

*Exploring*  
PSYCHOLOGY

tenth edition

DAVID G. MYERS

C. NATHAN DEWALL

# Timeline

## The Story of Psychology: A Timeline

by Charles L. Brewer, Furman University

- B.C.E.**
- 387** — Plato, who believed in innate ideas, suggests that the brain is the seat of mental processes.
- 335** — Aristotle, who denied the existence of innate ideas, suggests that the heart is the seat of mental processes.
- C.E.**
- 1604** — Johannes Kepler describes inverted image on the retina.
- 1605** — Francis Bacon publishes *The Proficiency and Advancement of Learning*.
- 1636** — Harvard College is founded.
- 1637** — René Descartes, the French philosopher and mathematician who proposed mind–body interaction and the doctrine of innate ideas, publishes *A Discourse on Method*.
- 1690** — John Locke, the British philosopher who rejected Descartes' notion of innate ideas and insisted that the mind at birth is a "blank slate" (*tabula rasa*), publishes *An Essay Concerning Human Understanding*, which stresses empiricism over speculation.
- 1774** — Franz Mesmer, an Austrian physician, performs his first supposed cure using "animal magnetism" (later called mesmerism and hypnosis). In **1777** he was expelled from the practice of medicine in Vienna.
- 1793** — Philippe Pinel releases the first mental patients from their chains at the Bicêtre Asylum in France and advocates more humane treatment of mental patients.
- 1802** — Thomas Young publishes *A Theory of Color Vision* in England. (His theory was later called the trichromatic theory.)
- 1808** — Franz Joseph Gall, a German physician, describes phrenology, the belief that the shape of a person's skull reveals mental faculties and character traits.
- 1834** — Ernst Heinrich Weber publishes *The Sense of Touch*, in which he discusses the "just noticeable difference (*ind*)" and what we now call Weber's law.
- 1848** — Phineas Gage suffers massive brain damage when a large iron rod accidentally pierces his brain, leaving his intellect and memory intact but altering his personality.
- 1859** — Charles Darwin publishes *On the Origin of Species by Means of Natural Selection*, synthesizing much previous work on the theory of evolution, including that of Herbert Spencer, who coined the phrase "survival of the fittest."
- 1861** — Paul Broca, a French physician, discovers an area in the left frontal lobe of the brain (now called Broca's area) that is critical for the production of spoken language.
- 1901** — Ten founders establish the British Psychological Society.
- 1905** — Mary Whiton Calkins becomes the first woman president of the APA.
- Ivan Petrovich Pavlov begins publishing studies of conditioning in animals.
- Alfred Binet and Théodore Simon produce the first intelligence test for assessing the abilities and academic progress of Parisian schoolchildren.
- 1913** — John B. Watson outlines the tenets of behaviorism in a *Psychological Review* article, "Psychology as the Behaviorist Views It."
- 1914** — During World War I, Robert Yerkes and his staff develop a group intelligence test for evaluating U.S. military personnel, which increases the U.S. public's acceptance of psychological testing.
- 1920** — Leta Stetter Hollingworth publishes *The Psychology of Subnormal Children*, an early classic. In **1921** she is cited in *American Men of Science* for her research on the psychology of women.
- Francis Cecil Sumner receives a Ph.D. degree in psychology from Clark University, becoming the first African-American to earn a psychology doctorate.
- John B. Watson and Rosalie Rayner report conditioning a fear reaction in a child called "Little Albert."
- Hermann Rorschach, a Swiss psychiatrist, introduces the Rorschach Inkblot Test.
- 1921** — Developmental psychologist Jean Piaget publishes *The Language and Thought of the Child*.
- 1923** — Mary Cover Jones reports reconditioning a fear reaction in a child (Peter), a forerunner of systematic desensitization developed by Joseph Wolpe.
- 1924** — In *Introduction to the Technique of Child Analysis*, Anna Freud discusses psychoanalysis in the treatment of children.
- 1927** — Wolfgang Köhler publishes *Gestalt Psychology*, which criticizes behaviorism and outlines essential elements of the gestalt position and approach.
- 1929** — Margaret Floy Washburn becomes the first female psychologist (and the second female scientist in any discipline) elected to the U.S. National Academy of Sciences.
- 1931** — In *The Wisdom of the Body*, Walter B. Cannon coins the term *homeostasis*, discusses the fight-or-flight response, and identifies hormonal changes associated with stress.
- 1932** —

