



Understanding Psychology

ROBERT S. FELDMAN

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Built for Students, Informed by

Students first describes the underlying philosophy of Feldman, *Understanding Psychology*. Designed for student success, *Understanding Psychology* provides students with a powerful framework in a personalized learning environment, helping them connect, engage, and feel excited about the field of psychology.

If I were to use only two words to summarize my goal across the twelve editions of *Understanding Psychology*, as well as my teaching philosophy, I would say “Students First.” I believe that effective course materials must be oriented to students—informing them, engaging them, and exciting them about the field of psychology and helping them connect it to their worlds.

Luckily, psychology is a science that is inherently interesting to students. It is a discipline that speaks with many voices, offering a personal message to each student. To some, psychology provides a better understanding of others’ behavior. Some view psychology as a pathway to self-understanding. Others see the potential for a future career, and still others are drawn to psychology by the opportunity for intellectual discovery that its study provides.

No matter what brings students into the introductory course, and regardless of their initial motivations, *Understanding Psychology*, Twelfth Edition is designed to draw students into the field and stimulate their thinking. By focusing on students first and connecting with them, *Understanding Psychology* promotes students success by engaging and informing them, which results in students learning the course content and becoming excited about the field of psychology.

~ Robert S. Feldman

Better Data, Smarter Revision, Improved Results



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Student Data

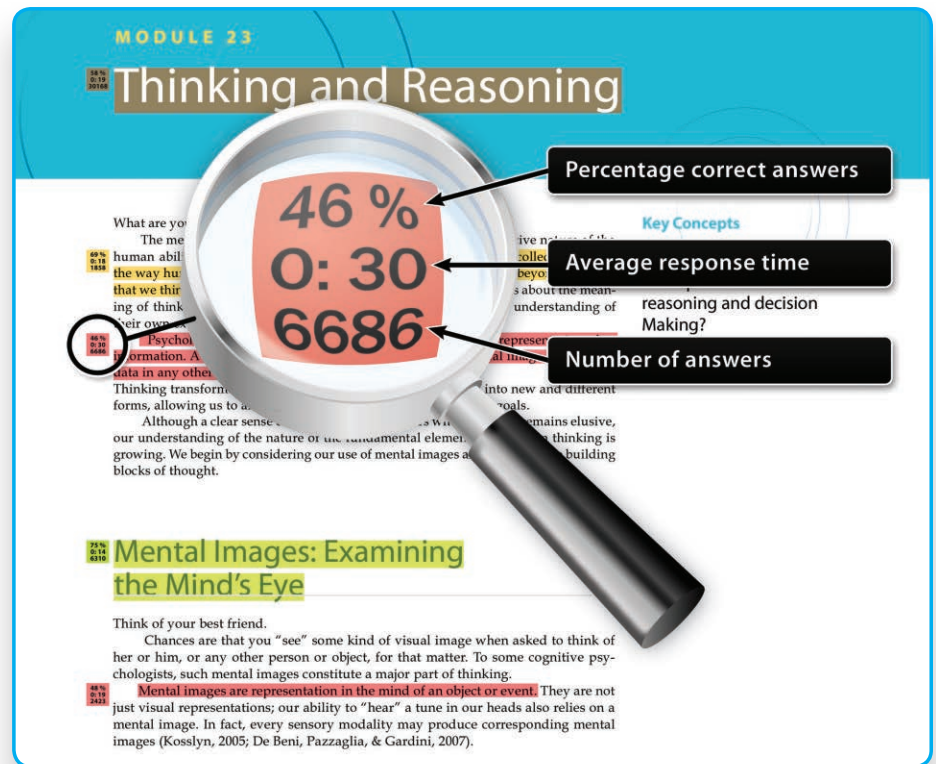
Students helped inform the revision strategy:

STEP 1. Over the course of three years, data points showing concepts that caused students the most difficulty were anonymously collected from Connect Psychology's LearnSmart product.

STEP 2. The data from LearnSmart was provided to the authors in the form of a Heat Map, which graphically illustrated "hot spots" in the text that impacted student learning (see the image to the right).

STEP 3. The author used the Heat Map data to refine the content and reinforce student comprehension in the new edition. Additional quiz questions and assignable activities were created for use in Connect Psychology to further support student success.

RESULT: Because the Heat Map gave Bob Feldman empirically based feedback at the paragraph—and even sentence—levels, he was able to develop the new edition using precise student data that pinpointed concepts that caused students the most difficulty.



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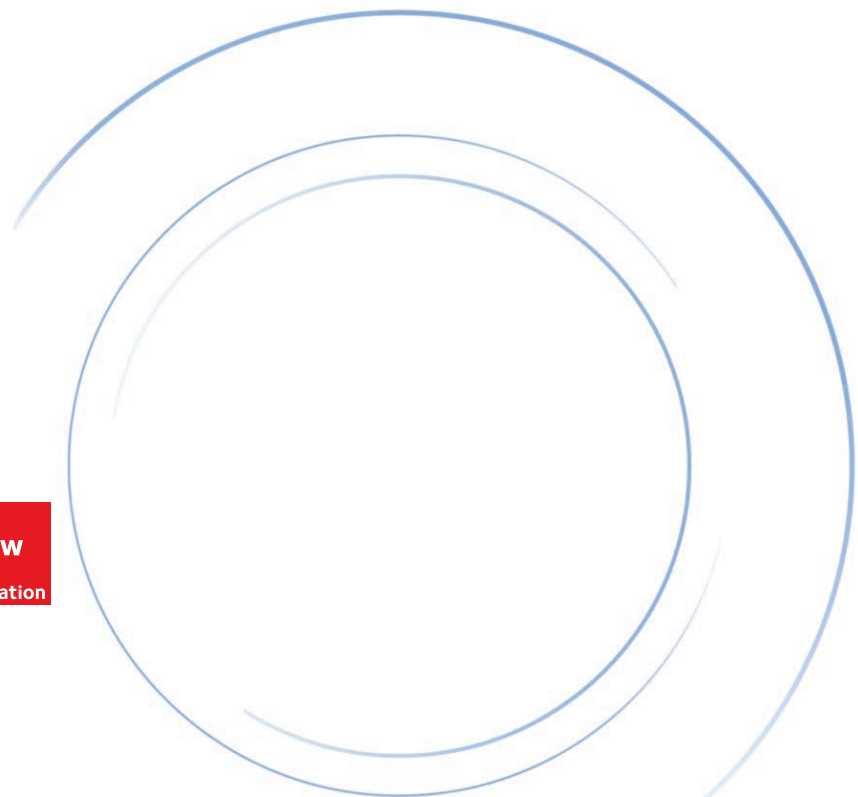
Understanding Psychology

ROBERT S. FELDMAN

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UNDERSTANDING PSYCHOLOGY, TWELFTH EDITION

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Some ancillaries, including electronic and print components, may not be available to customers outside the United States.

