

An abstract painting featuring a map of the Southeastern United States, specifically showing parts of Georgia, South Carolina, and North Carolina. The map is tilted and integrated into a dark, swirling landscape. In the upper right, a bright yellow sun or moon is partially obscured by a large, dark, curved shape. The foreground is dominated by bold, expressive brushstrokes in red, orange, and yellow, suggesting a landscape or perhaps a map's border. The overall style is expressive and somewhat surreal.

BENJAMIN B.  
LAHEY

SIXTH  
EDITION

# PSYCHOLOGY

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

# PSYCHOLOGY

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

S I X T H E D I T I O N

BENJAMIN B.  
LAHEY  
UNIVERSITY OF CHICAGO

**McGraw-Hill**

A Division of The McGraw-Hill Companies



**PSYCHOLOGY: AN INTRODUCTION**

Copyright 1998 by The McGraw-Hill Companies, Inc. All rights reserved. Printed in the United States of America. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a data base or retrieval system, without the prior written permission of the publisher.



This book is printed on recycled, acid-free paper containing 10% postconsumer waste.

1 2 3 4 5 6 7 8 9 0 QPD QPD 9 0 9 8 7

Library of Congress Catalog Card Number: 96-78737

ISBN 0-697-25310-4

Editorial director: *Jane Vaicunas*

Senior developmental editor: *Meera Dash*

Senior marketing manager: *Jim Rozsa*

Project manager: *Terry Routley*

Production supervisor: *Sandy Hahn*

Cover and interior design: *Lesiak/Crampton Design, Inc.*

Cover image: "River Dream", 1992 © *Christian Pierre/SUPERSTOCK*

Photo research coordinator: *Carrie Burger*

Compositor: *Shepard Poorman Communications Corporation*

Typeface: *10/12 Times Roman*

Printer: *Quebecor Printing Book Group/Dubuque*

**INTERNATIONAL EDITION**

Copyright 1998. Exclusive rights by The McGraw-Hill Companies, Inc. for manufacture and export. This book cannot be re-exported from the country to which it is consigned by McGraw-Hill. The International Edition is not available in North America.

When ordering this title, use ISBN 0-07-115357-8.

*For Megan, Ted, Erin, Clare, and Kate*



# PREFACE

Although the preface is the first part of the book that you read, it is the last part that I wrote. It is my opportunity to reflect on the completed project in the hope that these reflections will help introduce you to the text. Over six editions, the unchanging goal for *Psychology: An Introduction* has been to *teach*. We (referring to the large group of talented psychologists, editors, consultants, and reviewers who have worked with me) have centered our efforts on giving you a text that fully captures the immense importance and fascination of the scientific study of ourselves. I am genuinely passionate about teaching psychology, and I have done all that I can to share that passion with you. You have my pledge that I have done my best to teach the concepts and facts of psychology in the clearest and most exciting manner possible. The gratifying responses of both instructors and students to the first five editions of this textbook have been a wonderful source of encouragement for these efforts.

We made three kinds of changes in this edition: (1) improved the written and visual presentation of information, (2) added new and timely information, and (3) revised the most important pedagogical feature in the book.

1. **Improvements in the presentation of information.** We have worked very hard to provide you with a textbook that sets a standard for the field through the *clarity* of both the written language and the visual illustrations. Students cannot learn what they do not understand, and this book goes to great lengths to make the science of psychology understandable. Every sentence in the textbook was reconsidered, and many were rewritten to make them clearer to the student. Similarly, several new illustrations were added and several were redrawn for greater clarity.

As in previous editions, a concerted effort has been made to estimate realistically the memory required to process the meaning of complex passages. Most textbooks are based on the assumption that all information from previous sentences has been encoded in memory, when this is obviously not always the case. In this book, sentences have been written to avoid unrealistic reliance on previous sentences and to build repetition of key terms and concepts into the prose. These features are subtle, but they enhance readability.

One of the most visible changes to the presentation of information is in chapter 1. The material has been reorganized considerably from the previous edition. This is true in two ways. First, the many founders of psychology are organized in a way that

should make better sense to first-time readers. Even if they fought like cats and dogs at the time, historic figures whose ideas were very similar are grouped together to make better conceptual sense to students.

Second, this edition marks a major milestone in portraying the role of women and ethnic minorities in the history of psychology. Two editions ago, I added a boxed feature saying that white males were not the only important figures in the history of psychology—women and minorities played important roles, too. In the last edition, I moved this section into the text discussion, but I kept it separate from the “main” history of psychology—the section describing what the white males did. But since I wrote the fifth edition I have spent some time reading the scientific contributions of these early psychologists. I concluded that several women and minorities have been excluded from the “official” history of psychology simply because of their gender or race. I have, therefore, done my best to tell the history of the beginnings of psychology as it happened. I have done my best not to “revise” history to fit modern conceptions of fairness, but have simply tried to set the record straight in a fair manner.

2. **New information.** New information has been included in this edition in several other ways. First, as always, one of the pleasures of revising a textbook is seeing how much the field advances in three short years. Although coverage of the fundamental principles in this edition has not changed greatly, much new information has been integrated. The book is filled with important new information on genetics, sleep and dreaming, memory, cultural differences, gender differences and similarities, aging, emotion, intelligence and occupational success, psychotherapy, stress and the immune system, the application of psychology to business, and many other topics. Psychology is clearly a discipline that is still in an age of rapid accumulation of information, even if radical changes to most basic concepts have not occurred in a long time. Happily, the responsibility of revising a basic textbook pushes me to read very broadly in the psychological literature. It is a fascinating field!
3. **Improved Pedagogical Device.** From the conception of the first edition almost 20 years ago and through every stage of its development, *Psychology: An Introduction* has been constructed with a single purpose in mind: to create a teaching tool from which

students will learn a great deal of basic information about psychology. The accent is on *meaningful* and *efficient* learning by students. Although psychologists devote a great deal of time to studying human learning, we have rarely put the information we have acquired to use in writing textbooks. Because I enjoy teaching psychology and have an interest in human learning, I based the pedagogical features of this textbook on what current research has told us about the way people learn.

Before each new edition is revised, the pedagogical plan of the text is evaluated according to the latest research on learning from textbooks. It is gratifying to see that the basic structure of each chapter continues to be supported by research on human learning and memory. As was true two decades ago, it is still true that the strongest learning aid that a book can offer is an *advance organizer*. Students learn and retain information better when they are told in advance what they are going to read. Having an advance understanding of the nature and structure of the new material facilitates learning and improves memory. In the last five editions, the student has been given three kinds of advance organizers before reading the main body of a chapter. First, the student was given a bare-bones **outline** of the chapter. That clearly shows the hierarchical organization of the material. Second, a **prologue** composed of high-interest material on the topic of the upcoming chapter was presented to pique the student's interest. Third, a **preview** described the major concepts covered in the chapter and how they are related

to one another before the chapter opened. Thus, the student was provided with three forward looks at the chapter to create a cognitive organization upon which to "hang" new facts and concepts.

I have always felt that all three kinds of advance organizers were necessary, but I have been concerned that having to process three sections before starting the chapter may have tempted students to skip them all. I realized in preparing for this edition that the solution was to combine the high-interest material in the prologue with the prose preview. I was delighted to see that I could do so very easily, and still keep the new combined prologue shorter than the total of the two previous parts. Perhaps most importantly, the new advance organizers are more interesting to read. I don't know why it took me so long to think of this clearly better solution!