- 1869**— Francis Galton, Charles Darwin's cousin, publishes *Hereditary Genius*, in which he claims that intelligence is inherited. In **1876** he coins the expression “nature and nurture” to correspond with “heredity and environment.”
- 1874**— Carl Wernicke, a German neurologist and psychiatrist, shows that damage to a specific area in the left temporal lobe (now called Wernicke's area) disrupts ability to comprehend or produce spoken or written language.
- 1878**— G. Stanley Hall receives from Harvard University's Department of Philosophy the first U.S. Ph.D. degree based on psychological research.
- 1879**— Wilhelm Wundt establishes at the University of Leipzig, Germany, the first psychology laboratory, which becomes a mecca for psychology students from all over the world.
- 1883**— G. Stanley Hall, student of Wilhelm Wundt, establishes the first formal U.S. psychology laboratory at Johns Hopkins University.
- 1885**— Hermann Ebbinghaus publishes *On Memory*, summarizing his extensive research on learning and memory, including the “forgetting curve.”
- 1886**— Joseph Jastrow receives from Johns Hopkins University the first Ph.D. degree in psychology awarded by a Department of Psychology in the United States.
- 1889**— Alfred Binet and Henri Beaunis establish the first psychology laboratory in France at the Sorbonne, and the first International Congress of Psychology meets in Paris.
- 1890**— William James, Harvard University philosopher and psychologist, publishes *The Principles of Psychology*, describing psychology as “the science of mental life.”
- 1891**— James Mark Baldwin establishes the first psychology laboratory in the British Commonwealth at the University of Toronto.
- 1892**— G. Stanley Hall spearheads the founding of the American Psychological Association (APA) and becomes its first president.
- 1893**— Mary Whiton Calkins and Christine Ladd-Franklin are the first women elected to membership in the APA.
- 1894**— Margaret Floy Washburn is the first woman to receive a Ph.D. degree in psychology (Cornell University).
- Harvard University denies Mary Whiton Calkins admission to doctoral candidacy because of her gender, despite Hugo Münsterberg's claim that she was the best student he had ever had there.
- 1896**— John Dewey publishes “The Reflex Arc Concept in Psychology,” helping to formalize the school of psychology called functionalism.
- 1898**— In *Animal Intelligence*, Edward L. Thorndike, Columbia University, describes his learning experiments with cats in “puzzle boxes.” In **1905**, he proposes the “law of effect.”
- 1900**— Sigmund Freud publishes *The Interpretation of Dreams*, his major theoretical work on psychoanalysis.
- 1933**— Inez Beverly Prosser becomes the first African-American woman to receive a doctoral degree in psychology from a U.S. institution (Ph.D., University of Cincinnati).
- 1935**— Christiana Morgan and Henry Murray introduce the Thematic Apperception Test to elicit fantasies from people undergoing psychoanalysis.
- 1936**— Egas Moniz, a Portuguese physician, publishes work on the first frontal lobotomies performed on humans.
- 1938**— B. F. Skinner publishes *The Behavior of Organisms*, which describes operant conditioning of animals.
- In *Primary Mental Abilities*, Louis L. Thurstone proposes seven such abilities.
- Ugo Cerletti and Lucio Bini use electroshock treatment with a human patient.
- 1939**— David Wechsler publishes the Wechsler-Bellevue intelligence test, forerunner of the Wechsler Intelligence Scale for Children (WISC) and the Wechsler Adult Intelligence Scale (WAIS).
- Mamie Phipps Clark receives a master's degree from Howard University. In collaboration with Kenneth B. Clark, she later extends her thesis, “The Development of Consciousness of Self in Negro Preschool Children,” providing joint research cited in the U.S. Supreme Court's **1954** decision to end racial segregation in public schools.
- Edward Alexander Bott helps found the Canadian Psychological Association. He becomes its first president in **1940**.
- World War II provides many opportunities for psychologists to enhance the popularity and influence of psychology, especially in applied areas.
- 1943**— Psychologist Starke Hathaway and physician J. Charnley McKinley publish the Minnesota Multiphasic Personality Inventory (MMPI).
- 1945**— Karen Horney, who criticized Freud's theory of female sexual development, publishes *Our Inner Conflicts*.
- 1946**— Benjamin Spock's first edition of *The Commonsense Book of Baby and Child Care* appears; the book will influence child raising in North America for several decades.
- 1948**— Alfred Kinsey and his colleagues publish *Sexual Behavior in the Human Male*, and they publish *Sexual Behavior in the Human Female* in **1953**.
- B. F. Skinner's novel, *Walden Two*, describes a Utopian community based on positive reinforcement, which becomes a clarion call for applying psychological principles in everyday living, especially communal living.
- Ernest R. Hilgard publishes *Theories of Learning*, which was required reading for several generations of psychology students in North America.
- 1949**— Raymond B. Cattell publishes the Sixteen Personality Factor Questionnaire (16PF).

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[DM] For my kindred spirits, Malcolm and Ruth Jeeves,  
with gratitude for your hospitality and friendship.

[ND] To Alice DeWall —  
love of my life

# About the Authors



**David Myers** received his B.A. in chemistry from Whitworth University, and his psychology Ph.D. from the University of Iowa. He has spent his career at Hope College in Michigan, where he has taught dozens of introductory psychology sections. Hope College students have invited him to be their commencement speaker and voted him “outstanding professor.”

His research and writings have been recognized by the Gordon Allport Intergroup Relations Prize, by a 2010 Honored Scientist award from the Federation of Associations in Behavioral & Brain Sciences, by a 2010 Award for Service on Behalf of Personality and Social Psychology, by a 2013 Presidential Citation from APA Division 2, and by three honorary doctorates.

With support from National Science Foundation grants, Myers’ scientific articles have appeared in three dozen scientific periodicals, including *Science*, *American Scientist*, *Psychological Science*, and the *American Psychologist*. In addition to his scholarly writing and his textbooks for introductory and social psychology, he also digests psychological science for the general public. His writings have appeared in four dozen magazines, from *Today’s Education* to *Scientific American*. He also has authored five general audience books, including *The Pursuit of Happiness* and *Intuition: Its Powers and Perils*.

David Myers has chaired his city’s Human Relations Commission, helped found a thriving assistance center for families in poverty, and spoken to hundreds of college, community, and professional groups worldwide.