This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 0 DOW/DOW 1 0 9 8 7 6 5 4

ISBN 978-1-259-33035-3

MHID 1-259-33035-4

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Content Licensing Specialists: *Ann Marie Jannette*

(text); *Keri Johnson (image)*

Cover Image: *Sam Edwards/Getty Images*

Compositor: *Aptara[®], Inc.*

Printer: *R. R. Donnelley*

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Library of Congress Cataloging-in-Publication Data

Feldman, Robert S. (Robert Stephen), 1947-

Understanding psychology / Robert S. Feldman, University of Massachusetts,
Amherst. – Twelfth edition.

pages cm

ISBN 978-1-259-33035-3 (alk. paper) – ISBN 1-259-33035-4

1. Psychology. I. Title.

BF121.F34 2014

150-dc23

2014011838

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Dedication

To

*Jon, Leigh, Alex, Miles, Josh, Julie,
Sarah, Jeff, and Kathy*

About the Author

ROBERT S. FELDMAN is Professor of Psychological and Brain Sciences and Deputy Chancellor of the University of Massachusetts Amherst. A recipient of the College Distinguished Teacher Award, he teaches psychology classes ranging in size from 15 to nearly 500 students. During the course of more than two decades as a college instructor, he has taught undergraduate and graduate courses at Mount Holyoke College, Wesleyan University, and Virginia Commonwealth University in addition to the University of Massachusetts.

Professor Feldman, who initiated the Minority Mentoring Program at the University of Massachusetts, also has served as a Hewlett Teaching Fellow and Senior Online Teaching Fellow. He initiated distance-learning courses in psychology at the University of Massachusetts.

A Fellow of the American Psychological Association and the Association for Psychological Science, Professor Feldman received a BA with High Honors from Wesleyan University and an MS and PhD from the University of Wisconsin-Madison. He is a winner of a Fulbright Senior Research Scholar and Lecturer Award and the Distinguished Alumnus Award from Wesleyan. He is President of the Federation of Associations in Behavioral and Brain Sciences (FABBS) Foundation, which advocates for the field of psychology.

He has written and edited more than 200 books, book chapters, and scientific articles. He has edited *Development of Nonverbal Behavior in Children*, *Applications of Nonverbal Behavioral Theory and Research*, *Improving the First Year of College: Research and Practice*, and co-edited *Fundamentals of Nonverbal Behavior*. He is also author of *P.O.W.E.R. Learning: Strategies for Success in College and Life*. His textbooks, which have been used by more than 2 million students around the world, have been translated into Spanish, French, Portuguese, Dutch, German, Italian, Chinese, Korean, and Japanese. His research interests include deception and honesty in everyday life, work that he described in *The Liar in Your Life*, a trade book published in 2009. His research has been supported by grants from the National Institute of Mental Health and the National Institute on Disabilities and Rehabilitation Research.

Professor Feldman loves music, is an enthusiastic pianist, and enjoys cooking and traveling. He serves on the Board of New England Public Radio. He has three children and two grandsons. He and his wife, a psychologist, live in western Massachusetts in a home overlooking the Holyoke mountain range.



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Preface

Students First

If I were to use only two words to summarize my goal across the twelve editions of this introduction to psychology, as well as my teaching philosophy, that's what I would say: Students first.

I believe that an effective introduction to a discipline must be oriented to students—informing them, engaging them, and exciting them about the field and helping them connect it to their worlds.

The difference between this and earlier editions, though, is that now we have an array of digital tools available that allow students to study more effectively, and learn the material more deeply, than was ever before possible.

BETTER DATA, SMARTER REVISION, IMPROVED RESULTS

 SMARTBOOK™

Students study more effectively with Smartbook.

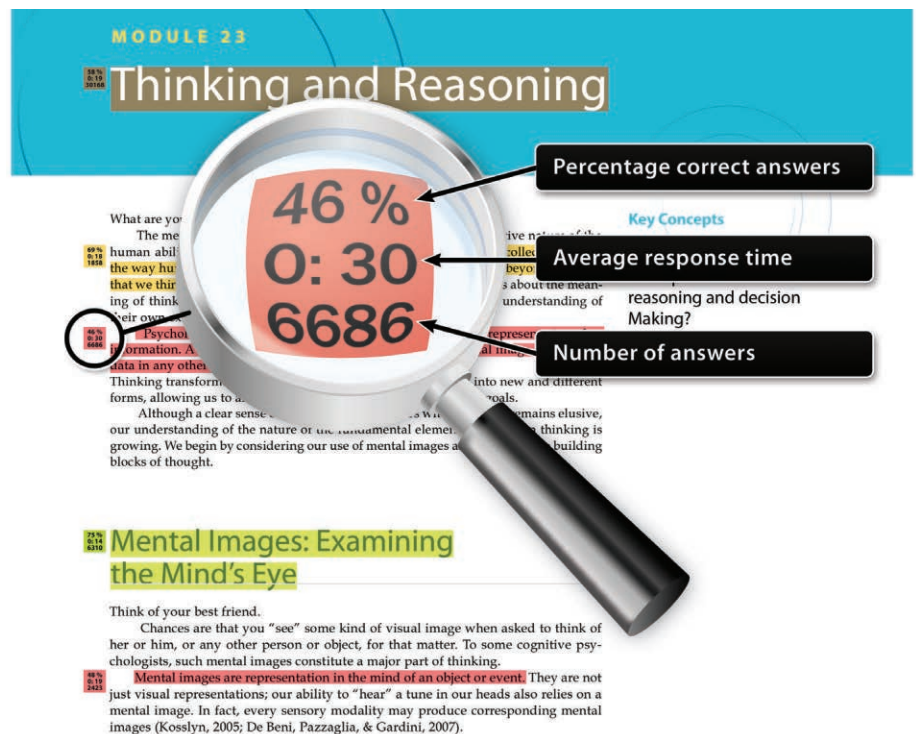
- **Make It Effective.** Powered by Learnsmart, SmartBook™ creates a personalized reading experience by highlighting the most impactful concepts a student needs to learn at that moment in time. This ensures that every minute spent with SmartBook™ is returned to the student as the most value-added minute possible.
- **Make It Informed.** Real-time reports quickly identify the concepts that require more attention from individual students—or the entire class. SmartBook™ detects the content a student is most likely to forget and brings it back to improve long-term knowledge retention.

Students help inform the revision strategy.

- **Make It Precise.** Systematic and precise, a heat map tool collates data anonymously collected from thousands of students who used Connect Psychology's Learnsmart.
- **Make It Accessible.** The data is graphically represented in a heat map as “hot spots” showing specific concepts with which students had the most difficulty. Revising these concepts, then, can make them more accessible for students.

PERSONALIZED GRADING, ON THE GO, MADE EASIER

The first and only analytics tool of its kind, Connect Insight™ is a series of visual data





displays—each framed by an intuitive question—to provide at-a-glance information regarding how your class is doing.

- **Make It Intuitive.** You receive instant, at-a-glance views of student performance matched with student activity.
- **Make It Dynamic.** Connect Insight™ puts real-time analytics in your hands so you can take action early and keep struggling students from falling behind.
- **Make It Mobile.** Connect Insight™ travels from office to classroom, available on demand wherever and whenever it's needed.

Student Tools: Mastering the Material

Student success in psychology means mastering the material at a deep level. These are some of the tools that help students maximize their performance:

STUDY ALERTS

Throughout, marginal notes point out important and difficult concepts and topics. These Study Alerts offer suggestions for learning the material effectively and for studying for tests. In Module 14, for example, a Study Alert emphasizes the importance of differentiating the five stages of sleep; the feature in Module 15 makes clear the key issue about hypnosis—whether it represents a different state of consciousness or is similar to normal waking consciousness; and in Module 16 it highlights Figure 2 for its clear view of the different ways that drugs produce their effects at a neurological level.



Study Alert

Differentiate the five stages of sleep (stage 1, stage 2, stage 3, stage 4, and REM sleep), which produce different brain-wave patterns.

FROM THE PERSPECTIVE OF . . .

