results of the Hawthorne studies were astounding to both the investigators and the Hawthorne plant managers. It was found that social and psychological conditions of the work environment were of potentially greater importance than the physical work conditions. For example, changing the level of illumination from very bright to nearly dark did not diminish the level of efficiency of a group of workers. Other, more subtle, factors were operating to cause these workers to maintain their original production levels under almost dark conditions.

In another case, illumination was increased and production levels rose. Other changes were then introduced—rest periods, free lunches, a shorter workday—and with the introduction of each change, production increased. But the most startling result occurred when all the improvements were eliminated: production still increased! It was con-

² F. J. Roethlisberger and W. J. Dickson, *Management and the Worker—An Account of a Research Program Conducted by the Western Electric Company, Chicago* (Cambridge, Mass.: Harvard University Press, 1939).