## ACKNOWLEDGMENTS

The enormous job of revising this textbook did not fall on my shoulders alone. The revision process was helped tremendously by the input of numerous reviewers with a knowledge of both psychology and the art and science of teaching. Master teacher Laura Freberg wrote the first draft of the chapters on biological foundations, learning, memory, social psychology, and applied psychology. Her work has been of tremendous help to me and her efforts can be seen in the quality of these chapters. I confess, however, to a compelling urge to rewrite everyone's drafts to put them into my own language. Therefore, if these chapters are not perfect, the blame rests with me.

## Reviewers

The following individuals have helped tremendously by reviewing this or previous editions of *Psychology: An Introduction*; their helpful guidance has been carried forward into the current edition.

Henry E. Adams, <i>University of Georgia</i>	Michael Bergmire, <i>Jefferson College</i>	William Calhoun, <i>University of Tennessee</i>	George J. Downing, <i>Gloucester County College</i>
Vincent J. Adesso, <i>University of Wisconsin, Milwaukee</i>	Thomas E. Billemek, <i>San Antonio College</i>	Francis B. Colavita, <i>University of Pittsburgh</i>	William O. Dwyer, <i>Memphis State University</i>
Robin A. Anderson, <i>St. Ambrose University</i>	Tom Bourbon, <i>Stephen F. Austin State University</i>	Bridget Coughlin, <i>Hocking Technical College</i>	David C. Edwards, <i>Iowa State University</i>
Stuart Appelle, <i>SUNY, Brockport</i>	Edward N. Brady, <i>Belleville Area College</i>	Kathleen Crowley-Long, <i>College of St. Rose</i>	Henry C. Ellis, <i>University of New Mexico</i>
Brian C. Babbitt, <i>Missouri Southern State College</i>	John P. Broida, <i>University of Southern Maine</i>	Patrick T. DeBoli, <i>Nassau Community College</i>	Martha M. Ellis, <i>Collin County Community College</i>
Gladys J. Baez-Dickreiter, <i>St. Philip's College</i>	Thomas Brothen, <i>University of Minnesota</i>	Peter Derks, <i>College of William &amp; Mary</i>	Nolen U. Embry, <i>Lexington Community College</i>
Roger Baumgarte, <i>Winthrop University</i>	Hazel J. Brown, <i>Harrisburg Area Community College</i>	George M. Diekhoff, <i>Midwestern State University</i>	Linda J. Enloe, <i>Idaho State University</i>
Alan Bensley, <i>Texas Wesleyan University</i>	Steven H. Brown, <i>DeVry Institute of Technology</i>	Peter H. Ditto, <i>Kent State University</i>	Joseph D. Eubanks, <i>San Antonio College</i>
John B. Benson, <i>Texarkana College</i>	John J. Burke, <i>East Central University</i>	Ed Donnerstein, <i>University of Wisconsin, Madison</i>	Donald L. Fischer, <i>Southwest Missouri State University</i>

Laura Freberg, <i>California Polytechnic State University, San Luis Obispo</i>	R. Reed Hunt, <i>University of North Carolina</i>	David E. Neufeldt, <i>Hutchinson Community College</i>	Carolyn H. Simmons, <i>University of North Carolina at Wilmington</i>
Lawrence L. Galant, <i>Gaston College</i>	Carl Johnson, <i>Central Michigan University</i>	Benjamin H. Newberry, <i>Kent State University</i>	Grant W. Smart, <i>Utah Technical College</i>
Grace Galliano, <i>Kennesaw State College</i>	Adrienne Joyce, <i>East Los Angeles College</i>	James L. Nielson, <i>Evergreen Valley College</i>	Leo Spindel, <i>Centennial College</i>
David A. Gershaw, <i>Arizona Western College</i>	Seth C. Kalichman, <i>Medical College of Wisconsin</i>	James E. Oliver, <i>Henry Ford Community College</i>	Donald M. Stanley, <i>North Harris College</i>
Gail S. Gibson, <i>Alabama A &amp; M University</i>	Chester Karwoski, <i>University of Georgia</i>	Holly A. Pennock, <i>Hudson Valley Community College</i>	Michael R. Stevenson, <i>Ball State University</i>
Ajaipal S. Gill, <i>Anne Arundel Community College</i>	Wilma Kirk-Lee, <i>Shorter College</i>	Carrol S. Perrino, <i>Morgan State University</i>	Pamela E. Stewart, <i>Northern Virginia Community College</i>
Randall D. Gold, <i>Cuesta College</i>	Daniel S. Kirschenbaum, <i>University of Wisconsin, Madison</i>	Thomas P. Petzel, <i>Loyola University of Chicago</i>	Lawrence L. Stofan, <i>University of Maine</i>
Peter Clark Gram, <i>Pensacola Junior College</i>	Richard A. Kribs, <i>Motlow State Community College</i>	William Pfohl, <i>Western Kentucky University</i>	A. Melton Strozier, Jr., <i>Houston Baptist University</i>
James E. Gruber, <i>University of Michigan, Dearborn</i>	Velton Lacefield, <i>Prairie State College</i>	Bobby J. Poe, <i>Belleville Area College</i>	Roger L. Terry, <i>Hanover College</i>
Megan Gunnar, <i>University of Minnesota</i>	Kathryn Ann Lambers, <i>Beal College</i>	Sharon Presley, <i>California State University, Fullerton</i>	W. Scott Terry, <i>University of North Carolina</i>
Mykol C. Hamilton, <i>Centre College</i>	James T. Lamiell, <i>Georgetown University</i>	Robert R. Rainey, <i>Florida Community College</i>	Roger K. Thomas, <i>University of Georgia</i>
Cheryl-Ann Hardy, <i>Columbia College</i>	Daniel K. Lapsley, <i>Brandon University</i>	Lillian M. Range, <i>University of Southern Mississippi</i>	Edward A. Thompson, <i>Southern Connecticut State University</i>
James Hart, <i>Edison State Community College</i>	Joseph T. Lawton, <i>University of Wisconsin, Madison</i>	Gail Reisman, <i>California State University, Fullerton</i>	M. E. Thrasher, <i>San Bernardino Valley College</i>
Janice L. Hartgrove-Friele, <i>North Harris County College</i>	Bernard H. Levin, <i>Blue Ridge Community College</i>	Daniel W. Richards, <i>Houston Community College</i>	J. David Tipton, <i>Gadsden State Community College</i>
Morton A. Heller, <i>Winston-Salem State University</i>	Susan D. Lima, <i>University of Wisconsin, Milwaukee</i>	Deborah Richardson, <i>University of Georgia</i>	John R. Tisdale, <i>Cedar Crest College</i>
John Hensley, <i>Midwestern State University</i>	Jonathan S. Lynton, <i>DeVry Institute of Technology</i>	Matt L. Riggs, <i>California State University</i>	William H. Van Hoose, <i>University of Virginia</i>
A. Herschberger, <i>Greater Hartford Community College</i>	Richard E. Mayer, <i>University of California, Santa Barbara</i>	Ronald W. Rogers, <i>University of Alabama</i>	Benjamin Wallace, <i>Cleveland State University</i>
Lyllian B. Hix, <i>Houston Community College</i>	Donald H. McBurney, <i>University of Pittsburgh</i>	Anita Rosenfield, <i>Chaffey Community College</i>	George Wang, <i>Cooke County College</i>
Roger H. Hodgins, <i>Florence-Darlington Technical College</i>	Lynn E. McCutcheon, <i>Northern Virginia Community College</i>	Alan O. Ross, <i>State University of New York at Stony Brook</i>	C. M. Whissell, <i>Laurentian University</i>
Thomas Holland, Jr., <i>Houston Baptist University</i>	Richard McKnight, <i>Nicholls State University</i>	David L. Salmond, <i>Vincennes University</i>	Lisa Whitten, <i>Arizona State University West</i>
Neil B. Holliman, <i>Midwestern State University</i>	Caven S. McLoughlin, <i>Kent State University</i>	James F. Sanford, <i>George Mason University</i>	Kenneth N. Wildman, <i>Ohio Northern University</i>
Paul W. Horn, <i>Indiana State University</i>	Jodi A. Mindell, <i>St. Joseph's University</i>	Gary Schaumberg, <i>Cerritos College</i>	Maureen Rousset Worth, <i>Southern Seminary Junior College</i>
Sharon C. Hott, <i>Allegheny Community College</i>	Daniel D. Moriarity, <i>University of San Diego</i>	Steven A. Schneider, <i>Pima Community College</i>	
	Michael T. Scoles, <i>University of Central Arkansas</i>	Michael T. Scoles, <i>University of Central Arkansas</i>	
	Paul Muhs, <i>University of Wisconsin, Green Bay</i>	Laura S. Sidorowicz, <i>Nassau Community College</i>	