Every chapter includes questions to help students connect psychological concepts with career realities. Called “From the Perspective of . . .,” this feature helps students understand how psychology impacts their chosen program of study and answers the “why does psychology matter to me?” question. Examples of the some career fields include health, technology, criminal justice, and marketing.



From the perspective of . . .

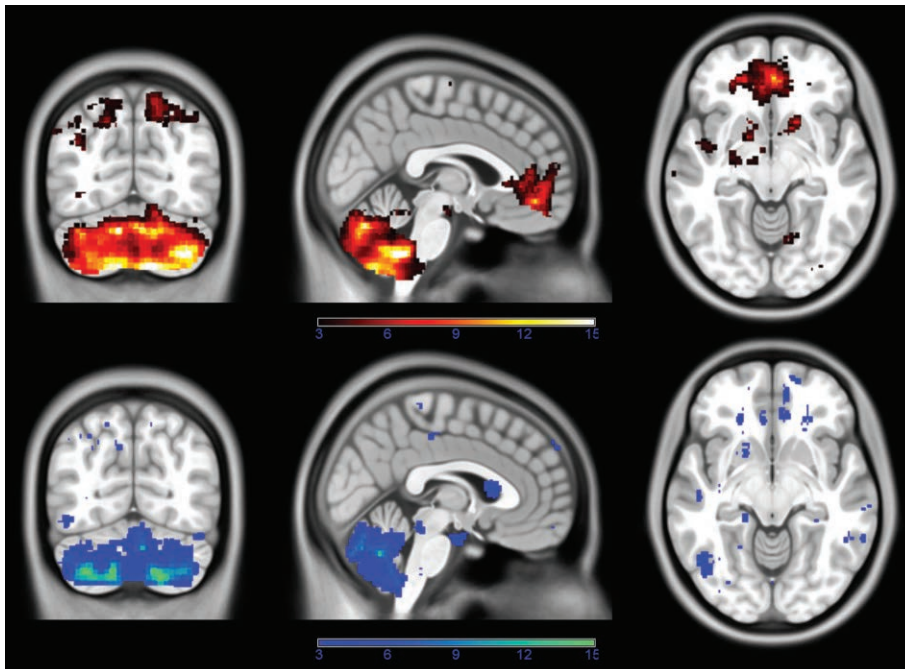
An Educator How might you use the findings in sleep research to maximize student learning?

NEUROSCIENCE IN YOUR LIFE

This updated feature emphasizes the importance of neuroscientific research within the various subfields of the discipline and in students' lives. Compelling brain scans, with both caption and textual explanation, illustrate significant neuroscientific findings that are increasingly influencing the field of psychology. For example, one *Neuroscience in Your Life* feature explains how people with an eating disorder process information differently.

Neuroscience in Your Life: When Regulation of Eating Behavior Goes Wrong

Research suggests that individuals with eating disorders process information differently. This difference in processing may lead to eating disorders or may be a result of such disordered eating. For example, as seen in these images, those with bulimia show greater connectivity in areas of the brain associated with eating behavior, such as the cerebellum (in red), whereas those who do not have bulimia show greater connectivity in other areas of the brain (in blue) (Amianto et al., 2013).



Student Learning: Content and Concepts

The following sample of new and revised topics and textual changes, including new definitions based on heat map data, provides a good indication of the content's currency and clarification for students.

Chapter 1—Introduction to Psychology

- Psychological explanations of Boston Marathon bomber and autism spectrum disorder
- Psychology's reputation will grow with increase in evidence-based practices
- Increase in program evaluation psychologists

- Stream of consciousness
- Neuroscience, behavioral perspective, observable behavior, and universal principles
- Biological foundations of behavior and information about William James

Chapter 2—Psychological Research

- Lack of bystander intervention
- Dispositional factors in helping

- Definitions of *confederate*, *dependent variable*
- Participant expectations
- Deficiencies in web surveys

Chapter 3—Neuroscience and Behavior

- Single-channel scanning to translate brain waves to communication

- Deleted information on location effects of neurotransmitters and the term *interneuron*
 - New example of sensory and motor neurons
 - Reticular formation, limbic system, sensory area of the cortex, neuroplasticity concept
 - Epilepsy relief via brain hemisphere lesions
 - Kosslyn theory of top-bottom brain differences
- Chapter 4–Sensation and Perception**
- Super-recognizers
 - Effects of listening to music while studying
 - Information about supertasters
 - Chronic pain
 - Visual spectrum
 - Feature detector
 - Eardrum and sound
 - Pheromones, role in alarm communication
 - Synesthesia
 - Relative size
 - Perceptual constancy
- Chapter 5–States of Consciousness**
- Hypnosis and sports
 - Circadian cycles, creativity, cognitive tasks
 - Sleep deprivation and sleeping pill use
 - Benefits of short naps and that preschoolers learn material better due to naps
 - Study about amount of time of off-task thinking and daydreaming
 - Uses of Molly and bath salts
 - Concept of addictive drugs
 - Latent content and manifest content definitions of dreams
- Chapter 6–Learning**
- Facebook and social media
 - Observation learning and gender from the media
 - Spanking and yelling are ineffective and damaging to children
 - Unconditioned response
 - Process of conditioning
 - Continuous reinforcement schedule, partial (intermittent) reinforcement schedule, fixed-interval schedule
 - Relational and analytic learning styles
- Chapter 7–Memory**
- Hyperthymestic syndrome
 - Statistics and eyewitness memory prosecution
- Concept cells
 - Working memory and computer analogy
 - Priming
 - Autobiographical memory
 - Relation between culture and memory
 - New case of repressed memory
- Chapter 8–Cognition and Language**
- Thinking
 - Icelandic language has 24 words for waves
 - Language immersion and hippocampus growth
 - Efficient processing following intensive language training
 - Enhanced problem solving and creativity follows sleep
 - Removed syllogistic reasoning material and representativeness heuristic
 - Deductive and inductive reasoning
 - Availability heuristic, semantics, mental set, telegraphic speech, overgeneralization, confirmation bias, concepts
 - Nativist approach to language development
 - Linguistic-relativity hypothesis
- Chapter 9–Intelligence**
- Overcoming autism spectrum disorder
 - Flynn effect
 - South Asian Indian cultural belief of malleability of IQ
 - Fluid intelligence
 - Crystallized intelligence
 - Removed information processing approach to intelligence
 - Intelligence tests
 - Culture-fair IQ test
 - Full inclusion arguments
 - Heritability
 - Importance of heredity-environment question
- Chapter 10–Motivation and Emotion**
- U. S. obesity statistics
 - Objections to instinct approaches
 - Incentive approaches to motivation
 - Cognition approaches to motivation
 - Intrinsic/extrinsic definitions
 - Objections to weight-set-point theory
 - Emotion theories
- Chapter 11–Sexuality and Gender**
- Gender differences on science tests and in how relationships provide self-esteem
 - Survey data on gay, lesbian, bisexual, transsexual frequency
 - Changes in societal views on homosexuality
 - Mental and physical health disparities in gays and lesbians
 - Decline in female circumcision
 - Gender stereotypes
 - Gender earning disparities
 - Sexual harassment
 - Gender differences in cognitive abilities
 - Estrogen level effects on cognitive tasks
 - Socialization for learning norms of behavior
 - Biosocial explanation of gender differences
 - Social learning explanation of gender differences
 - Removed term *progesterone*
 - Female sexuality
 - Sexual fantasies
 - Refractory period
 - Kinsey research techniques
 - Genetic origin of sexual orientation
 - Transsexual and transgenderism
 - Anorgasmia
 - AIDS data and figure on attitudes toward premarital sex
 - Gonorrhea symptoms
- Chapter 12–Development**
- World’s oldest man
 - Distracted parenting due to smartphone use
 - Longitudinal research
 - Deleted definition of *sequential research*
 - Effects of mother’s illness on her fetus
 - Attachment due to responsiveness to children’s cues
 - *Cognitive development* definition
 - Conventional morality
 - Postconventional morality
 - Employment characteristics of families
 - *Senility’s* lack of usefulness
 - Alzheimer’s disease
 - Activity theory of aging
 - Disengagement theory of aging
- Chapter 13–Personality**
- Different aspects of personality
 - Plastic surgery effects on personality

