



PSYCHOLOGY

FIFTH EDITION

HENRY GLEITMAN
ALAN J. FRIDLUND
DANIEL REISBERG

P S Y C H O L O G Y

F I F T H E D I T I O N



H E N R Y G L E I T M A N

A L A N J . F R I D L U N D

D A N I E L R E I S B E R G

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TO OUR WIVES AND CHILDREN,

Lila, Amy, and Friderike

Ellen, Claire, Jason, Jacob, and Solomon

P R E F A C E

This is the fifth edition of *Psychology*. One reason for this revision is the obvious fact that, like any other discipline, psychology advances and develops. Fifty years ago, psychologists tended to be rather defensive about the status of the field and were perhaps a bit too loud in proclaiming that “Psychology is a science!” But by now there is no need for such defensive proclamations, for that assertion has become a simple statement of fact. In the last half a century, psychology has assuredly become a real and vigorously progressive science.

As a field advances, so must all attempts to describe it. These advances, together with the suggestions by the many students and colleagues who have used this text, prompted a number of changes that we describe below.

In addition, this volume is now coauthored for the first time. Alan Fridlund and Daniel Reisberg played an important role as advisors on the previous editions, but up until now, this book has in important ways been Henry Gleitman’s alone. This change in authorship has been driven by the increasing breadth and sophistication of our field, which make it difficult for any one individual to know the full span of psychology and to write about this material with the precision of an expert. The added perspective of the two new authors adds a depth and richness that our field now demands.

This edition has been a full collaboration, with all three of us deeply involved in every chapter. Each of us has brought our own background and experience to the project, but we have tried our very best to weave these strands together to ensure a unified and cohesive treatment. That unity is enhanced by our shared allegiance to the broad aims that have characterized this book from its very first edition.

THE OVERALL AIM: COHESION IN A DIVERSE FIELD

In writing *Psychology*, Gleitman sought to present the field in all its diversity while conveying the sense in which it is a coherent intellectual enterprise. In pursuit of this goal, he did the following:

1. To present the different subareas of psychology, the book was organized around five main questions: How do humans (and where relevant, nonhuman animals) act, how do they know, how do they interact, how do they develop, and how do they differ from each other?

2. To provide intellectual cohesion, each topic was considered against the backdrop of one or two major ideas that could serve as an organizing and unifying framework. Thus the chapter on the biological bases of behavior showcases Descartes' conception of the organism as a machine, and the next chapter treats various aspects of motivated behavior as manifestations of negative feedback. To relate the material across chapters, several overarching themes are carried over from chapter to chapter. For example, the various chapters that deal with cognition ("Sensory Processes," "Perception," "Memory," "Thought and Knowledge," and "Language") all consider variations on the two controversies of nature versus nurture and psychological atomism versus organization.

3. In many cases, integration requires taking a step backward to look at psychology's intellectual history, for a number of the field's endeavors are hard to explain unless one points out the paths that led up to them. Why did Thorndike study cats in puzzle boxes? Why did his conclusions have such an important effect on American psychology? Why were they challenged by Köhler and Tolman? It still pays to take a serious look at the work of such pioneers before turning to the present. Much as a river's water is clearer when it is taken from its source, so issues that have become more and more complex as detail has been piled upon detail become plainer and more evident when traced back to their origin.

G E N E R A L O R G A N I Z A T I O N

These essential themes are preserved from earlier editions. At the same time, though, much is new. In the last two decades, psychology has developed a rich partnership with the neurosciences, and much of this new and exciting material is now included. Likewise, our field has benefited in recent years from an increased understanding of non-Western cultures and how the feelings, thoughts, and behavior of people in these cultures differ from those of people in the West. Our discussion of many topics in this edition now reflects the power of these cross-cultural comparisons. Similarly, evolutionary considerations, often fueled by comparisons across species, have provided new insights into many psychological questions, and this is also emphasized in this new edition.