Many talented editors and illustrators also played essential roles. The results of that combined effort are before you, and I hope that it will serve the needs of students and instructors even better than did the previous edition.

In the two sections that follow, the mechanics of *Psychology: An Introduction* are explained in detail. “To the Instructor”

describes the pedagogical strategy used in the textbook and my reasons for selecting the elements that are included. The next section, titled “To the Student: How the Book Works,” explains in a step-by-step manner each teaching device I have used. It’s essential that the student understand the purpose of each teaching device to derive maximum benefit from this book.

# TO THE INSTRUCTOR

*Psychology: An Introduction* offers thorough topic coverage and standard organization designed to fit courses as they are most commonly taught. But it differs significantly from other textbooks in two main ways. First, every effort has been made to create a writing style that is—as one former student kindly described it—“friendly.” This book is not a pompous attempt to impress students with the complexities of the science of psychology. It was written to provide a clear, informative, challenging, exciting, and personal introduction to psychology.

Second, *Psychology: An Introduction* differs from other textbooks in its emphasis on meaningful learning. This book contains many elements designed to enhance learning and remembering based on an organizational model of semantic memory. The content of the first course in psychology can be thought of as a *hierarchical organization* of concepts and facts. Quite simply, this means that information about psychology is not a disorganized jumble of new facts. Some information “goes with” other information, some concepts are detailed elaborations of more general concepts, and so on. To improve learning and memory, it is as important for students to understand the overall organization of new information as it is for them to understand the individual concepts and facts themselves.

Based on what is now known about learning from textbooks, this book helps the student understand how new information about psychology is organized and to process that information more deeply in five primary ways:

1. **Advance organizers.** Considerable research indicates that students learn and retain information better when they have an advance understanding of the hierarchical organization of the information being learned. To accomplish this, the student is given two kinds of advance organizers before reading the main body of the text. The student is first presented with an **outline** of the major topics covered within the chapter, a device common to many textbooks. But to add to the effectiveness of this bare-bones overview, a prose organizer, called the **prologue**, both piques the student’s interest with exciting information and highlights the major concepts in the forthcoming chapter. Thus, the student is provided with two forward looks at the chapter to create a cognitive organization upon which to “hang” new facts and concepts. The prologues in this edition combine the best features of both the “prologue” and “preview” sections of previous editions by fusing high-interest material with an advance organizer.
2. **Questions to stimulate critical thinking.** An important feature of the sixth edition is the set of questions

designed to stimulate critical thinking (Baron & Sternberg, 1987). These **critical thinking questions** appear at the end of each section. They are designed to catch the student’s attention and stimulate thought for two reasons. First, it is important that students not passively absorb new information but, rather, critically evaluate and ponder what they are learning. Moreover, as suggested by Perkins (1987), it may well be more effective to teach critical thinking skills through the content of a specific course than in the abstract. And what course is more appropriate than psychology—in which human beings ponder themselves. Second, current research suggests that thinking about what you have just learned leads to deeper semantic processing and better retention (Ellis & Hunt, 1989). Thus, both as an aid to student reading and as a stimulus for classroom discussion, these high-interest questions at the end of each section should prove to be highly important pedagogical tools. To help students prepare to use these critical thinking questions, a section called “Critical Thinking” appears in the preliminary pages. In addition, the Instructor’s Course Planner includes pertinent information to help the instructor.

3. **Nested hierarchical reviews.** The interrelationship of the new information is further strengthened in the **review** and **summary** sections. Following each major section within each chapter, the content of that section is briefly reviewed in prose. In addition, the student can test his or her knowledge of each section in the **check your learning** sections. At the end of each chapter, the main content of the chapter is again summarized, but this time in a hierarchical outline that visually highlights the organization of the material.
4. **Visual organizational cues.** Using hierarchical outlines in the end-of-chapter summaries is only one way in which the student is actually shown the organization of the new material. Close attention has been paid to the use of visual cues—such as typeface, type size, color of type, and indentations—to indicate the organization of the text. The difference between this book and others is intentionally subtle in this respect, but students should have little trouble distinguishing the superordinate-subordinate structure of A, B, and C levels of headings. In diagrams and figures, colors were chosen not to be decorative, but to show students which elements are related and which are different. In addition, lists—like the one you are reading



now—have been frequently (but not excessively) used to show that each element in the list is at the same level of organization and subordinate to the title of the list (“five ways to help students understand organizational structure” in the case of the list you are reading now).

5. *Verbal cues to organization.* Another important way to help readers see how concepts and facts are related is to simply tell them in words. Therefore, the textbook makes many references to the organization of the new information. This is done in two main ways. First, when a newly introduced concept is related to another concept that was discussed in an earlier section, this fact is specifically pointed out. Second, information that is subordinate to a concept is frequently introduced in a way that makes that relationship very clear (i.e., “The two factors that cause forgetting in short-term memory are . . .”). Although these cues are subtle so as not to interrupt the flow of the discussion, they have been added to help improve the student’s comprehension and memory.

The use of these pedagogical devices was chosen over two other pedagogical approaches after much consideration. I chose not to use the SQ3R (survey, question, read, recite, review) method of organizing the text because the author, not the student, must ask the questions, which reduces student involvement and discourages the student from critically evaluating and deeply processing the new information. However, the SQ3R approach is useful as a general study method and can be used with any text, including this one. Therefore, I have included its application in the **study skills** section that follows the preface. For those instructors who wish to use instructional objectives, we have included them in the Student Study Guide and the Instructor’s Course Planner that accompany this book. In addition, an appendix on measurement, research design, and statistics appears at the end of the book for those professors who wish to teach a more research-oriented course.

## SUPPLEMENTARY MATERIALS

*Psychology: An Introduction* is accompanied by an integrated ancillary package designed to meet the unique needs of instructors and students. The goal has been to create a teaching package that is as enjoyable to teach with as it is to study from. Each element of the ancillary package has been created by talented individuals with many years of experience in teaching psychology.