- Personality
- Psychodynamic approaches to personality
- Fixations
- Oedipus conflict
- Repression
- Archetype
- Collective unconscious
- Inferiority complex
- Factor analysis
- Self-efficacy
- Norm
- Self-report measures
- Projective personality test
- Narcissism increases in college students
- MMPI to MMPI-2-RF and number of subscales

Chapter 14—Health Psychology: Stress, Coping, and Well-Being

- Happiness and what one does with financial windfalls
- Stress on the immune system
- Hardiness
- Resilience
- Proactive coping
- Smoking statistics and electronic cigarettes

- Subjective well-being and positive and negative changes in situation

Chapter 15—Psychological Disorders

- *DSM-5* update
- Role of right anterior insula in depression
- Statistics on financial costs of depression
- Deleted schizophrenia subtypes (e.g., paranoid, catatonic, etc.)
- Autism spectrum disorder
- Abnormality
- Behavioral perspective
- Panic disorder of mood disorders
- Removed evolutionary explanation of depression
- Internet addiction disorder
- Comorbidity
- Borderline personality disorder
- Narcissistic personality disorder
- Two most common psychological disorders

Chapter 16—Treatment of Psychological Disorders

- Effects of technology on treatment
- Behavioral treatment approaches

- Systematic desensitization
- Flooding therapy
- Removed dialectical behavior therapy
- Unconditional positive regard
- Contemporary person-centered therapy
- Mood stabilizer
- Deinstitutionalization
- Hospital emergency rooms conduct mental health care
- Critique of Alcoholic Anonymous
- Statistics on use of antidepressants

Chapter 17—Social Psychology

- Stereotype threat
- Mathematical models of impression formation
- Cognitive dissonance example
- Norms
- Social roles
- Norm of reciprocity
- Stereotypes and discrimination
- IAT
- Frustration-aggression hypothesis
- Observational learning



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Acknowledgments

One of the central features of *Understanding Psychology* is the involvement of both professionals and students in the review process. The Twelfth Edition of *Understanding Psychology* has relied heavily—and benefited substantially—from the advice of instructors and students from a wide range of backgrounds.

I am grateful to Anthony Yankowski, of Bergen Community College, who provided guidance on updating the material in the chapter on psychological disorders to reflect the publication of the new DSM-5. In addition, Jane W. Couperus of Hampshire College once again provided exceptional support in helping identify appropriate neuroscientific research to include in the *Neuroscience in Your Life* features. I thank her for her superb work.

Many teachers along my educational path have shaped my thinking. I was introduced to psychology at Wesleyan University, where several committed and inspiring teachers—and in particular Karl Scheibe—conveyed their sense of excitement about the field and made its relevance clear to me. Karl epitomizes the teacher-scholar combination to which I aspire, and I continue to marvel at my good fortune in having such a role model.

By the time I left Wesleyan I could envision no other career but that of psychologist. Although the nature of the University of Wisconsin, where I did my graduate work, could not have been more different from the much smaller Wesleyan, the excitement and inspiration were similar. Again, a cadre of excellent teachers—led, especially, by the late Vernon Allen—molded my thinking and taught me to appreciate the beauty and science of the discipline of psychology.

My colleagues and students at the University of Massachusetts Amherst provide ongoing intellectual stimulation, and I thank them for making the university a fine place to work. Several people also provided extraordinary research and editorial help. In particular, I am grateful to my superb students, past and present, including Erik Coats, Sara Levine, Jim Tyler, Chris Poirier, and Matt Zimblar. John Bickford, in particular, provided invaluable editorial input that has enhanced the content considerably. Finally, I am grateful to John Graiff, whose hard work and dedication helped immeasurably on just about everything involving this content.

I also offer great thanks to the McGraw-Hill editorial team that participated in this new edition. Vice President and General Manager Mike Ryan and Director Krista Bettino created a creative, energetic, and supportive environment, and I am in awe of their enthusiasm, commitment, and never-ending good ideas. I'm also happy that the indefatigable and ever-creative Cory Reeves provided input about all sorts of things related to this and other projects. I thank them not only for their superb professionalism, but also for their friendship.

I also am grateful to Sue Ewing, Developmental Editor on this edition. Sue did a superb job of managing a myriad of details (as well as me). She brought motivation, intelligence, and good ideas to the project. Finally, every reader of this book owes a debt to Rhona Robbin and Judith Kromm, Developmental Editors on earlier editions

of *Understanding Psychology*. Their relentless pursuit of excellence helped form the core of this book, and they taught me a great deal about the craft and art of writing.

Central to the design, production, and marketing process were Program Manager Debra Hash, Text Content Licensing Specialist Ann Marie Janette, Image Content Licensing Specialist Keri Johnson and Designer David Hash. Image Editor LouAnn Wilson did her usual superb job in identifying photos and, as always, was a pleasure to work with. I would also like to thank my award-winning Marketing Managers AJ Laferrera and Ann Helgerson for their enthusiasm and commitment to this project. I am proud to be a part of this world-class McGraw-Hill team.

Finally, I remain completely indebted to my family. My parents, Leah Brochstein and the late Saul D. Feldman, provided a lifetime foundation of love and support, and I continue to see their influence in every corner of my life. I am grateful, too, to the late Harry Brochstein, who enriched my life and thinking in many ways.

My extended family also plays a central role in my life. They include, more or less in order of age, my nieces and nephews, my terrific brother, and my brothers- and sisters-in-law, and the late Ethel Radler. Finally, my mother-in-law, the late Mary Evans Vorwerk, had an important influence on this book, and I remain ever grateful to her.

Ultimately, my children, Jonathan, Joshua, and Sarah; my daughters-in-law Leigh and Julie; my son-in-law Jeff; my grandsons Alex and Miles; and my wife, Katherine, remain the focal points of my life. I thank them, with immense love, and thank my lucky stars that they are in my life.

Robert S. Feldman
Amherst, Massachusetts

Making the Grade: A Practical Guide

No matter why you are taking introductory psychology, it's a safe bet you're interested in maximizing your understanding of the material and getting a good grade. And you want to accomplish these goals as quickly and efficiently as possible.