Drawing on his experience, he also has written articles and a book (*A Quiet World*) about hearing loss, and he is advocating a transformation in American assistive listening technology (see [www.HearingLoop.org](http://www.HearingLoop.org)). For his leadership, he received an American Academy of Audiology Presidential Award in 2011, and the Hearing Loss Association of America Walter T. Ridder Award in 2012.

He bikes to work year-round and plays regular pickup basketball. David and Carol Myers have raised two sons and a daughter, and have one granddaughter.





**Nathan DeWall** is professor of psychology and director of the Social Psychology Lab at the University of Kentucky. He received his bachelor's degree from St. Olaf College, a master's degree in social science from the University of Chicago, and a master's degree and Ph.D. in social psychology from Florida State University. DeWall received the 2011 College of Arts and Sciences Outstanding Teaching Award, which recognizes excellence in undergraduate and graduate teaching. In 2011, the Association for Psychological Science identified DeWall as a "Rising Star" for "making significant contributions to the field of psychological science."

DeWall conducts research on close relationships, self-control, and aggression. With funding from the National Institutes of Health and the National Science Foundation, he has published over 170 scientific articles and chapters. DeWall's research awards include the SAGE Young Scholars Award from the Foundation for Personality and Social Psychology, the Young Investigator Award from the International Society for Research on Aggression, and the Early Career Award from the International Society for Self and Identity. His research has been covered by numerous media outlets, including *Good Morning America*, *Wall Street Journal*, *Newsweek*, *Atlantic Monthly*, *New York Times*, *Los Angeles Times*, *Harvard Business Review*, *USA Today*, and National Public Radio. DeWall blogs for *Psychology Today*. He has lectured nationally and internationally, including in Hong Kong, China, the Netherlands, England, Greece, Hungary, Sweden, and Australia.

Nathan is happily married to Alice DeWall and is the proud father of Beverly "Bevy" DeWall. He enjoys playing with his two golden retrievers, Finnegan and Atticus. In his spare time, he writes novels, watches sports, and runs and runs and runs. He has braved all climates—from freezing to ferocious heat—to complete hundreds of miles' worth of ultramarathons.

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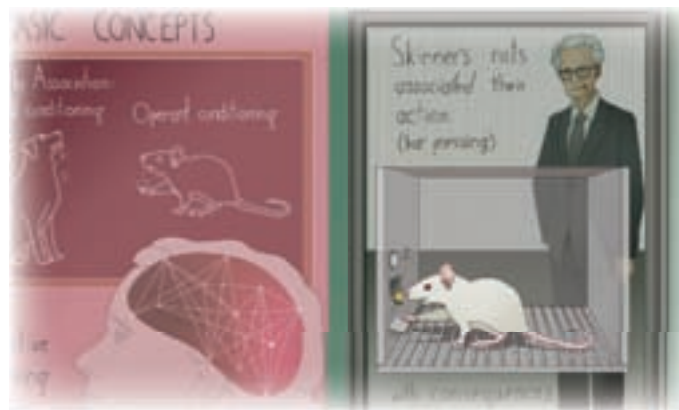
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# Preface

In the 27 years since Worth Publishers invited me (David Myers) to write this book, so much has changed in the world, in psychology, and within these course resources, across ten editions. With this edition, I continue as lead author while beginning a gradual, decade-long process of welcoming a successor author, the award-winning teacher-scholar-writer Nathan DeWall.

Yet across nearly three decades of *Exploring Psychology* there has also been a stability of purpose: *to merge rigorous science with a broad human perspective that engages both mind and heart*. We aim to offer a state-of-the-art introduction to psychological science that speaks to students' needs and interests. We aspire to help students understand and appreciate the wonders of their everyday lives. And we seek to convey the inquisitive spirit with which psychologists *do* psychology.

We are enthusiastic about psychology and its applicability to our lives. Psychological science has the potential to expand our minds and enlarge our hearts. By studying and applying its tools, ideas, and insights, we can supplement our intuition with critical thinking, restrain our judgmentalism with compassion, and replace our illusions with understanding. By the time students complete this guided tour of psychology, they will also, we hope, have a deeper understanding of our moods and memories, about the reach of our unconscious, about how we flourish and struggle,

## ▼ TABLE 1

### Evolutionary Psychology and Behavior Genetics

#### The evolutionary perspective is covered on the following pages:

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about how we perceive our physical and social worlds, and about how our biology and culture in turn shape us. (See TABLES 1 and 2.)

Believing with Thoreau that “anything living is easily and naturally expressed in popular language,” we seek to communicate psychology’s scholarship with crisp narrative and vivid storytelling. We hope to tell psychology’s story in a way that is warmly personal as well as rigorously scientific. We love to reflect on