The *Instructor’s Course Planner* was prepared by Steven A. Schneider of Pima Community College. This flexible planner provides many useful tools to enhance your teaching. For each chapter, learning objectives, an extended chapter outline, suggestions for teaching, lecture/discussion suggestions, video and film suggestions, classroom activities, and handout forms are provided. The *Instructor’s Course Planner* is also available on disk for IBM and Macintosh computers.

The *Introductory Psychology Activities Handbook* offers additional activities, in-class and out-of-class projects, and discussion questions. The activities handbook will help you get your students actively engaged and thinking critically.

A *Test Item File* with questions for all sixteen chapters will be available to instructors who adopt *Psychology: An Introduction* sixth edition. The questions in the Test Item File are also available on *MicroTest III*, a powerful but easy-to-use test-generating program by Chariot Software Group. MicroTest is available for your use in DOS (3.5” disks), Windows, and Macintosh versions. With MicroTest, instructors can easily select questions from the Test Item File and print tests and answer keys. Instructors can also customize questions, headings, and instructions; add or import their own questions; and print tests in a choice of printer-supported fonts.

The *Student Study Guide* was also created by Instructor’s Manual author Steven A. Schneider. For each chapter of the text, the student is provided with learning objectives, a detailed chapter outline, a guided review of terms and concepts, and two multiple choice practice tests.

*Transparencies* of sixty key images drawn directly from this textbook are available for the instructor upon adoption. In addition, the *Introductory Psychology Transparency Set* provides over 100 additional transparencies illustrating key concepts in general psychology. It also includes an accompanying handbook with specific suggestions for classroom use by Susan J. Shapiro of Indiana University East. The *Electronic Image Bank* provides you with the same outstanding graphics on a CD-ROM for presentation from your PC or Macintosh. We provide our own generic viewer, but the contents can be downloaded into your own favorite presentation program, for instance, PowerPoint.

*The Critical Thinker*, Second Edition, by Richard Mayer and Fiona Goodchild, both of the University of California—Santa Barbara, explicitly teaches strategies for understanding and evaluating material in any introductory psychology textbook. This seventy-page booklet is available free to adopters.

*The AIDS Booklet*, Third Edition, by Frank D. Cox of Santa Barbara City College, is a brief but comprehensive introduction to the Acquired Immune Deficiency Syndrome, HIV, and related viruses.

*The Encyclopedic Dictionary of Psychology* provides easy reference access to the key figures, concepts, movements, and practices of the field of psychology.

*Psychology: The Active Learner CD-ROM* by Jane Halonen, Marilyn Reedy, and Paul Smith is an innovative interactive product that will help students learn key concepts taught in introductory psychology in a fun and dynamic way. Focusing on the concepts that tend to be most difficult for the beginning psychology student, this program contains fifteen modules containing tutorial review and critical thinking exercises for biological foundations, sensation and perception, states of consciousness, learning, memory, development, social psychology, and more.

The CD-ROM *Explorations in Health and Psychology* by George B. Johnson of Washington University in St. Louis helps students actively investigate processes vital to their understanding of psychology as they should be explored—with movement, color, sound, and interaction. This set of ten interactive animations on CD-ROM allows students to set and re-set variables in each (including modules on Life Span and Lifestyle, Drug Addiction,

Nerve Conduction, AIDS, Immune Response and more) and then evaluate those results. In addition to the colorful and precisely labeled graphics and animated illustrations, the CD-ROM also offers **narration in English and Spanish**, a glossary with written and oral pronunciations, and lists of additional recommended readings. Contact your sales representative for more information. A large selection of **videotapes** is also available to adopters based on the number of textbooks ordered. Consult your sales representative for ordering policies.

**The Brain Modules on Videodisc**, created by WNET in New York, Antenne 2 TV/France, the Annenberg/CPB Foundation, and Professor Frank J. Vattano of Colorado State University, is based on the Peabody-award-winning series *The Brain*. Thirty segments, averaging six minutes each, illustrate an array of topics in psychology. Consult your sales representative for details.

The **Human Development Interactive Videodisc Set**, produced by Roger Ray of Rollins College, vividly introduces life-span development with instant access to over thirty brief video segments from the highly acclaimed *Seasons of Life* series. Consult your sales representative for details.

The **Reference Disk Set** is available free to adopters. The disks include over 15,000 journal and book references arranged in files by topic. The complete set of five disks is available on IBM (3.5") or Macintosh disks.

## Annual Editions®

Magazines, newspapers, and journals can provide current, first-rate, relevant educational information. *Annual Editions* provides convenient, inexpensive access to a wide range of current,

carefully selected articles from magazines, newspapers, and journals. Written by psychologists, researchers, and educators, *Annual Editions: Psychology* provides useful perspectives on important and timely topics. *Annual Editions* is updated yearly, and contains a number of features designed to make it particularly useful, including a topic guide, annotated table of contents, and unit overviews. For the professor using *Annual Editions* in the classroom, an Instructor's Resource Guide with test questions is available.

## Taking Sides®

Are you interested in generating classroom discussion? In finding a tool to fully involve your students in their experience of your course? Would you like to encourage your students to become more active learners and critical thinkers? *Taking Sides: Clashing Views on Psychological Issues* is a debate-style reader designed to introduce students to controversies in psychology. By requiring students to analyze opposing viewpoints and reach considered judgments, *Taking Sides* actively develops students' critical thinking skills.

**Sources: Notable Selections in Psychology**, Second Edition, brings together over forty selections including classic articles, book excerpts, and research studies that have shaped the study of psychology. New to the second edition are twenty-one selections from some of the most distinguished researchers, theorists, writers, and practitioners of psychology. If you want your students to gain greater background knowledge in reading and interpreting first-hand from source material, *Sources* collects a diverse array of accessible but significant readings in one place.

# TO THE STUDENT

## HOW THE BOOK WORKS

This book contains several learning devices, each of which is designed to accomplish five goals:

1. To focus your attention on the subject of the chapter.
2. To give you an advance overall view of what you are about to learn.
3. To show you how each fact and concept is related to the overall subject matter of the chapter.
4. To help you review what you have just learned to be sure that you have gotten it all and to strengthen the newly formed memories.
5. To help you think critically about the new information that you have learned and relate it to your own life.

These five goals must be reached if you are going to learn about psychology in a meaningful way, rather than just blindly memorizing facts and definitions. Let me show you how each feature of the book contributes to these five goals.

**1 Chapter Outline** Each chapter begins with an outline that organizes the key ideas of the chapter. Examine the outline carefully to see which topics will be studied, but notice also how the topics are arranged. Headings that show the major topics are called A heads (printed in capital letters); they define the breadth of coverage in each chapter. Under each A head are B heads; (indented) they reveal the depth and detail of coverage. Studying the outline for a few minutes will give you an advance look at the content of the chapter and show you how topics relate to one another. When you read a chapter, you may wish to refer to the outline from time to time. It will reinforce the relationships among topics and help you understand the structure of the chapter.