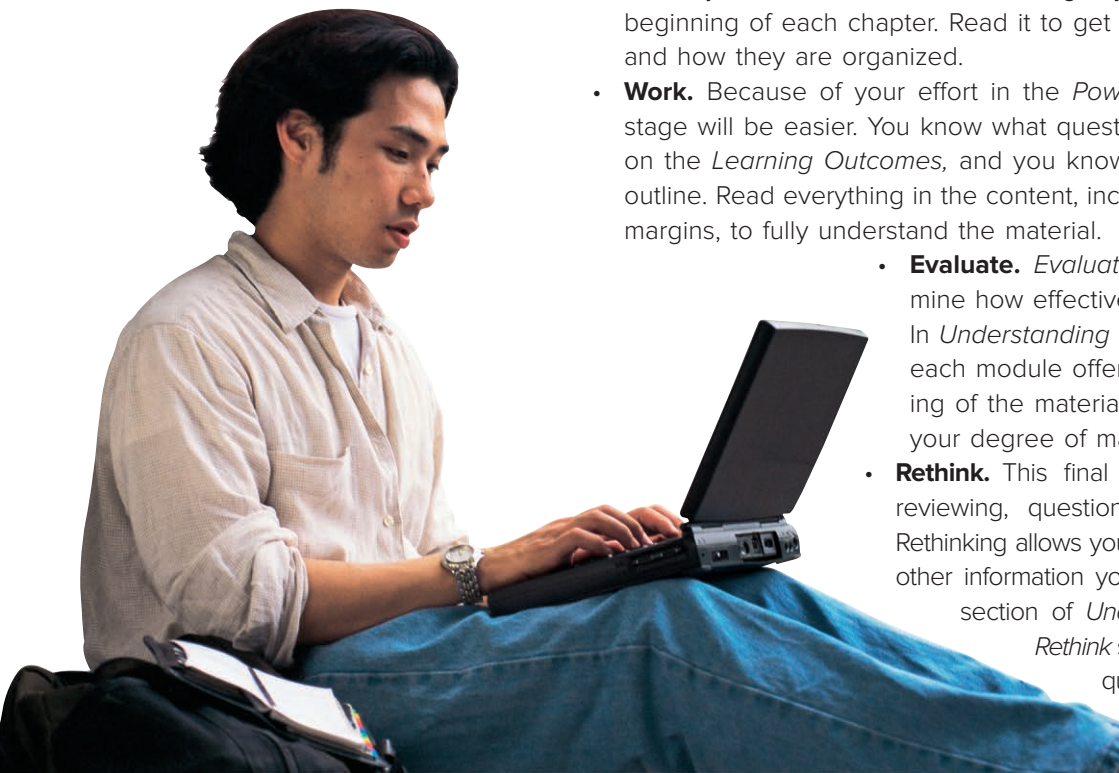
Good news: Several subfields of psychology have identified different ways to help you learn and remember material you will study throughout college. Here's my guarantee to you: If you learn and follow the guidelines in each of these areas, you'll become a better student and get better grades. Always remember that *good students are made, not born*.

Adopt a General Study Strategy

Psychologists have devised several excellent techniques to improve study skills, two of which are described here: "P.O.W.E.R." or Prepare, Organize, Work, Evaluate, and Rethink; and "SQ3R," or Survey, Question, Read, Recite, and Review.

P.O.W.E.R. This learning system entails the following steps:

- **Prepare.** In *Understanding Psychology*, Twelfth Edition, read the broad questions called *Learning Outcomes* to *Prepare* yourself for the material that follows. *Learning Outcomes* are at the start of each chapter and of each module.
- **Organize.** The *Organize* stage involves developing a mental roadmap of where you are headed. *Understanding Psychology* includes the outline at the beginning of each chapter. Read it to get an idea of what topics are covered and how they are organized.
- **Work.** Because of your effort in the *Power* and *Organize* stages, the *Work* stage will be easier. You know what questions the material will answer based on the *Learning Outcomes*, and you know how it is organized based on the outline. Read everything in the content, including the material in boxes and the margins, to fully understand the material.
 - **Evaluate.** *Evaluate* provides the opportunity to determine how effectively you have mastered the material. In *Understanding Psychology*, questions at the end of each module offer a rapid check of your understanding of the material. *Evaluate* your progress to assess your degree of mastery.
 - **Rethink.** This final stage, *Rethink*, entails re-analyzing, reviewing, questioning, and challenging assumptions. Rethinking allows you to consider how the material fits with other information you have already learned. Every major section of *Understanding Psychology* ends with a *Rethink* section. Answering its thought-provoking questions will help you think about the material at a deeper level.



to Smarter Studying

SQ3R. The SQ3R learning system entails these specific steps:

- **Survey.** *Survey* the material by reading the outlines that open each module, the headings, figure captions, recaps, and Looking Ahead and Looking Back sections, providing yourself with an overview of the major points of the chapter.
- **Question.** In the *Q* step, formulate *questions* about the material, either aloud or in writing, prior to reading a section of text. The *Learning Outcomes*, written as questions at the beginning of each module and the *Evaluate* and *Rethink* questions that end each module are examples.
- **Read.** Read actively and critically. While you are reading, answer the questions you have asked yourself. Consider the implications of what you are reading, thinking about possible exceptions and contradictions, and examining underlying assumptions.
- **Recite.** Describe and explain to yourself or a study partner the material that you have just read. Answer questions you have posed. *Recite* aloud to help you know how well you understand what you have just read.
- **Review.** In this final step, review the material: read the Epilogue and answer those questions; then review the Visual Summary, and answer any review questions at the end of each module.

Manage Your Time

Managing your time as you study is a central aspect of academic success. But remember: The goal of time management is to permit us to make informed choices about how we use our time. Use these time management procedures to harness time for your own advantage.

SET YOUR PRIORITIES. First, determine your priorities. *Priorities* are the tasks and activities you need and want to do, rank-ordered from most important to least important.

The best procedure is to start off by identifying priorities for an entire term. What do you need to accomplish? Rather than making these goals too general, make them specific, such as, “studying 10 hours before each chemistry exam.”

IDENTIFY YOUR PRIME TIME. Are you a morning person or do you prefer studying later at night? Being aware of the time or times of day when you can do your best work will help you plan and schedule your time most effectively.

MASTER THE MOMENT. Here’s what you’ll need to organize your time:

- *A master calendar* that shows all the weeks of the term on one page. It should include every week of the term and seven days per week. On the master calendar note the due date of every assignment and test you will have. Also include important activities from your personal life, drawn from your list of priorities. Add some free time for yourself.





- A *weekly timetable* that shows the days of the week across the top and the hours, from 6:00 a.m. to midnight, along the side. Fill in the times of all your fixed, prescheduled activities—the times that your classes meet, when you have to be at work, the times you have to pick up your child at day care, and any other recurring appointments. Add assignment due dates, tests, and any other activities on the appropriate days of the week. Then add blocks of time necessary to prepare for those events.
- A *daily to-do list* using a small calendar or your smartphone. List all the things that you intend to do during the day and their priority. Start with the things you *must* do and that have fixed times, such as classes and work schedules. Then add in the other things that you *should* accomplish, such as researching an upcoming paper or finishing a lab report. Finally, list things that are a low priority like taking in a new movie.

CONTROL YOUR TIME. If you follow the schedules that you've prepared, you've taken the most important steps in time management. Things, however, always seem to take longer than planned.

When inevitable surprises occur, there are several ways to take control of your days to follow your intended schedule:

- **Say no.** You don't have to agree to every favor that others ask of you.
- **Get away from it all.** Adopt a specific spot to call your own, such as a corner desk in a secluded nook in the library. If you use it enough, your body and mind will automatically get into study mode as soon as you get there.
- **Enjoy the sounds of silence.** Studies suggest that we are able to concentrate most when our environment is silent. Experiment and work in silence for a few days. You may find that you get more done in less time than you would in a more distracting environment.
 - **Take an e-break.** Take an e-break and shut down your communication sources for some period of time. Phone calls, text messages, IMs, and e-mail can be saved on a phone or computer. They'll wait.
 - **Expect the unexpected.** You'll never be able to escape from unexpected interruptions and surprises that require your attention. But by trying to anticipate them and thinking about how you'll react to them, you can position yourself to react effectively when they do occur.