All three of these topics—coverage of neuroscience, cross-cultural comparisons, and evolutionary insights—have been included in previous editions of *Psychology*, but our treatment of them in the Fifth Edition is much expanded. This might have entailed a celebration of these new domains by setting them off in their own chapters, distinct from the discussion contained elsewhere in the text. We have chosen not to do this, however, because we believe that students are not well served by placing these topics in a sort of intellectual quarantine, separate from the issues and arguments that constitute the rest of psychology. Instead, we have woven these new materials into the overall narrative of the book, where they can illuminate, and be illuminated by, long-standing psychological claims and evidence.

For this reason, the structure of the book remains largely as it was in earlier editions—despite the introduction of a very large quantity of new material. After an introductory chapter, the book is still divided into five parts that reflect the perspectives from which most psychological phenomena can be regarded: "Action," "Cognition," "Social Behavior," "Development," and "Individual Differences." In brief outline, they cover the following topics:

PART I: ACTION

■ This part focuses on overt behavior and its physiological basis. It begins by considering the biological underpinnings of human and animal action, leading to a discussion of the nervous system and its operation (Chapter 2) and some basic phenomena of motivation (Chapter 3). It then asks how organisms can modify their behavior to adapt to new circumstances, a topic that leads to a discussion of classical and instrumental conditioning, modern learning theory, and more recent approaches that take a cognitive slant (Chapter 4).

Chapter 2 (“Biological Bases of Behavior”) has been extensively revised for this edition. The chapter now begins by explaining the methods by which the nervous system is investigated, then turns to the evolution and development of the nervous system. The section on the physiology of neurotransmission has been updated and clarified, and a new section covers the recovery of function following brain damage. Chapter 3 (“Motivation”) uses the concept of potentiation as an overall organizational principle; this chapter has been extensively updated, particularly in light of new findings about the mechanisms of hunger and their implications for obesity and eating disorders. Chapter 4 (“Learning”) stresses modern approaches to animal learning, including work on contingency and cognitive approaches to classical and instrumental conditioning. The discussion of reinforcers has been expanded to include work on intrinsic motivation; a new section on the neural basis for learning has also been added.

PART II: COGNITION

■ This part deals with knowledge and how it is gained and used. It begins by asking how the senses provide us with information about the world outside (Chapter 5) and how this information is organized and interpreted to lead to the perception of objects and events (Chapter 6). Further questions concern the way this knowledge is stored in memory and retrieved when needed (Chapter 7), the way it is organized through thinking (Chapter 8), and the way it is communicated to others through the medium of language (Chapter 9).

Chapter 5 (“Sensory Processes”) contains a discussion of evolution and sensory equipment, as well as an expanded section on signal detection theory emphasizing the application of this theory to other problems and other domains. Chapter 6 (“Perception”) contains a new section on the neural bases of form perception, as well as a new discussion of the evolutionary significance of redundant mechanisms in perception. Also new in this edition is an expanded discussion of the perception of motion. Chapter 7 (“Memory”) focuses primarily on episodic memory, including the modern emphasis on encoding and retrieval, the role of schemas in memory, the issue of repressed memories, and the difference between explicit and implicit memory. A new section explores what we can learn from the neuropsychology of memory, and, with that, the various forms of amnesia. Chapter 8 (“Thought and Knowledge”) begins with the database on which thinking rests, including analogical representations (imagery and spatial thinking) and symbolic or digital representations. A new section concludes the chapter with discussion of some of the neural mechanisms that underlie thinking and with a discussion of the relation between cognition and consciousness. Also new to this chapter is a discussion of how education can improve critical thinking. Chapter 9 (“Language”) explores what it means to know a language and also how a language is learned. New sections examine the relation between

language and thought, and place language in a social context by examining the role of context and conversation in guiding understanding.

PART III: SOCIAL BEHAVIOR

■ This part concerns our interactions with others. It begins with a discussion of built-in social tendencies in humans and animals, a topic to which ethology and evolutionary theory have made major contributions (Chapter 10). It then turns to modern social psychology, considering how people try to understand the social situation in which they find themselves, how they interpret their own internal states and emotions, and how they interact with others (Chapters 11 and 12).