**2 Prologue** Each chapter begins with a short section designed to focus your attention on the theme of the chapter. It is a high-interest essay that introduces a bit of research or history to prepare you for the content of the chapter. The prologue highlights the most important concepts that will be covered in the chapter. Along with the chapter outline, it allows you to see what the chapter is going to be about before you read and start to grasp the details. A great deal of research suggests that having a general understanding of what is going to be learned will improve learning

## CHAPTER

# 8

## Developmental Psychology

### CHAPTER OUTLINE

PROLOGUE	285
BASIC PROCESSES OF DEVELOPMENT	286
Nature or Nurture?	286
Maturation	286
Early Experience and Critical Periods	287
Variations in Development: Getting There at Different Times	289
STAGE THEORIES OF DEVELOPMENT	292
Piaget's Stage Theory of Cognitive Development	292
Stage Theories of Moral Development	292
Erikson's Stage Theory of Personality Development	295
DEVELOPMENT IN INFANCY AND CHILDHOOD	297
Neonatal Period: The Newborn	298
Infancy: 2 Weeks to 2 Years	299
Early Childhood: 2 to 5 Years	300
Middle Childhood: 7 to 11 Years	303
ADOLESCENT DEVELOPMENT	304
Physical Development	305
Cognitive Development (Formal Operational Stage)	305
Emotional and Social Development	307
ADULTHOOD: YOUNG ADULTHOOD THROUGH OLDER ADULTHOOD	309
Physical Development	310
Cognitive Development	310
Emotional and Social Development	311
Death and Dying: The Final "Stage"	317
APPLICATION OF PSYCHOLOGY: PARENTING	319
SUMMARY	322
SUGGESTED READINGS	323

### 2

### PROLOGUE

Jean Piaget was a notable Swiss scientist who studied the development of cognition in children until his death in 1980. His most important contribution was to show us that children of different ages understand the world in ways that are often very different from the way adults understand it. Indeed, young children understand their worlds in ways that are so different from adults that it is sometimes like trying to communicate with a creature from another galaxy!

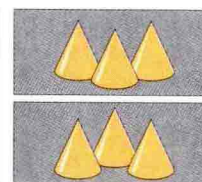
Imagine that you drop by your instructor's office for a visit and sit down on the opposite side of her desk. Would the objects on top of the desk look exactly the same to you and your instructor? Of course not. The paper clip that you see in front of her coffee cup is hidden from her view, and you can't see the wall of bubble gum that is stuck to her side of the pencil sharpener. We adults have so little trouble understanding that our perception of things depends on our perspective that we take this ability for granted. However, we are not born with the ability to take another person's perspective—it develops over time.

A classic experiment by Piaget and his frequent collaborator Barbel Inhelder (1963) makes this point very well. Children of different ages were shown three small three-dimensional replicas of "mountains" arranged on a table top. On the other side of the table, a doll was seated. The children were asked to look at the mountains and then were asked to indicate which picture from several showed the mountains as the doll would see them. Six-year-olds could not do it at all, some 7- and 8-year-olds could, and children 9 to 11 years of age had no more trouble with the task than an adult would.

Life doesn't stand still. We are in a state of constant change throughout our lives. When we ask ourselves who we are, we think of ourselves in terms of who we are now. But we have been and will be many different people in our lifetime: an infant, a child, a teenager, a young adult, a mature person, and an aged person. The thread of continuity that runs through our lives

### 3

development	286
maturation	286
imprinting	288
critical period	288
early experiences	288
stage	292
neonatal period	298
sensormotor stage	299
object permanence	299
attachments	300
separation anxiety	300
preoperational stage	301
egocentric	301
animism	301
transductive reasoning	302
concrete operational stage	303
conservation	303
adolescence	304
puberty	304
formal operational stage	305
adolescent egocentrism	306



What does the doll see?



Wardlaw and Wardlaw tickle Roger interchangeably as a request to be tickled. In contrast, a human speaker of ASL would recognize those statements as having different meanings.

At present, it appears that apes may have learned to use language at the level of a 2-year-old human, but they have not progressed beyond that point (Reynolds & Flagg, 1983). Still, their elementary use of language is more evidence of "humanity" than was once thought possible for apes. And the apes' progress has done much to "talk" at least some scientists out of their belief that only humans can learn human languages.

6

#### Thinking Critically About Psychology

1. Does it make sense to you to say that apes are not capable of using language in a human way?
2. The Greek language has three different words for love. Would that influence the way Greeks think about and understand love?

#### Review

Language is the efficient symbolic code used in human communication. It utilizes a finite set of sounds, units of meaning, and rules for combining them to convey a limitless set of meanings. The question of whether our language influences our cognition has not been satisfactorily answered, but current evidence suggests that it does in some ways. Although no animals have learned to use human language in the same ways as humans, surprisingly complex two-way conversations can occur between humans and apes who have been taught sign language—we can talk to some of the animals.

5

7

#### Check Your Learning

To be sure that you have learned the key points from the preceding section, cover the answers below and try to answer each question. If you give an incorrect answer to any question, return to the page given next to the correct answer to see why your answer was not correct.

1. While language is the term used to describe the symbolic code used in communication, the meaning of the code is termed \_\_\_\_\_.  
a. surface structure                      c. semantics  
b. heuristics                              d. syntax
2. Human language can be referred to as \_\_\_\_\_ in that an infinite set of utterances can be made using a finite set of elements and rules.  
a. divergent                              c. semantic  
b. conceptual                              d. generative
3. \_\_\_\_\_ refers to the rules of a language, such as the rules for the ways in which morphemes can be combined, that allow an infinite number of understandable utterances to be generated.  
a. Semantics                              c. Phonemics  
b. Syntax                                  d. Morphemics
4. According to the \_\_\_\_\_ hypothesis, the vocabulary and structure of a language can influence the way speakers of that language think.

#### INTELLIGENCE: THE SUM TOTAL OF COGNITION

In the sense used in this book, **intelligence** refers to the cognitive abilities of an individual to learn from experience, to reason well, and to cope effectively with the demands of daily living. In short, intelligence has to do with how well a person is able to use cognition in coping with the world.

4

#### Intelligence

(in-tel-i-jens) The cognitive ability of an individual to learn from experience, to reason well, and to cope with the demands of daily living.



## HUMAN DIVERSITY

8

### Understanding Intelligence from the Cree Perspective

Each culture defines intelligence differently, and children in each culture are encouraged to be intelligent in those ways. It is difficult for us to understand that different cultures have different definitions of intelligence, however, because our own view seems to be the only correct one. By definition, any view of intelligence that is different from our own seems to be "unintelligent." But, in the multicultural world in which we live, it is essential that we develop a greater understanding of different views of intelligence.

An ingenious study of differing definitions of intelligence by John Berry and his colleagues (Berry & Bennett, 1992) creatively combined research techniques from anthropology and psychology to examine the definitions of intelligence among the Cree, a tribe of Native Americans and Native Canadians in Ontario. Berry and Bennett first asked Cree adults who spoke both English and Cree to give them Cree words that had to do with intelligence, thinking, being smart, or being wise.

Twenty words obtained through this technique were written in Cree script on cards. The cards were given in random order to 60 Cree people. The individuals were asked to sort the words into piles of words with similar meaning. In this way, they were able to see which words tended to be placed in the same piles because they had similar meaning to the Cree.

The first group of similar words included the Cree words for wisdom, thinking hard, and thinking carefully. These terms were often the first Cree words given as the translation of the English words *smart* or *intelligent*.

A second group included the Cree words for respect and respectfulness. To the Cree, respect refers to an appreciation for people, animals, the Creator, and the land. Respectfulness involves an active and positive involvement with these things and is seen as the opposite of laziness. Respect and respectfulness from the Cree point of view involve caretaking—looking after something that is highly valued.

A third group of Cree words referred to paying attention, self-discipline, and self-control. It involved thinking before taking action, and listening to what others say. Other concepts that are extremely important to Cree conceptions of intelligence include patience and perseverance, being able to look after

yourself and survive without being a drain on others, and being open to new experiences. Thus, the Cree view of intelligence is much broader than that of the European-American view, including an emphasis on independence, self-reliance, self-discipline, respect for others, and respect for nature.