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Attention-deficit hyperactivity disorder (ADHD) and the brain, p. 532	Fear-learning, p. 540	implicit memories, p. 285	feature detection, pp. 214–215
Autism spectrum disorder, pp. 136–137	Fetal alcohol syndrome and brain abnormalities, p. 124	physical storage of, pp. 292–295	transduction, p. 200
Automatic prejudice: amygdala, p. 466	Hallucinations, p. 89	and sleep, p. 93	visual information processing, pp. 211–213
Biofeedback, p. 427	and hallucinogens, pp. 111–112	and synaptic changes, pp. 295–296	Perceptual organization, pp. 211–216
Biopsychosocial approach, pp. 10–11	and near-death experiences, p. 112	Mirror neurons, pp. 272–275	Personality
aggression, pp. 469–470	and schizophrenia, p. 556	Neuroscience perspective, defined, p. 11	Big Five and, pp. 508–510
aging, p. 167	and sleep, p. 89	Neurotransmitters and:	brain imaging and, p. 507
Alzheimer’s, p. 296	Hormones and:	anxiety-related disorders, p. 543	Posttraumatic stress disorder (PTSD) and the limbic system, p. 540
dreams, pp. 100–102	abuse, p. 144	biomedical therapy:	Priming, pp. 201–202
drug use, pp. 114–115	appetite, pp. 379–380	depression, pp. 549–550	Psychosurgery: lobotomy, pp. 599–600
emotion, pp. 150–151, 294–296, 393–394	autism spectrum disorder, treatment of, p. 137	ECT, pp. 597–598	Schizophrenia and brain abnormalities, pp. 557–558
learning, pp. 267–269	development, pp. 177–178	schizophrenia, pp. 558, 594	Sensation:
pain, p. 232	in adolescents, pp. 147–149, 178–179	child abuse, p. 146	body position and movement, pp. 238–239
personality, pp. 513–514	of sexual characteristics, pp. 147–149, 178–179	cognitive-behavioral therapy: obsessive-compulsive disorder, p. 581	deafness, pp. 228–229
psychological disorders, pp. 529–530	emotion, pp. 388–389, 392–393	depression, pp. 549–550, 595	hearing, pp. 226–230
sleep, pp. 87–89	gender, pp. 175–176	drugs, pp. 106, 108–109, 110, 111, 593–596	sensory adaptation, pp. 204–205
therapeutic lifestyle change, pp. 600–601	sex, pp. 175–176, 181–182	exercise, p. 427	smell, pp. 236–238
Brain development:	sexual behavior, pp. 181–182	schizophrenia, p. 560	taste, p. 236
adolescence, pp. 148–149	stress, pp. 127, 138, 409–410, 414, 416–417, 420–421, 424	temperament, pp. 140–141	touch, pp. 230–231
experience and, pp. 127–128	weight control, pp. 379–380	Observational learning and brain imaging, p. 273	vision, pp. 209–224
infancy and childhood, p. 129	Hunger, pp. 377–380	Optimum arousal: brain mechanisms for rewards, pp. 273–276	Sexual orientation, pp. 190–191
sexual differentiation in utero, p. 175	Insight, p. 323	Orgasm, pp. 182–184	Sleep:
Brain stimulation therapies, pp. 597–599	Intelligence, pp. 347–350	Pain, p. 234	cognitive development and, pp. 101–102
	creativity, pp. 330–332	experienced and imagined pain, pp. 274–275	memory and, p. 93
	twins, p. 360		recuperation during, p. 93
	Language, pp. 335–336, 340		Smell and emotion, p. 238
	and deafness, p. 339		Unconscious mind, pp. 499–500

connections between psychology and other realms, such as literature, philosophy, history, sports, religion, politics, and popular culture. And we love to provoke thought, to play with words, and to laugh. For his pioneering 1890 *Principles of Psychology*, William James sought “humor and pathos.” And so do we.

We are grateful for the privilege of assisting with the teaching of this mind-expanding discipline to so many students, in so many countries, through so many different languages. To be entrusted with discerning and communicating psychology’s insights is both an exciting honor and a great responsibility.

Creating this book is a team sport. Like so many human achievements, it reflects a collective intelligence. Woodrow Wilson spoke for us: “I not only use all the brains I have, but all I can borrow.” The thousands of instructors and millions of students across the globe who have taught or studied (or both!) with our books have contributed immensely to their development. Much of this contribution has occurred spontaneously, through correspondence and conversations. For this edition, we also formally involved dozens of researchers, teaching psychologists, and students in our efforts to gather accurate and up-to-date information about psychology and instructor and student needs. And we look forward to continuing feedback as we strive, over future editions, to create an ever better set of resources for this course.

## New Co-Author

For this edition I [DM] welcome my new co-author, University of Kentucky professor Nathan DeWall. (For more information and videos that introduce Nathan and our collaboration, see [www.MacmillanHigherEd.com/DeWallVideos](http://www.MacmillanHigherEd.com/DeWallVideos).) Nathan is not only one of psychology’s “rising stars” (as the Association for Psychological Science rightly said in 2011), he also is an award-winning teacher and someone who shares my passion for writing—and for communicating psychological science through writing. Although I continue as lead author, Nathan’s fresh insights and contributions are already enriching this book, especially for this tenth edition, through his leading the revision of **Chapters 2, 4, 11, and 13**. But my fingerprints are also on those chapter revisions, even as his are on the other chapters. With support from our wonderful editors, this is a team project. In addition to our work together on the textbook, Nathan and I enjoy contributing to the monthly Teaching Current Directions in Psychological Science column in the *APS Observer* ([tinyurl.com/MyersDeWall](http://tinyurl.com/MyersDeWall)). We also blog at [www.TalkPsych.com](http://www.TalkPsych.com), where we share exciting new findings, everyday applications, and observations on all things psychology.



## What Else Is New in the Tenth Edition?

This tenth edition is the most carefully reworked and extensively updated of all the revisions to date. This new edition features improvements to the organization and presentation, especially to our system of supporting student learning and remembering. And we offer the exciting new **Immersive Learning: How Would You Know?** feature in LaunchPad, engaging students in the scientific process.