Take Good Notes in Class

Let's consider some of the basic principles of notetaking:

- **Identify the instructor's—and your—goals for the course.** The information you get during the first day of class and through the syllabus is critical. In addition to the instructor's goals, you should have your own. How will the information from the course help you to enhance your knowledge, improve yourself as a person, achieve your goals?

- **Complete assignments before coming to class.**
- **Choose a notebook that assists in notetaking.**
- **Listen for the key ideas.** Listen for phrases like “you need to know . . .,” “the most important thing to consider . . .,” “there are four problems with this approach . . .,” and—a big one—“this will be on the test . . .” should cause you to sit up and take notice. Also, if an instructor says the same thing in several ways, the material being discussed is important.
- **Use short, abbreviated phrases—not full sentences when taking notes.**
- **Pay attention to what is written on the board or projected from PowerPoint slides. Remember these tips:**
 - Listening is more important than seeing.
 - Don’t copy everything that is on every slide.
 - Remember that key points on slides are . . . key points.
 - Check to see if the presentation slides are available online.
 - Remember that presentation slides are not the same as good notes for a class.



Memorize Efficiently

Here’s a key principle of effective memorization: Memorize what you need to memorize. *Forget about the rest.*

You have your choice of dozens of techniques of memorization. Also, feel free to devise your own strategies or add those that have worked for you in the past.

REHEARSAL. Say it aloud: rehearsal. Think of this word in terms of its three syllables: re—hear—sal. If you’re scratching your head about why you should do this, it’s to illustrate the point of *rehearsal*: to transfer material that you encounter into long-term memory.

MNEMONICS. This odd word (pronounced with the “m” silent—“neh MON ix”) describes formal techniques used to make material more readily remembered.

Among the most common mnemonics are the following:

- **Acronyms.** *Acronyms* are words or phrases formed by the first letters of a series of terms.
For example, Roy G. Biv helps people to remember the colors of the spectrum (red, orange, yellow, green, blue, indigo, and violet).
- **Acrostics.** *Acrostics* are sentences in which the first letters spell out something that needs to be recalled. The benefits of acrostics are similar to those of acronyms.



- **Rhymes and jingles.** “Thirty days hath September, April, June, and November.” If you know the rest of the rhyme, you’re familiar with one of the most commonly used mnemonic jingles in the English language.

USE OF MULTIPLE SENSES. Every time we encounter new information, all of our senses are potentially at work. Each piece of sensory information is stored in a separate location in the brain, and yet all the pieces are linked in extraordinarily intricate ways.

- **When you learn something, use your body.** Move around. Stand up; sit down. Touch the page. Trace figures with your fingers. Talk to yourself. Think out loud. By involving every part of your body, you’ve increased the number of potential ways to trigger a relevant memory later, when you need to recall it.
- **Draw and diagram the material.** Structuring written material by graphically grouping and connecting key ideas and themes is a powerful technique. Creating drawings, sketches, and even cartoons can help us remember better.
- **Visualize.** Visualization is effective because it helps make abstract ideas concrete; it engages multiple senses; it permits us to link different bits of information together; and it provides us with a context for storing information.
- **Overlearning.** *Overlearning* consists of studying and rehearsing material past the point of initial mastery. Through overlearning, you can recall the information without even thinking about it.

Study for Tests Strategically

Here are some guidelines that can help you do your best on tests:

KNOW WHAT YOU ARE PREPARING FOR. To find out about an upcoming test, ask if it is a “test,” an “exam,” a “quiz,” or something else. These names imply different things. In addition, each kind of test question requires a somewhat different style of preparation.

- **Essay questions.** The best approach to studying for an essay test involves four steps:
 1. Reread your class notes and any notes you’ve made on assigned readings that will be covered on the upcoming exam. Also go through the readings themselves, reviewing underlined or highlighted material and marginal notes.
 2. Think of likely exam questions. Some instructors give lists of possible essay topics; if yours does, focus on this list, and think of other possibilities.

3. Answer each potential essay question—aloud. You can also write down the main points that any answer should cover.
4. After you've answered the questions, look at the notes and readings again. If you feel confident that you've answered specific questions adequately, check them off. If you had trouble with some questions, review that material immediately. Then repeat step 3, answering the questions again.

- **Multiple-choice, true–false, and matching questions.** Studying for multiple-choice, true–false, and matching questions requires attention to the details. Write down important facts on index cards: They're portable and available all the time, and the act of creating them helps drive the material into your memory.
- **Short-answer and fill-in questions.** Short-answer and fill-in questions are similar to essays in that they require you to recall key pieces of information, but they don't demand that you integrate or compare different types of information. Consequently, the focus of your study should be on the recall of specific, detailed information.

TEST YOURSELF. When you believe you've mastered the material, test yourself on it. You can create a test for yourself, in writing, making its form as close as possible to what you expect the actual test to be.

DEAL WITH TEST ANXIETY. What does the anticipation of a test do to you? *Test anxiety* is a temporary condition characterized by fears and concerns about test-taking. You'll never eliminate test anxiety completely, nor do you want to. A little bit of nervousness can energize us, making us more attentive and vigilant.

On the other hand, for some students, anxiety can spiral into the kind of paralyzing fear that makes their minds go blank. There are several ways to keep this from happening to you:

- *Prepare thoroughly.*
- *Take a realistic view of the test.*
- *Learn relaxation techniques.*
- *Visualize success.*

FORM A STUDY GROUP. *Study groups* can be extremely powerful tools because they help accomplish several things:

- They help members organize and structure the material to approach their studying in a systematic and logical way.
- They allow students to share different perspectives on the material.
- They make it more likely that students will not overlook any potentially important information.





- They force members to rethink the course material, explaining it in words that other group members will understand. This helps both understanding and recall of the information when it is needed on the test.
- Finally, they help motivate members to do their best. When you're part of a study group, you're no longer working just for yourself; your studying also benefits the other study group members. Not wanting to let down your classmates in a study group may encourage you to put in your best effort.

Understanding Psychology



1

Introduction to Psychology



Learning Outcomes for Chapter 1

LO 1-1 What is the science of psychology?

LO 1-2 What are the major specialties in the field of psychology?

LO 1-3 Where do psychologists work?

MODULE 1

Psychologists at Work

The Subfields of Psychology:
Psychology's Family Tree

Working at Psychology

MODULE 2

LO 2-1 What are the origins of psychology?

LO 2-2 What are the major approaches in contemporary psychology?

A Science Evolves: The Past, the Present, and the Future

The Roots of Psychology

Today's Perspectives

Applying Psychology in the 21st
Century: Psychology Matters

MODULE 3

LO 3-1 What are psychology's key issues and controversies?

LO 3-2 What is the future of psychology likely to hold?