To instill these values in their children and raise intelligent adults, Cree parents and elders use child-rearing techniques that are sometimes quite different from those seen in many homes in the United States. For example, Cree children are encouraged to act independently without interference from adults. Adults rarely interfere with what an older child is doing, even if it is potentially dangerous, feeling that direct experience is the best teacher. In Cree culture, a high value is placed on not interfering in other peoples' affairs—and this courtesy is extended to children. Berry and Bennett note that some label this parenting style as neglectful, but they point out that Cree parents are often quite anxious when, for example, a child is playing with a sharp object, and they are noticeably relieved when the child puts the object down. Using such parenting methods, the Cree socialize children to be self-sufficient and independent. They learn that "one's destiny need rest in no hands but one's own" (p. 80).

How do these notions of intelligence and competence compare with those in your own culture? Give some thought to the ways in which the values that were taught in your neighborhood as you were growing up differ from those on the college campus you are attending. Keep in mind as you consider these things that the varying notions of intelligence and competence in different cultures are not superior or inferior to one another, simply different.



IQs that are over 100 indicate that the person is more intelligent than average (the MA is greater than the CA). For example, if a child obtains an MA of 10 years, but her CA is only 8 years, then her IQ would be  $108 \times 100 = 125$ . Conversely, IQs less than 100 indicate that the individual is less intelligent than average. A child who is 10 years in CA but obtains an MA of only 7 years would have an IQ of  $7/10 \times 100 = 70$ .

Actually, Binet's approach to calculating the intelligence quotient from the ratio between the child's mental age and chronological age—called the **ratio IQ**—is no longer used in contemporary intelligence tests. There are several technical reasons that the ratio

#### ratio IQ

Intelligence quotient based on the ratio between the person's mental age and chronological age.

and memory of the new material. The prologue will help you understand what you are learning, which is better than rote memorization of details.

**3 Key Terms** A list of the key terms you will encounter in the chapter is presented at the beginning of each chapter. You can use these terms to focus and check your learning. Because learning new vocabulary is half the battle in psychology, be sure you understand the meaning of each of these terms by the time you have finished studying a chapter. They will help you make sure that you have learned the most important terms when you are reviewing for a test. Page references help you locate definitions while studying.

**4 Margin Glossary** A running glossary with pronunciation guidelines defines new terms and shows you how to pronounce those that may be difficult. You will find these definitions and pronunciations in the outside margin of the text near the new terms that appear in boldface type within the text. These entries provide a convenient way of learning definitions without disrupting your reading.

**5 Section Reviews** Within each chapter are three to seven major sections. These are self-contained in the sense that they can be understood without an extensive understanding of the sections that precede or follow them. This flexibility will allow your instructor to assign sections to be read when the need arises instead of an entire chapter.

Following each major section is a brief review that summarizes the main ideas introduced in that section. This device will help you keep the overall organization of the new material in mind as you study and master the details.

**6 Critical Thinking Questions** Questions designed to stimulate critical thinking appear in the margin at the end of each section. These questions will further your critical thinking if you let them involve you actively in the process of learning. The few minutes of thought that each question provokes should help you to personalize your new knowledge of psychology, making it "your own" to keep and use over your lifetime. Directly following "How the Book Works" is a short section titled "Critical Thinking." Taking the time to read it now can help you get more out of the critical thinking questions in the rest of the book.

**7 Check Your Learning Questions** At the end of each section, you will also find "Check Your Learning" questions. These multiple-choice questions give you a chance to see if you have mastered the material in that section before moving on. The answers are provided to give you immediate feedback on the correctness of your own answers. If you give an incorrect answer, use the page number provided with each answer to guide you to the page or pages you should review.

**8 Human Diversity Features** Human diversity sections give special emphasis to major themes of this book, the importance of recognizing and respecting the differences among people and learning about the socio-cultural factors that can contribute to the exciting variety among individuals. You'll find a human diversity section in most chapters.

**9 Applications of Psychology** An application of psychology is discussed near the end of every chapter. This section ties together the information in the chapter and helps you understand how your new knowledge of psychology can be used in your own life.



## PARENTING

During the important early stages of development—infancy, childhood, and most of adolescence—we typically live with our parents. They give us food and shelter, protect us from danger, and provide many of our early learning experiences. Parents play a key role in giving children a healthy start in life. But, although parenting is important, we as a society provide parents with no training in how to raise their children. Our schools teach reading, writing, and arithmetic, but not parenting. For this reason, we will look carefully at the topic of parenting, with an emphasis on the styles of parenting that are best for children.

## Parenting and Infant Attachment

Let's begin with a look at the parents' role in helping their infant develop a secure relationship—or attachment—with the parents. The newborn in the hospital nursery seems equally happy to be rocked by anyone who has free arms, but sometime during the first year of life (usually by about 6 to 9 months) infants typically become closely attached to one or more of their caretakers. At this point in development, most infants develop a normal "stranger anxiety" and react fearfully and tearfully when strangers are present and cling to

the safe fortress of the adult to whom they are attached (Ainsworth, 1979). By 18 to 24 months, however, most toddlers are better able to deal with stranger anxiety. They prefer to be near their primary caretaker when strangers are first encountered, but they are able to move out to explore the world and play, knowing that the safe caretaker is nearby. Infants who are able to deal with stranger anxiety in this way are said to be "securely attached."

Some infants and toddlers, however, are less securely attached to their parent. When separated from their caretaker, some "insecurely attached" toddlers cling excessively to the caretaker and become extremely upset when separated from the parent. Seemingly, the attachment is not secure enough to allow the toddler to turn her or his back on the parent for a moment. Other toddlers who are not securely attached rarely use the parent as a safe haven, but rather seem to ignore or even avoid the parent. It is as if the attachment to the parent is too weak to be helpful to the toddler.

What leads to secure attachment? Part of the answer is the child's inborn temperament. Some children are simply calmer and more receptive to the parent from birth. But parents play an important



By age 18 to 24 months, "securely attached" toddlers are able to explore the world and play if they know a safe caregiver is nearby.

role as well. Parents can help their infants form secure attachments by taking care of the infant's needs in a consistent way and by being warm, affectionate, and accepting. In this case, being an accepting parent means staying calm and loving (most of the time, at least) when the baby "acts like an infant"—crying in the middle of the night, wetting a diaper after diaper, and spitting every bite of cereal back into your hand (Goldsmith & Alamsky, 1987).

It is important for parents to help their infants develop the firm foundation of a secure attachment, but how worried should the parent of an insecurely attached infant be? The best answer is that the parent should be concerned enough to look at his or her parenting to see whether healthy changes can be made, but not overly concerned. It is not uncommon for an extremely clingy 2-year-old who receives consistent and loving parenting to grow into a happy and secure 5-year-old—I've personally seen it happen more than once.

## Parenting and Discipline Style

Discipline style is one of the most important parts of parenting. As soon as the infant can move, the adult must attempt to



Our parents care for us from infancy through adolescence and provide us with many of our most important learning experiences.

## Special Review of the Sense Organs

A great deal of new information was covered in chapter 3 on the structure of the sense organs. A set of unlabeled illustrations have been prepared to help you check your learning of these structures. These reviews will be most helpful if you glance at the first one and then refer back to the illustration or illustrations on which they are based to memorize the

names of the structures. Then, return to the illustration in this review section and try to write in the names of the key structures of the sense organs. Then check your labels by looking at the original figures once again. When you can label all the structures in one of the illustrations, move on to the next one.