### “Immersive Learning: How Would You Know?” Research Activities

We [ND and DM] created these online activities to engage students in the scientific process, showing them how psychological research begins with a question, and how key decision points can alter the meaning and value of a psychological

study. In a fun, interactive environment, students learn about important aspects of research design and interpretation, and develop *scientific literacy* and *critical thinking* skills in the process. I [ND] have enjoyed taking the lead on this project and sharing my research experience and enthusiasm with students. Topics include: “How Would You Know If a Cup of Coffee Can Warm Up Relationships?,” “How Would You Know If People Can Learn to Reduce Anxiety?,” and “How Would You Know If Schizophrenia Is Inherited?”

## New Visual Scaffolding Chapter Openers

We were aware that students often skip over a text’s typical two-page chapter opener—under the assumption it serves little purpose in learning the material to come. So, for this new edition, we worked with a talented artist to make more pedagogically effective use of this space. This new feature provides an enticing and helpful way for students to SURVEY the content in each chapter, before they QUESTION, READ, RETRIEVE, and REVIEW it (SQ3R). We’ve provided *visual scaffolding* at the beginning of each chapter, offering students a *basic cognitive structure for the content to come*. Flip to the beginning of any chapter to see a sample.

## Hundreds of New Research Citations

Our ongoing scrutiny of dozens of scientific periodicals and science news sources, enhanced by commissioned reviews and countless e-mails from instructors and students, enables integrating our field’s most important, thought-provoking, and student-relevant new discoveries. Part of the pleasure that sustains this work is learning something new every day! See p. xxxvi for a list of significant **Content Changes** to this edition.

## Reorganized Chapters

In addition to the new research activities, visual scaffolding openers, and updated coverage, we’ve introduced the following organizational changes:

- **Chapter 1**, Thinking Critically With Psychological Science, now has a clearer organization and greater emphasis on modern approaches, including Cross-Cultural and Gender Psychology, and new coverage of Positive Psychology (see also TABLE 3). This chapter also now offers greater emphasis on designing psychological studies, and on psychology’s research ethics.
- Hypnosis is now covered in the Pain discussion in **Chapter 6**, Sensation and Perception (moved from **Chapter 3**).
- The Social Psychology chapter now precedes the Personality chapter.


## LaunchPad for *Exploring Psychology*, Tenth Edition

Built to solve key challenges in this course, LaunchPad gives students everything they need to prepare for class and exams, while giving instructors everything *they* need to quickly set up a course, shape the content to their syllabus, craft presentations and lectures, assign and assess homework, and guide the progress of individual students and the class as a whole. LaunchPad for *Exploring Psychology*, tenth edition, includes **LearningCurve** formative assessment, and **NEW Immersive Learning: How Would You Know?** activities, **PsychSim 6** tutorials, and **Assess Your**

▼ TABLE 3

### POSITIVE PSYCHOLOGY

Coverage of positive psychology topics can be found in the following chapters:	
Topic	Chapter
Altruism/compassion	4, 9, 12, 13, 15
Coping	11
Courage	12
Creativity	8, 9, 13
Emotional Intelligence	9, 12
Empathy	4, 7, 10, 12, 15
Flow	Appendix B
Gratitude	11
Happiness/Life Satisfaction	4, 10, 11
Humility	1
Humor	11, 12
Justice	12
Leadership	12, 13, Appendix B
Love	4, 5, 10, 12, 13, 15
Morality	4
Optimism	11, 13
Personal control	11
Resilience	4, 11, 15
Self-discipline	4, 10, 13
Self-efficacy	13
Self-esteem	10, 13
Spirituality	11, 12
Toughness (grit)	9, 10
Wisdom	1, 9, 11, 12, 13

 **LaunchPad** To review the classic conformity studies and experience a simulated experiment, visit LaunchPad's *PsychSim 6: Everybody's Doing It!*

▲ FIGURE 1

Sample LaunchPad callout from Chapter 12

**Strengths** projects. (For details, see p. xxviii and [www.MacmillanHigherEd.com/LaunchPad/Exploring10e](http://www.MacmillanHigherEd.com/LaunchPad/Exploring10e).)

For this new edition, you will see that we've offered callouts from the text pages to especially pertinent, helpful resources from LaunchPad. (See FIGURE 1 for a sample.)

## What Continues?

### Eight Guiding Principles

Despite all the exciting changes, this new edition retains its predecessors' voice, as well as much of the content and organization. It also retains the goals—the guiding principles—that have animated the previous nine editions:

#### Facilitating the Learning Experience

1. **To teach critical thinking** By presenting research as intellectual detective work, we illustrate an inquiring, analytical mind-set. Whether students are studying development, cognition, or social behavior, they will become involved in, and see the rewards of, critical reasoning. Moreover, they will discover how an empirical approach can help them evaluate competing ideas and claims for highly publicized phenomena—ranging from ESP and alternative therapies to group differences in intelligence and repressed and recovered memories.
2. **To integrate principles and applications** Throughout—by means of anecdotes, case histories, and the posing of hypothetical situations—we relate the findings of basic research to their applications and implications. Where psychology can illuminate pressing human issues—be they racism and sexism, health and happiness, or violence and war—we have not hesitated to shine its light.
3. **To reinforce learning at every step** Everyday examples and rhetorical questions encourage students to process the material actively. Concepts presented earlier are frequently applied, and reinforced. For instance, in **Chapter 1**, students learn that much of our information processing occurs outside of our conscious awareness. Ensuing chapters drive home this concept. Numbered Learning Objective Questions and Retrieve It self-tests throughout each chapter, a Review and *Experience the Testing Effect* self-test at the end of each main text section, and a marginal glossary help students learn and retain important concepts and terminology.