There have been several changes in this section. In Chapter 10 (“The Biological Bases of Social Behavior”) we have expanded and updated our consideration of natural selection, the evolution of behavior, and “fitness.” New sections cover alternative mating systems and strategies, and current thinking about why so many organisms rely on sexual reproduction. Chapter 11 (“Social Cognition and Emotion”) continues to focus on the way individuals interpret social events, including discussions of attitudes and attitude change, attribution, impressions of others, and the interpretation of one’s own internal states, but it now also has an expanded discussion of emotions and facial expression, as well as a new section detailing how cultural comparisons produce dramatic insights into key phenomena in attribution, person perception, and compliance. Also included is a section on the neural basis of emotion, emphasizing the role of the amygdala in emotional appraisal. Chapter 12 (“Social Interaction”) continues to treat the way individuals deal with others. In addition to discussions of social exchange, attraction and love, conformity, obedience, and crowd behavior, it has a new discussion of communal and exchange relationships.

PART IV: DEVELOPMENT

■ This section contains two chapters on development. Chapter 13 (“Physical and Cognitive Development”) continues to focus on recent, post-Piagetian approaches to mental growth and includes material on counting and numerical skills in infants and preschoolers, and work on social cognition in infants and preschoolers, including studies of false beliefs and their bearing on the child’s development of a “theory of mind.” Chapter 14 (“Social Development”) discusses such topics as moral development, empathy, sex, and gender. Among new developments treated in this chapter are an updated discussion of the effects of institutional day care, a new treatment of the psychological consequences of divorce, and a consideration of the physical aggression observed in boys versus the relational aggression observed in girls. New data are also presented that bear on intersexuality, nature versus nurture in gender identity, and the outcomes and ethics of sex reassignment surgeries.

PART V: INDIVIDUAL DIFFERENCES

■ This part begins with a chapter on mental testing in general and intelligence testing in particular (Chapter 15) and then continues with two chapters on personality assessment and theory (Chapters 16 and 17). It continues

by looking at several varieties of psychopathology and asking how they arise (Chapter 18), and concludes by examining various methods of treatment and therapy (Chapter 19).

Chapter 15 (“Intelligence”) is updated in various ways, including a section on recent attempts to understand intelligence in information-processing terms, including the role of working memory and attention. *The Bell Curve* also receives increased coverage, as does the impact of social environment on intelligence and the need to understand intelligence within an appropriate cultural context. Chapter 16 (“Personality I”) considers methods of personality assessment and discusses trait theory and behavioral-cognitive theory as two of five theoretical approaches to personality, with particular attention to the trait-situation controversy and to recent attempts to look for biological and genetic bases of personality differences. Chapter 17 (“Personality II”) takes up three other theoretical approaches to personality—the psychodynamic, humanistic, and sociocultural. It includes a full treatment of psychoanalytic formulations, beginning with Freud’s original theories, continuing with more recent psychodynamic approaches, and concluding with a discussion of technical and sociopolitical critiques of psychoanalysis.

Both Chapter 18 (“Psychopathology”) and Chapter 19 (“Treatment of Psychopathology”) have been updated to include modern developments, such as new psychobiological theories, new pharmacological approaches to treatment, and new approaches to the evaluation of treatment outcome. A new section in Chapter 18 also discusses the prevalence of subsyndromal disorders and the dangers of “cosmetic” psychopharmacology. Chapter 19 also includes updated discussions of how the criteria for what makes a treatment “effective” have changed with the new emphasis on therapy accountability, and managed care and cost-containment measures.

A P P E N D I C E S

■ An entirely new appendix (“Methods of Scientific Research”) has been added to this edition. This appendix covers experimental, correlational, and observational designs, and concludes with a discussion of research ethics. Many commonsense examples are employed throughout the appendix to convey the important message that the methods of scientific research can also be used to improve critical thinking in everyday life. Extensive cross-referencing to the rest of the volume makes it possible to use the appendix piece by piece over the course of the term or to present the appendix as a stand-alone unit either early or late in the semester.