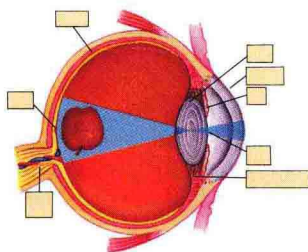


FIGURE 3.48

Key structures of the eye (based on fig. 3.3, p. 99).

## Summary

Chapter 3 recognizes that we live in a physical world that we experience through our sense organs and interpret (perceive) by means of our nervous systems.

- I. External stimuli are received through specialized sensory receptor cells.
  - A. Sense organs receive stimuli, transduce sensory energy into neural impulses, and send neural messages to the brain for interpretation.
  - B. Psychophysics is the field of psychology that studies the relationships between physical stimuli and psychological sensations and perceptions.
- II. The sense organs of sight transduce light energy.
  - A. The intensity of light waves largely determines brightness, while the wavelength (frequency) largely determines color.
  - B. The eye, working much like a camera, is the primary sense organ for seeing.
    1. Light enters the eye through the cornea (with the iris regulating the size of the pupil) and the lens into the retina.
    2. Rods and cones transduce light waves into neural impulses for transportation to the brain.
    3. The 125 million rods, located throughout the retina except for the fovea, are active in peripheral vision and vision in dim light, but they do not play a role in color vision.
    4. The 6 million cones clustered mostly near the fovea code information for color.
    5. Both trichromatic theory and opponent-process theory are helpful in understanding color vision.
- III. The sense of hearing detects sound waves.
  - A. The frequency of sound waves determines pitch, while the intensity determines loudness.
  - B. The ear is the primary sense organ for hearing.
    1. The outer ear functions as a sound wave collector.
    2. Sound waves vibrate the eardrum, which is connected to a series of three movable bones (hammer, anvil, stirrup) in the middle ear.
- IV. Chemical senses respond to chemicals rather than to energy in the environment.
  - A. In the sense of taste, chemicals produce the perception of qualities of sweet, sour, bitter, and salty.
  - B. In the sense of smell, chemicals produce the perception of odors.
- V. Internal stimuli are also received by the sensory system.
  - A. The vestibular organ provides information about body orientation, while the kinesthetic sense reports bodily position and movement.
  - B. The various skin senses can detect pressure, temperature, and pain.
    1. Two sensations of pain reach the brain at slightly different times because they travel on different neural pathways.
      - a. The first sensation reaches the somatosensory area quickly on myelinated neurons.
      - b. The more emotional type of pain reaches the limbic system more slowly on unmyelinated neurons.
    2. Many factors can block the "pain gates" for the emotional aspect of pain.
- VI. Sensory neural impulses, when transmitted to the brain, are interpreted in a process called perception; examining visual perception demonstrates the general nature of the process.
  - A. Perception is an active mental process. Gestalt principles explain many of the ways in which humans tend to organize sensory information.
  - B. Individual factors, such as emotion, motivation, and previous learning, also affect our perceptions.

## Suggested Readings

1. If you think of yourself as a sensual person, and something of an intellectual, then treat yourself to the most wonderful book ever written about the senses: Ackerman, D. (1991). *A natural history of the senses*. New York: Vintage Books.
2. A readable but sophisticated examination of classical principles of perception and illusions is supplied by Held, R., & Richards, W. (Eds.). (1972). *Perception: Mechanisms and models*. San Francisco: W. H. Freeman.
3. If you are a serious student of visual perception or of the visual arts, you may wish to tackle an excellent in-depth analysis of

this subject: Hochberg, J. (1988). Visual perception. In R. C. Atkinson, R. J. Herrnstein, G. Lindzey, & R. D. Luce (Eds.), *Stevens' handbook of experimental psychology: Vol. 1. Perception and motivation*. New York: Wiley-Interscience.

4. Perhaps the ultimate sensory illusion is experienced by persons who have lost an arm or leg. If you would like to learn about "phantom limbs," read: Melzack, R. (1992). Phantom limbs. *Scientific American*, April, 120-126.

**10 Chapter Summaries** At the end of each chapter, the content of the chapter is summarized in sentence outline form. This outline format is designed to give you one last look at the content of the chapter to see how all the pieces of new information fit together.

**11 Suggested Readings** A list of suggested readings is presented at the end of each chapter. This information will help you to learn more about a specific topic covered in the chapter.

**12 Special Reviews** In some chapters you'll find key illustrations from the chapter reprinted at the end of the chapter, only this time *without* the labels. Fill in the labels yourself to test your learning of the information. The original figure number, title, and page reference are given. Return to the original figure and description to check your answers and review if necessary.

## SUPPLEMENTS TO THE BOOK

McGraw-Hill has prepared additional materials that may be helpful to you in this class. If you are interested in using any of the following items, ask your instructor to order them through your bookstore.

The **Student Study Guide** to accompany *Psychology: An Introduction* was written by Steven A. Schneider of Pima Community College specifically to help students master the material in this textbook. The study guide follows the same table of contents as each chapter of the book. For each chapter of the



text, you are provided with a chapter overview, learning objectives, matching exercises for key terms, guided review exercises, a concept check exercise, and multiple-choice practice test items with instructional feedback.

**MicroGuide** is a computerized interactive version of the study guide, designed to help you in studying, reviewing and testing your comprehension of the textbook material. *MicroGuide* consists of four sections for each chapter of the book: Learning Objectives, Chapter Review, Key Terms, and Quiz Questions. *MicroGuide* is available in either DOS or Macintosh versions (3.5 inch disk size only).

## CRITICAL THINKING

Like most college courses, the goal of this course is to teach you a great deal of new information. But, there is a second goal even more important than the first—to teach you to *think critically about human beings*. You are enrolled in a college or university to become well educated. That means, of course, that you want to learn more information, but it also means that you want to be better prepared to make decisions, plan for the future, and realize your goals. If we human beings are to be able to continue to inhabit this fragile planet, and if we are to make the most of our time here, we must all try to hone our intellectual skills.

Psychology provides an excellent vehicle for teaching critical thinking skills. By its very nature—as a *science* of human behavior—we will be looking critically at ourselves. As we discuss the many new facts and concepts that make up this course, we will describe many of the experiments that have helped psychologists reach tentative conclusions about the nature of our behavior and experience. *Psychological research is critical thinking in practice*. As you read about each experiment, take a moment to consider the logic that went into its design. Think for a moment about the thinking that helped the researcher decide between rival explanations for that facet of human life.

But, more important than seeing how scientists use their critical thinking skills, a major goal of this course is to encourage *you* to improve your own critical thinking skills. Success in every walk of life and meaningful participation in democratic society require more than the simple knowledge of facts—they require using facts intelligently.

What, then, is critical thinking? There are many aspects of critical thinking, but the steps that I will describe are a good start. As you read this textbook or approach any other source of new information—from political speeches to newspaper articles—try the following steps:

1. *What is the evidence?* I will present you with many statements in this textbook, and I expect you to demand that I back up my statements with evidence. When I tell you that, unlike 20 years ago, women and men place the same importance on love in marriage, you should look to see if I present evidence to support that conclusion. If I make a statement without supporting evidence, you should strongly question my statement.