Psychology's Key Issues and Controversies

Exploring Diversity: Understanding How
Culture, Ethnicity, and Race Influence
Behavior

Psychology's Future

Neuroscience in Your Life: Reading the
Movies in Your Mind

Becoming an Informed Consumer of
Psychology: Thinking Critically
About Psychology: Distinguishing
Legitimate Psychology from Pseudo-
Psychology

Prologue *Boston Marathon Massacre*

The images of Dzhokhar Tsarnaev, the person who became known as the “Boston Bomber,” weren’t what anyone was expecting. In the days and weeks following the bombing of the Boston Marathon in 2013, videos were released of the shaggy-haired 19-year-old college student fooling around and dancing with his friends and hanging out with his older brother at the gym. He looked just like any teenaged boy—playful, fun, and engaging. *Rolling Stone* magazine would later incur considerable controversy

when it put Dzhokhar’s photo on the cover of its August issue. His casual reclined pose and sultry gaze made him look like a young rock star.

It was difficult for people to believe that this was, in fact, the face of the man who had placed a shrapnel-packed bomb at the feet of a cheerful 7-year-old boy at the crowded marathon finish line, and then walked away, smiling, just before it exploded.



Looking Ahead

The bloody Boston massacre gives rise to a host of important psychological issues. For example, consider these questions asked by psychologists following the killing spree:

- What motivation lay behind Tsarnaev’s act of terror?
- What biological changes occurred in the bodies of those present who fled in fear for their lives after the bomb exploded?
- What memories did people have of the bombing afterward?
- What would be the long-term effects of the killings on the physical and psychological health of the survivors and witnesses?

- What are the most effective ways to help people cope with the sudden and unexpected loss of loved ones?
- Why did many people put their own lives potentially at risk to give first aid to those who were injured?
- Was Tsarnaev psychologically disordered?
- Could this tragedy have been prevented if the bomber had received adequate psychological therapy?

As we’ll soon see, psychology addresses questions like these—and many, many more. In this chapter, we begin our examination of psychology, the different types of psychologists, and the various roles that psychologists play.

MODULE 1

Psychologists at Work

Psychology is the scientific study of behavior and mental processes. The simplicity of this definition is in some ways deceiving, concealing ongoing debates about how broad the scope of psychology should be. Should psychologists limit themselves to the study of outward, observable behavior? Is it possible to scientifically study thinking? Should the field encompass the study of such diverse topics as physical and mental health, perception, dreaming, and motivation? Is it appropriate to focus solely on human behavior, or should the behavior of other species be included?

Most psychologists would argue that the field should be receptive to a variety of viewpoints and approaches. Consequently, the phrase *behavior and mental processes* in the definition of psychology must be understood to mean many things: It encompasses not just what people do but also their thoughts, emotions, perceptions, reasoning processes, memories, and even the biological activities that maintain bodily functioning.

Psychologists try to describe, predict, and explain human behavior and mental processes, as well as helping to change and improve the lives of people and the world in which they live. They use scientific methods to find answers that are far more valid and legitimate than those resulting from intuition and speculation, which are often inaccurate (see Figure 1).

Learning Outcomes

LO 1-1 What is the science of psychology?

LO 1-2 What are the major specialties in the field of psychology?

LO 1-3 Where do psychologists work?

psychology The scientific study of behavior and mental processes.

FIGURE 1 The scientific method is the basis of all psychological research and is used to find valid answers. Test your knowledge of psychology by answering these questions. (Source: Adapted from Lamal, 1979.)

Psychological Truths?

To test your knowledge of psychology, try answering the following questions:

1. Infants love their mothers primarily because their mothers fulfill their basic biological needs, such as providing food. True or false? _____
2. Geniuses generally have poor social adjustment. True or false? _____
3. The best way to ensure that a desired behavior will continue after training is completed is to reward that behavior every single time it occurs during training rather than rewarding it only periodically. True or false? _____
4. People with schizophrenia have at least two distinct personalities. True or false? _____
5. Parents should do everything they can to ensure their children have high self-esteem and a strong sense that they are highly competent. True or false? _____
6. Children's IQ scores have little to do with how well they do in school. True or false? _____
7. Frequent masturbation can lead to mental illness. True or false? _____
8. Once people reach old age, their leisure activities change radically. True or false? _____
9. Most people would refuse to give painful electric shocks to other people. True or false? _____
10. People who talk about suicide are unlikely to actually try to kill themselves. True or false? _____

Scoring: The truth about each of these items: They are all false. Based on psychological research, each of these "facts" has been proven untrue. You will learn the reasons why as we explore what psychologists have discovered about human behavior.

The Subfields of Psychology: Psychology's Family Tree

As the study of psychology has grown, it has given rise to a number of subfields (described in Figure 2). The subfields of psychology can be likened to an extended family, with assorted nieces and nephews, aunts and uncles, and cousins who, although they may not interact on a day-to-day basis, are related to one another, because they share a common goal: understanding behavior. One way to identify the key subfields is to look at some of the basic questions about behavior that they address.



Study Alert

The different subfields of psychology allow psychologists to explain the same behavior in multiple ways. Review Figure 2 for a summary of the subfields.

WHAT ARE THE BIOLOGICAL FOUNDATIONS OF BEHAVIOR?

In the most fundamental sense, people are biological organisms. *Behavioral neuroscience* is the subfield of psychology that focuses on how the brain and the nervous system, as well as other biological aspects of the body, determine behavior.

Thus, neuroscientists consider how our bodies influence our behavior. For example, they may examine the link between specific sites in the brain and the muscular tremors of people affected by Parkinson's disease or attempt to determine how our emotions are related to physical sensations.

HOW DO PEOPLE SENSE, PERCEIVE, LEARN, AND THINK ABOUT THE WORLD?

If you have ever wondered why you are susceptible to optical illusions, how your body registers pain, or how to make the most of your study time, an experimental psychologist can answer your questions. *Experimental psychology* is the branch of psychology that studies the processes of sensing, perceiving, learning, and thinking about the world. (The term *experimental psychologist* is somewhat misleading: Psychologists in every specialty area use experimental techniques.)

Several subspecialties of experimental psychology have become specialties in their own right. One is *cognitive psychology*, which focuses on higher mental processes, including thinking, memory, reasoning, problem solving, judging, decision making, and language.

WHAT ARE THE SOURCES OF CHANGE AND STABILITY IN BEHAVIOR ACROSS THE LIFE SPAN?

A baby producing her first smile . . . taking his first step . . . saying her first word. These universal milestones in development are also singularly special and unique for each person. *Developmental psychology* studies how people grow and change from the moment of conception through death. *Personality psychology* focuses on the consistency in people's behavior over time and the traits that differentiate one person from another.

HOW DO PSYCHOLOGICAL FACTORS AFFECT PHYSICAL AND MENTAL HEALTH?

Frequent depression, stress, and fears that prevent people from carrying out their normal activities are topics that interest a health psychologist, a clinical psychologist, and a counseling psychologist. *Health psychology* explores the relationship between psychological factors and physical ailments or disease. For example, health psychologists are interested in assessing how long-term stress (a psychological factor) can affect physical



PsychTech

How well can you text and drive at the same time? Cognitive psychologists have demonstrated that it is impossible to do both without a serious and potentially deadly decline in driving ability.