A second appendix discusses the statistical methods used by psychologists to summarize and analyze their data. This appendix has been revised to maximize its clarity and accessibility, and also to ensure that it works well with the newly added appendix on research methods.

T H E R E A D E R A N D T H E B O O K

It is sometimes said that students in the introductory course want to learn about things that are relevant to their own lives, and, in truth, this seems an entirely sensible view. Psychology deals with the nature of human experience and

behavior, the hows and whys of what we do, think, and feel. How could an exploration of these topics *not* be relevant to someone's life? Everyone has perceived, learned, remembered, and forgotten, has been angry and afraid and in love, has given in to group pressure and stood up to it. In short, everyone has experienced most of the phenomena that psychology tries to explain. This being so, psychology cannot fail to be relevant.

But we can easily lose sight of this relevance amid the torrent of facts, theories, and methodological lessons that constitute our field. To keep the relevance in view, therefore, we rely on a liberal use of everyday examples and a frequent resort to metaphors of one kind or another, providing a succession of bridges between the psychological phenomena we discuss and the reader's own life.

In this effort, and, indeed, throughout the book, our most important guide has been our own experience as teachers (with a combined total of over eighty years in the classroom). This experience leaves us with no doubt that one of the best ways of learning something is to teach it, for in trying to explain something to others, you first have to clarify it for yourself. This holds for the subject matter of every course we have ever taught, but most especially for the introductory course. Students in an advanced course will come at you with tough and searching questions; they want to know about the evidence that bears on a theory of, say, color vision, language acquisition, or the placebo effect, and about how that evidence was obtained. But students in an introductory course ask the toughest questions of all. They ask why anyone would ever want to know about color vision (or language acquisition or the placebo effect) in the first place. And they also ask what any one topic has to do with any other. They ask such questions because they—unlike advanced students—have not as yet accepted the premises of the field. They wonder whether the emperor is really wearing any clothes. As a result, they make us ask ourselves again and again what the field of psychology is all about—what the emperor's clothes are really like when you look at them closely.

This edition, as well as its predecessors, reflects our attempts to answer such questions and to answer them not only to satisfy the students but also to satisfy ourselves.

S U P P L E M E N T A R Y M A T E R I A L S

To help serve the needs of students, instructors, and teaching assistants, several supplementary materials are available with this text.

1. For the student:

There is a complete study guide for students, prepared by John Jonides of the University of Michigan and Paul Rozin of the University of Pennsylvania. This study guide, a revised version of the guide the same authors wrote for previous editions of *Psychology*, should prove very useful to students who want some help and guidance in mastering the material in the text. Moreover, for every chapter, it provides experiments and observational studies that students can carry out on their own to get some first-hand experience with psychology's subject matter.

In addition, for this edition we introduce the *Psychology* WebBook—an on-line study guide designed to reinforce key ideas presented within each chapter of the fifth edition. This guide provides chapter summaries, an interactive tutorial for each chapter, animated diagrams, on-line quizzes, Web exploration activi-

ties, and a glossary. (Passwords to this Web site can be packaged at a considerable discount with new copies of the text; they can also be ordered separately from W. W. Norton & Company.)

2. For the instructor:

The instructor's manual, prepared by Ed Kako of the University of Pennsylvania, Kimberly Cassidy of Bryn Mawr College, Christine Massey of Swarthmore College, Hilary Schmidt of New Jersey Medical School, and Henry Gleitman, offers specific suggestions for every textbook chapter, including discussion topics, a bibliography, an annotated film and media guide, and classroom demonstrations. Included in the demonstrations are materials for some thirty in-class experiments covering a range of topics that include the speed of the nervous impulse, perceptual demonstrations, the Stroop effect, reasoning problems, the perception of personality, and gender stereotypes. Transparencies, student worksheets, data summaries, and detailed instructions for the teacher are included. These demonstrations are adapted from those that we and our collaborators, Paul Rozin and Lila Gleitman (both of the University of Pennsylvania), have used in our own teaching.