#### Demonstrating the Science of Psychology

4. **To exemplify the process of inquiry** We strive to show students not just the outcome of research, but how the research process works. Throughout, we try to excite the reader's curiosity. We invite readers to imagine themselves as participants in classic experiments. Several chapters introduce research stories as mysteries that progressively unravel as one clue after another falls into place. Our new "Immersive Learning: How Would You Know?" activities in LaunchPad encourage students to think about research questions and how they may be studied effectively.
5. **To be as up-to-date as possible** Few things dampen students' interest as quickly as the sense that they are reading stale news. While retaining psychology's classic studies and concepts, we also present the discipline's most important recent developments. In this edition, 701 references are dated 2013–2015. Likewise, new photos and everyday examples are drawn from today's world.

6. **To put facts in the service of concepts** Our intention is not to fill students' intellectual file drawers with facts, but to reveal psychology's major concepts—to teach students how to think, and to offer psychological ideas worth thinking about. In each chapter, we place emphasis on those concepts we hope students will carry with them long after they complete the course. Always, we try to follow Albert Einstein's purported dictum that “everything should be made as simple as possible, but not simpler.” Learning Objective Questions, Retrieve It questions, and *Experience the Testing Effect* questions throughout each chapter help students learn and retain the key concepts.

## Promoting Big Ideas and Broadened Horizons

7. **To enhance comprehension by providing continuity** Many chapters have a significant issue or theme that links subtopics, forming a thread that ties ideas together. The Learning chapter conveys the idea that bold thinkers can serve as intellectual pioneers. The Thinking, Language, and Intelligence chapter raises the issue of human rationality and irrationality. The Psychological Disorders chapter conveys empathy for, and understanding of, troubled lives. Other threads, such as cognitive neuroscience, dual processing, and cultural and gender diversity, weave throughout the whole book, and students hear a consistent voice.
8. **To convey respect for human unity and diversity** Throughout the book, readers will see evidence of our human kinship—our shared biological heritage, our common mechanisms of seeing and learning, hungering and feeling, loving and hating. They will also better understand the dimensions of our diversity—our individual diversity in development and aptitudes, temperament and personality, and disorder and health; and our cultural diversity in attitudes and expressive styles, child raising and care for the elderly, and life priorities.

## Study System Follows Best Practices From Learning and Memory Research

*Exploring Psychology*, tenth edition's learning system harnesses the *testing effect*, which documents the benefits of actively retrieving information through self-testing (FIGURE 2). Thus, each chapter offers 15 to 20 Retrieve It questions interspersed throughout, with *Experience the Testing Effect* self-test questions at the end of each main section. Creating these *desirable difficulties* for students along the way optimizes the testing effect, as does *immediate feedback* (via an inverted answer beneath Retrieve It questions and in a text appendix for the self-test questions).

In addition, text sections begin with numbered questions that establish learning objectives and direct student reading. A Review section follows each main section of text, providing students an opportunity to practice rehearsing what they've just learned. The Review offers self-testing by repeating the Learning Objective Questions (with answers for checking in the Complete Chapter Reviews Appendix), along with a page-referenced list of key terms.

## Continually Improving Cultural and Gender Diversity Coverage

Discussion of the relevance of cultural and gender diversity begins on the first page and continues throughout the text.

This edition presents an even more thoroughly cross-cultural perspective on psychology (TABLE 4)—reflected in research findings, and text and photo examples. Cross-cultural and gender psychology are now given greater visibility with



^ FIGURE 2

How to learn and remember For a 5-minute animated guide to more effective studying, visit [www.tinyurl.com/HowToRemember](http://www.tinyurl.com/HowToRemember).

## ▼ TABLE 4

## Culture and Multicultural Experience

Coverage of culture and multicultural experience can be found on the following pages:

Adolescence, p. 147	moral development, p. 150	Life span and well-being, pp. 166–167	dissociative identity disorder, p. 562
Adulthood, emerging, pp. 156–157	parenting styles, pp. 144–145	Management styles, pp. B-11–B-13	eating disorders, pp. 530, 566
Aggression, pp. 173, 470–473	social development, pp. 153–154	Marriage, pp. 163–165, 480	schizophrenia, pp. 530, 559
and video games, pp. 277, 472–473	Drug use, pp. 116–117	Memory, encoding, p. 290	suicide, p. 553
AIDS, pp. 412–413	Emotion:	Menopause, p. 158	<i>susto</i> , p. 530
Anger, pp. 416–417	emotion-detecting ability, p. 397	Mental illness rate, pp. 534–535	<i>taijin-kyofusho</i> , p. 530
Animal research ethics, pp. 28–29	expressing, pp. 398–401	Morality, development of, pp. 150–152	Psychotherapy:
Attraction: matchmaking, pp. 476–477	Enemy perceptions, p. 485	Motivating achievement, pp. 376, B-11	culture and values in, pp. 590–591
Attractiveness, pp. 475–479	Fear, pp. 325–327	Motivation: hierarchy of needs, pp. 374–375	EMDR training, p. 588
Attribution: political effects of, pp. 442–443	Flow, p. B-1	Need to belong, pp. 375–378	Puberty and adult independence, pp. 156–157
Behavioral effects of culture, pp. 9, 448	Fundamental attribution error, p. 442	Neurotransmitters: curare, p. 44	Self-esteem, p. 368
Body ideal, pp. 539–540	Gender:	Normality, perceptions of, pp. 529–530	Self-serving bias, pp. 518–520
Body image, pp. 539–540	cultural norms, pp. 172, 178	Obedience, pp. 452–453	Sex drive, p. 193
Categorization, p. 322	equality, pp. 194–195	Obesity, p. 388	Sexual activity: middle and late adulthood, p. 158
Conformity, pp. 450–451	roles, pp. 177–178	Observational learning: television and aggression, pp. 276–277	Sexual orientation, p. 187
Corporal punishment practices, p. 262	social power, p. 173	Organ donation, p. 329	Similarities, pp. 76–77
Cultural neuroscience, p. 523	Grief, expressing, p. 168	Pace of life, p. 20	Sleep patterns, p. 92
Cultural norms, pp. 175, 448	Happiness, pp. 431–432, 434, 435–436	Pain: perception of, pp. 233, 372	Social clock, p. 163
Culture:	Hindsight bias, pp. 15–16	Parent and peer relationships, pp. 154–156	Social-cultural perspective, pp. 10–11
context effects, p. 207	History of psychology, pp. 4–7	Participative management, p. B-13	Social loafing, pp. 456–457
definition, p. 454	Homosexuality, views on, p. 187	Peacemaking:	Social networking, p. 373
experiencing other, p. 332	Human diversity/kinship, pp. 9, 76–77, 447–448, 488	conciliation, pp. 487–488	Spirituality, p. 429
variation over time, p. 448	Identity: forming social, p. 153	contact, p. 486	Stress:
Culture and the self, pp. 521–523	Individualism/collectivism, pp. 521–523	cooperation, pp. 486–487	adjusting to a new culture, p. 407
Culture shock, p. 407	Intelligence, pp. 347, 363–365	Personality, pp. 508–510	health consequences, pp. 407, 412–413, 415–417
Deaf culture, pp. 63, 66, 336–337, 339	and nutrition, pp. 362, 365	Power of individuals, p. 460	racism and, p. 409
Development:	bias, pp. 366–368	Prejudice, pp. 10, 30, 462, 464, 467–468	social support and, p. 423
adolescence, p. 147	Down syndrome, pp. 357–358	“missing women,” p. 464	Taste preferences, p. 381
attachment, p. 141	Language, pp. 337–339, 342–344, 448	Prejudice prototypes, p. 322	Teen pregnancy, pp. 173, 448
child raising, pp. 145–146	critical periods, pp. 338–339	Psychological disorders:	Testing bias, pp. 366–368
cognitive development, p. 135	bilingualism, pp. 343–344	<i>amok</i> , p. 530	See also Chapter 12: Social Psychology.
	universal grammar, p. 336	cultural norms, pp. 528–529	
	Leaving the nest, pp. 156–157		
	Life satisfaction, pp. 433–434		

enhanced coverage moved to **Chapter 1**. There is focused coverage of the psychology of women and men in **Chapter 5**, Sex, Gender, and Sexuality, with thoroughly integrated coverage throughout the text (see TABLE 5). In addition, we are working to offer a world-based psychology for our worldwide student readership. We continually search the world for research findings and text and photo examples, conscious that readers may be in Sydney, Seattle, or Singapore. Although we