2. *How good is the evidence?* Suppose I tell you that the reason that I believe that women and men place the same value on romance today is because my wife and my daughters say so. My wife and daughters happen to be very smart people, but would you believe the opinions of just three people? Would you be more convinced if I cite a study of 20,000 men and women? Not only should we demand evidence to support statements of fact, but we also should examine the quality of that evidence. In this book, I can tell you that I have thought carefully about the quality of evidence that supports every statement. But, you should completely disregard my reassurances and think critically about the evidence yourself. You might very well decide that I am wrong on some key issues, but at the very least, you will sharpen your critical thinking skills.

3. *What are the alternative interpretations of the evidence?* Even if I do provide you with solid evidence to support every conclusion, critical thinking cannot stop there. Facts are meaningless until they are *interpreted*, and there is almost always more than one interpretation of every set of facts in psychology.

Let's think about an example. There is strong evidence that, other things being equal, most women are more attracted to men as marriage partners if they are more intelligent, hardworking, and successful. Those are the "facts," but what do they mean? One group of scholars believes that women have an *innate* need (part of every female in the human species) to guarantee the well-being of their children that leads them to prefer successful husbands who can help them provide for their children. Do you agree? Even if you agree, are there alternative explanations of these facts that would make just as much sense? Take a moment now to think about alternative explanations for these facts (really—I hope you will stop reading and try to think of alternative interpretations of these facts for a moment).

Did you come up with any alternative explanations? It doesn't matter if you didn't come up with a brilliant explanation, but it is important that you see that alternative explanations of almost any set of facts are possible.

So, what do we do with facts that can be interpreted in several different ways? Critical thinking requires two approaches to this situation. The first and most important step is to look for more facts that will help you choose between the alternative explanations. For example, do women in *all* cultures find successful men to be attractive? Do highly successful women in our culture find the man's success to be unimportant? Do women who do not want to have children still find successful men to be attractive? If the answers to these questions are not all yes, you might be less likely to believe that the preference for

successful men reflects an innate need shared by all women. There are many ways in which new facts can be sought that might allow you to decide between alternative explanations for facts. Indeed, that is what science is all about.

The other way in which the critical thinker deals with alternative explanations of facts, however, is to *learn to live with alternative explanations!* At this point in the history of the science of psychology, there are many alternative explanations of facts that we cannot yet choose between. Indeed, one of the things that makes psychology exciting is that there is so much yet to learn. Many of the current disagreements among psychologists will be resolved ultimately through better experiments—the use of critical thinking to plan the logic of scientific studies. But, in other cases, the different ways of viewing the same phenomena will prove to be equally valid conceptions. Therefore, the ability to consider more than one perspective on issues in psychology—as in all walks of life—is important. Moreover, the discussion of these differing views will help refine your critical thinking about yourself and the human race in general.

4. *Go beyond the book.* This book only scratches the surface of psychology, and it provides only a few examples of how the facts and concepts of psychology might apply to your life. The final step in critical thinking is to ask questions about the information given in the textbook to expand its application to your experience. Each section of a chapter ends with critical thinking questions. These questions have no right

or wrong answers, but are designed to stimulate and challenge you as you read the book. (The *Student Study Guide* contains more of these kinds of questions in the sections titled “Encouraging Critical Thinking: Beyond the Text.”) But these questions are just a start. The most important “critical thinking” questions that you ask will be your own.

Critical thinking is not only an academic exercise—it is a part of living. The thinking and evaluative skills that you develop in this and other courses will also serve you well as you solve problems and confront the challenges of daily life.

If you are concerned that critical thinking takes time and might detract from your ability to memorize information that will be on tests, I have good news for you. Thinking critically about the information that you have just read will improve your memory for that information. In chapter 6, we will discuss the “deep processing” of information and present evidence that the more you think about information the more information you will remember. So, although you will still need to use the strategies for study skills presented at the end of chapter 1, critical thinking will improve your memory for information presented in this book. But, don’t take my word for it! Read the section on levels of processing in chapter 6 and think about it critically. Better yet, try your own experiment to see if thinking critically about the information presented in this book makes this course a better learning experience.



# BRIEF CONTENTS

## PART 1 INTRODUCTION 1

- 1 WHAT IS PSYCHOLOGY? 2
- 2 BIOLOGICAL FOUNDATIONS OF BEHAVIOR 40

## PART 2 AWARENESS 87

- 3 SENSATION AND PERCEPTION 88
- 4 STATES OF CONSCIOUSNESS 136

## PART 3 LEARNING AND COGNITION 171

- 5 BASIC PRINCIPLES OF LEARNING 172
- 6 MEMORY 210
- 7 COGNITION, LANGUAGE, AND INTELLIGENCE 242

## PART 4 THE LIFE SPAN 283

- 8 DEVELOPMENTAL PSYCHOLOGY 284

## PART 5 THE SELF 325

- 9 MOTIVATION AND EMOTION 326
- 10 GENDER AND SEXUALITY 360
- 11 PERSONALITY THEORIES AND ASSESSMENT 398

## PART 6 HEALTH AND ADJUSTMENT 431

*exam #3*

- 12 STRESS AND HEALTH 432
- 13 ABNORMAL BEHAVIOR 464
- 14 THERAPIES 492

## PART 7 THE SOCIAL CONTEXT 523

- 15 SOCIAL PSYCHOLOGY 524
- 16 PSYCHOLOGY APPLIED TO BUSINESS AND OTHER PROFESSIONS 560



# CONTENTS

Preface	xix
To the Instructor	xxii
To the Student	xxv

## PART 1 INTRODUCTION 1

### CHAPTER 1 WHAT IS PSYCHOLOGY? 2

#### PROLOGUE 3

#### PSYCHE AND SCIENCE = PSYCHOLOGY 4

##### Definition of Psychology 5

##### Goals of Psychology 5

#### THE MANY VIEWPOINTS IN PSYCHOLOGY AND THEIR ORIGINS 7

##### The Nature of Conscious Experience 7

##### *Wundt, Titchener, and the Structuralists* 7

##### *J. Henry Alston* 8

##### *Max Wertheimer and the Gestalt Psychologists* 8

##### The Functions of the Conscious Mind 9

##### *William James and the Functionalists* 9

##### *Studies of Memory: Hermann Ebbinghaus and Mary Whiton Calkins* 10

##### *Intelligence: Alfred Binet* 11

##### Behaviorism and Social Learning Theory 11

##### *Ivan Pavlov* 11

##### *John B. Watson and Margaret Floy Washburn* 11

##### *Contemporary Behaviorism and Social Learning Theory* 12

##### The Nature of the "Unconscious Mind" 12

##### *Sigmund Freud and Psychoanalysis* 12

##### *Humanistic Psychology and the Unconscious Mind* 13

#### CONTEMPORARY PERSPECTIVES IN PSYCHOLOGY 14

##### Biological Perspective 14

##### Sociocultural Perspective 16

##### *Sociocultural Factors in the History of Psychology* 17

#### SPECIALTY AREAS OF MODERN PSYCHOLOGY 18

##### Basic Areas of Modern Psychology 19



##### Applied Areas of Modern Psychology 20

##### *Relationship Between Psychology and Psychiatry* 20

#### SCIENTIFIC METHODS: HOW WE LEARN ABOUT BEHAVIOR AND MENTAL PROCESSES 22

##### Descriptive Methods 22

##### *Survey Method* 23

##### *Naturalistic Observation* 24

##### *Clinical Method* 24

##### Correlational Methods 24

##### Formal Experiments 25

##### Ethical Principles of Research 27