A test-item file of approximately 3,000 questions has been prepared for the fifth edition by Su Boatright-Horowitz of the University of Rhode Island, Kingston, and Susan Rakowitz of Fairfield University. Paul Cornwell, late of Pennsylvania State University, Richard Day of McMaster University, and John Jonides of the University of Michigan have also contributed to this test bank. These questions span all nineteen chapters and the two appendices. Of course, this test-item file is also available on diskette in Windows and Macintosh formats and is free to all qualified adopters.

In addition, instructors will receive Norton Presentation Maker, a practical, easy-to-use CD-ROM that allows instructors to create dynamic multimedia presentations quickly and easily, drawing on all the line art in the text, selected photos, brief excerpts from Norton's *Introduction to Psychology* video (described below), and some of the interactive tutorials from the student Web site. Norton Presentation Maker is available to adopters on request.

We also continue to publish a set of over one hundred transparencies, many in color, and these are free to qualified adopters as well.

New for this edition is the Norton *Introduction to Psychology* video, a fifty-minute videocassette produced in cooperation with a team of six Norton authors: the three authors of this book as well as David Funder, Lyle E. Bourne, Jr., and Nancy Felipe Russo. These thirteen original short sequences can be integrated easily into lectures to introduce a topic, illustrate difficult or counter-intuitive material, or emphasize a particularly important point. The contents of the video correspond roughly to the contents of *Psychology*, Fifth Edition, and include "Classical Research: Bandura's Bobo Doll Study," "The Brain and Behavior," "Sleep and Sleep Disorders," "Sensing and Perceiving Our World," "Limitations of Classical Learning Theory," "Methods and Mistakes in Memory," "Building Complex Cognitive Processes," "Detecting Lies Nonverbally," "Culture and Social Behavior," "Dimensions of Development," "Exploring Personality," "Stress and Health," "Psychopathology: Dissociative Identity Disorder."

Finally, as a new resource for this edition, instructors will be able to use the data obtained from student participation in many of the interactive tutorials available in the *Psychology* WebBook described earlier. Each tutorial ends with a request for students to send their responses to the instructor or teaching assistant; in several cases, these responses are actually data derived from standard psychological procedures that we have reproduced in the tutorials (generally in shortened versions). Instructors can discuss these data with the class, putting the class's own results side by side with the published data discussed in the text.

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There remains the pleasant task of thanking the many friends and colleagues who helped so greatly in the various phases of writing this book and its predecessors. Some read parts of the manuscript and gave valuable advice and criticism. Others talked to us at length about various issues in the field. We are very grateful to them all. The many helpers on earlier editions, and the main areas in which they advised us, are listed first. The names of those who guided us in the production of the present edition follow.

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Santa Barbara, California
Portland, Oregon

October, 1998

P S Y C H O L O G Y

F I F T H E D I T I O N

CHAPTER

1



I N T R O D U C T I O N

THE SCOPE OF PSYCHOLOGY 1

ELECTRICALLY TRIGGERED IMAGES ■ AMBIGUOUS SIGHTS AND SOUNDS
■ THE PERCEPTUAL WORLD OF INFANTS ■ DISPLAYS AND THE EVOLU-
TION OF COMMUNICATION ■ COMPLEX SOCIAL BEHAVIOR IN HUMANS

A SCIENCE OF MANY FACES 5

DREAMS AS MENTAL EXPERIENCES ■ DREAMS AS BEHAVIOR ■ DREAMS
AS COGNITION ■ DREAMS AND NATURAL SELECTION ■ DREAMS AND
SOCIAL BEHAVIOR ■ DREAMS AND CULTURE ■ DREAMS AND INTERNAL
CONFLICT ■ DREAMS AND HUMAN DEVELOPMENT ■ DREAMS AND IN-
DIVIDUAL DIFFERENCES ■ PERSPECTIVES ON PSYCHOLOGY

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