Subfield	Description
Behavioral genetics	<i>Behavioral genetics</i> studies the inheritance of traits related to behavior.
Behavioral neuroscience	<i>Behavioral neuroscience</i> examines the biological basis of behavior.
Clinical psychology	<i>Clinical psychology</i> deals with the study, diagnosis, and treatment of psychological disorders.
Clinical neuropsychology	<i>Clinical neuropsychology</i> unites the areas of biopsychology and clinical psychology, focusing on the relationship between biological factors and psychological disorders.
Cognitive psychology	<i>Cognitive psychology</i> focuses on the study of higher mental processes.
Counseling psychology	<i>Counseling psychology</i> focuses primarily on educational, social, and career adjustment problems.
Cross-cultural psychology	<i>Cross-cultural psychology</i> investigates the similarities and differences in psychological functioning in and across various cultures and ethnic groups.
Developmental psychology	<i>Developmental psychology</i> examines how people grow and change from the moment of conception through death.
Educational psychology	<i>Educational psychology</i> is concerned with teaching and learning processes, such as the relationship between motivation and school performance.
Environmental psychology	<i>Environmental psychology</i> considers the relationship between people and their physical environment.
Evolutionary psychology	<i>Evolutionary psychology</i> considers how behavior is influenced by our genetic inheritance from our ancestors.
Experimental psychology	<i>Experimental psychology</i> studies the processes of sensing, perceiving, learning, and thinking about the world.
Forensic psychology	<i>Forensic psychology</i> focuses on legal issues, such as determining the accuracy of witness memories.
Health psychology	<i>Health psychology</i> explores the relationship between psychological factors and physical ailments or disease.
Industrial/organizational psychology	<i>Industrial/organizational psychology</i> is concerned with the psychology of the workplace.
Personality psychology	<i>Personality psychology</i> focuses on the consistency in people's behavior over time and the traits that differentiate one person from another.
Program evaluation	<i>Program evaluation</i> focuses on assessing large-scale programs, such as the Head Start preschool program, to determine whether they are effective in meeting their goals.
Psychology of women	<i>Psychology of women</i> focuses on issues such as discrimination against women and the causes of violence against women.
School psychology	<i>School psychology</i> is devoted to counseling children in elementary and secondary schools who have academic or emotional problems.
Social psychology	<i>Social psychology</i> is the study of how people's thoughts, feelings, and actions are affected by others.
Sport psychology	<i>Sport psychology</i> applies psychology to athletic activity and exercise.

FIGURE 2 The major subfields of psychology.

health and in identifying ways to promote behavior that brings about good health (Belar, 2008; Yardley & Moss-Morris, 2009; Proyer et al., 2013).

Clinical psychology deals with the study, diagnosis, and treatment of psychological disorders. Clinical psychologists are trained to diagnose and treat problems that range from the crises of everyday life, such as unhappiness over the breakup of a relationship, to more extreme conditions, such as profound, lingering depression. Some clinical psychologists also research and investigate issues that vary from identifying the early signs of psychological disturbance to studying the relationship between family communication patterns and psychological disorders.

Like clinical psychologists, counseling psychologists deal with people's psychological problems, but the problems they deal with are more specific. *Counseling psychology* focuses primarily on educational, social, and career adjustment problems. Almost every college has a center staffed with counseling psychologists. This is where students can get advice on the kinds of jobs they might be best suited for, on methods of studying effectively, and on strategies for resolving everyday difficulties, such as problems with roommates and concerns about a specific professor's grading practices. Many large business organizations also employ counseling psychologists to help employees with work-related problems.

HOW DO OUR SOCIAL NETWORKS AFFECT BEHAVIOR?

Our complex networks of social interrelationships are the focus for many subfields of psychology. For example, *social psychology* is the study of how people's thoughts, feelings, and actions are affected by others. Social psychologists concentrate on such diverse topics as human aggression, liking and loving, persuasion, and conformity.

Cross-cultural psychology investigates the similarities and differences in psychological functioning in and across various cultures and ethnic groups. For example, cross-cultural psychologists examine how cultures differ in their use of punishment during child rearing.

EXPANDING PSYCHOLOGY'S FRONTIERS

The boundaries of the science of psychology are constantly growing. Three newer members of the field's family tree—evolutionary psychology, behavioral genetics, and clinical neuropsychology—have sparked particular excitement, and debate, within psychology.

Evolutionary Psychology. *Evolutionary psychology* considers how behavior is influenced by our genetic inheritance from our ancestors. The evolutionary approach suggests that the chemical coding of information in our cells not only determines traits such as hair color and race but also holds the key to understanding a broad variety of behaviors that helped our ancestors survive and reproduce.

Evolutionary psychology stems from Charles Darwin's arguments in his groundbreaking 1859 book, *On the Origin of Species*. Darwin suggested that a process of natural selection leads to the survival of the fittest and the development of traits that enable a species to adapt to its environment.

Evolutionary psychologists take Darwin's arguments a step further. They argue that our genetic inheritance determines not only physical traits such as skin and eye color but certain personality traits and social behaviors as well. For example, evolutionary psychologists suggest that behavior such as shyness, jealousy, and cross-cultural similarities in qualities desired in potential mates are at least partially determined by genetics, presumably because such behavior helped increase the survival rate of humans' ancient relatives (Buss, 2003; Sefcek, Brumbach, & Vasquez, 2007).

Although they are increasingly popular, evolutionary explanations of behavior have stirred controversy. By suggesting that many significant behaviors unfold

automatically because they are wired into the human species, evolutionary approaches minimize the role of environmental and social forces. Still, the evolutionary approach has stimulated a significant amount of research on how our biological inheritance influences our traits and behaviors (Buss, 2004; Neher, 2006; Mesoudi, 2011).

Behavioral Genetics. Another rapidly growing area in psychology focuses on the biological mechanisms, such as genes and chromosomes, that enable inherited behavior to unfold. *Behavioral genetics* seeks to understand how we might inherit certain behavioral traits and how the environment influences whether we actually display such traits (Moffitt & Caspi, 2007; Rende, 2007; Maxson, 2013).

Clinical Neuropsychology. *Clinical neuropsychology* unites the areas of neuroscience and clinical psychology: It focuses on the origin of psychological disorders in biological factors. Building on advances in our understanding of the structure and chemistry of the brain, this specialty has already led to promising new treatments for psychological disorders as well as debates over the use of medication to control behavior (Boake, 2008; Holtz, 2011).

Working at Psychology

Help Wanted: Assistant professor at a small liberal arts college. Teach undergraduate courses in introductory psychology and courses in specialty areas of cognitive psychology, perception, and learning. Strong commitment to quality teaching, as well as evidence of scholarship and research productivity, necessary.

Help Wanted: Industrial-organizational consulting psychologist. International firm seeks psychologists for full-time career positions as consultants to management. Candidates must have the ability to establish a rapport with senior business executives and help them find innovative and practical solutions to problems concerning people and organizations.

Help Wanted: Clinical psychologist. PhD, internship experience, and license required. Comprehensive clinic seeks psychologist to work with children and adults providing individual and group therapy, psychological evaluations, crisis intervention, and development of behavior treatment plans on multidisciplinary team.

As these job ads suggest, psychologists are employed in a variety of settings. Many doctoral-level psychologists are employed by institutions of higher learning (universities and colleges) or are self-employed, usually working as private practitioners treating clients (see Figure 3). Other work sites include hospitals, clinics, mental health centers, counseling centers, government human-services organizations, businesses, schools, and even prisons. Psychologists are employed in the military, working with soldiers, veterans, and their families, and they work for the federal government Department of Homeland Security, fighting terrorism. Psychologists who specialize in program evaluation are increasingly employed by foundations that want to assess the value of programs they fund (American Psychological Association, 2007; DeAngelis & Monahan, 2008; Moscoso et al., 2013).

Most psychologists, though, work in academic settings, allowing them to combine the three major roles played by psychologists in society: teacher, scientist, and clinical practitioner. Many psychology professors are also actively involved in research or in serving clients. Whatever the particular job site, however, psychologists share a commitment to improving individual lives as well as society in general.