▼ TABLE 5

The Psychology of Men and Women

Coverage of the psychology of men and women can be found on the following pages:			
Absolute thresholds, p. 202	Empty nest, p. 165	Leadership: transformational, p. B-12	Sexual abuse, p. 189
ADHD, p. 532	Father care, p. 141	Losing weight, p. 385	Sexual attraction, pp. 175, 181, 187–189, 475–481
Adulthood: physical changes, pp. 158–160	Father presence, p. 187	Love, pp. 163–165, 479–481	Sexual dysfunctions, p. 183
Aggression, pp. 469, 471	Freud's views:	Marriage, pp. 163–165, 424–425	Sexual fantasies, p. 185
father absence, p. 471	evaluating, pp. 498–500	Maturation, p. 148	Sexual orientation, pp. 187–192
pornography, pp. 471–472	identification/gender identity, p. 494	Menarche, p. 147	Sexuality:
rape, pp. 468, 472	Oedipus/Electra complexes, p. 494	Menopause, p. 158	adolescent, pp. 175–176
Alcohol:	penis envy, p. 496	Midlife crisis, pp. 162	evolutionary explanation, pp. 192–195
and alcohol use disorder, p. 106	Fundamental attribution error, pp. 442–443	Obedience, p. 452	external stimuli, p. 185
and sexual aggression, p. 106	Gender:	Obesity:	imagined stimuli, p. 185
use, pp. 106–107	and child raising, p. 179	health risks, p. 383	Sexualization of girls, pp. 186–187
Altruism, pp. 481–483	definition, p. 172	weight discrimination, p. 382	Sexually transmitted infections, p. 184
Androgyny, p. 178	development, pp. 172–179	Observational learning:	Sleep, p. 88
Antisocial personality disorder, pp. 563–564	prejudice, p. 464	sexually violent media, p. 277	Social networking, p. 373
Attraction, pp. 475–481	"missing women," p. 464	TV's influence, p. 276	Stereotype threat, p. 367
Attractiveness, pp. 477–479	roles, pp. 177–179	Ostracism, p. 371	Stereotyping, p. 206
Autism spectrum disorder, p. 137	similarities/differences, pp. 172–174	Pain sensitivity, p. 231	Stress and:
Biological predispositions in color perceptions, p. 268	Gendered brain, pp. 175–177, 185, 191–192	Paraphilia, pp. 183–184	AIDS, pp. 412–413
Biological sex/gender, pp. 175–179	Generalized anxiety disorder, p. 537	Perceptual set, p. 206	depression, p. 415
Bipolar disorder, pp. 546–547	Generic pronoun "he," p. 344	Pornography, p. 185	health, and sexual abuse, p. 425
Body image, pp. 565–566	Grief, p. 167	Prejudice, pp. 322, 464	heart disease, pp. 414–415
Color vision, pp. 213–214	Group polarization, p. 458	Psychological disorders, rates of, pp. 534–535	immune system, pp. 410–412
Dating, pp. 476–477	Happiness, p. 435	PTSD: development of, p. 540	response to, pp. 409–410
Depression, pp. 535, 546, 548, 550, 551	Hearing loss, p. 228	Rape, pp. 468, 472	Suicide, p. 553
learned helplessness, p. 550	Hormones and:	Religiosity and life expectancy, pp. 429–430	Teratogens: alcohol consumption, p. 124
Dream content, p. 99	aggression, p. 469	REM sleep, arousal in, p. 90	Transgender persons, p. 179
Drug use:	sexual behavior, pp. 181–182	Romantic love, p. 479	Women in psychology's history, pp. 5–6
biological influences, p. 114–115	sexual development, pp. 147–148, 175–177	Rumination, pp. 550–551	See also Chapter 5: Sex, Gender, and Sexuality, and Chapter 12: Social Psychology.
psychological/social-cultural influences, pp. 116–117	testosterone-replacement therapy, pp. 181–182	Savant syndrome, pp. 348–349	
Eating disorders, pp. 565–566	Intelligence, pp. 331, 363	Schizophrenia, p. 557	
Emotion-detecting ability, pp. 397–398	bias, p. 366	Self-injury, p. 554	
Empathy, p. 398	stereotype threat, p. 367	Sense of smell, p. 238	
		Sex reassignment, p. 177	
		Sex: definition, p. 172	

reside in the United States, we travel abroad regularly and maintain contact with colleagues in Canada, Britain, South Africa, China, and many other places; and subscribe to European periodicals. Thus, each new edition offers a broad, world-based perspective, and includes research from around the world. We are all citizens of a shrinking world, so American students, too, benefit from information and examples that internationalize their world-consciousness. And if psychology seeks

to explain *human* behavior (not just American or Canadian or Australian behavior), the broader the scope of studies presented, the more accurate is our picture of this world's people. Our aim is to expose all students to the world beyond their own culture, and we continue to welcome input and suggestions from all readers.

## Strong Critical Thinking Coverage

We love to write in a way that gets students thinking and keeps them active as they read, and we aim to introduce students to critical thinking throughout the book. Revised and more plentiful Learning Objective Questions at the beginning of text sections, and even more regular Retrieve It questions encourage critical reading to glean an understanding of important concepts. This tenth edition also includes the following opportunities for students to learn or practice their critical thinking skills.

- **Chapter 1, *Thinking Critically With Psychological Science***, introduces students to psychology's research methods, emphasizing the fallacies of our everyday intuition and common sense and, thus, the need for psychological science. Critical thinking is introduced as a key term on page 3. Appendix A, *Statistical Reasoning in Everyday Life*, encourages students to “focus on thinking smarter by applying simple statistical principles to everyday reasoning.”
- **“Thinking Critically About . . .” boxes** are found throughout the book, modeling for students a critical approach to some key issues in psychology. For example, see “Thinking Critically About: Why We Fear the Wrong Things” (**Chapter 9**), or “Thinking Critically About: The Stigma of Introversion” (**Chapter 13**).
- **Detective-style stories** throughout the narrative get students thinking critically about psychology's key research questions. For example, in **Chapter 14**, we present the causes of schizophrenia piece by piece, showing students how researchers put the puzzle together.
- **“Apply this” and “Think about it”** style discussions keep students active in their study. In **Chapter 12**, for example, students take the perspective of participants in a Solomon Asch conformity experiment, and later in one of Stanley Milgram's obedience experiments. We've also asked students to join the fun by taking part in activities they can try along the way. For example, in **Chapter 6**, they try out a quick sensory adaptation activity. In **Chapter 10**, they try matching expressions to faces and test the effects of different facial expressions on themselves.
- **Critical examinations of pop psychology** spark interest and provide important lessons in thinking critically about everyday topics. For example, **Chapter 6** offers an examination of ESP claims, and **Chapter 8** examines claims of the repression of painful memories.

See TABLE 6 for a complete list of this text's coverage of critical thinking topics and Thinking Critically About boxes.

## APA Assessment Tools

In 2011, the American Psychological Association (APA) approved the **Principles for Quality Undergraduate Education in Psychology**. These broad-based principles and their associated recommendations were designed to “produce psychologically literate citizens who apply the principles of psychological science at work and at home.” (See [www.APA.org/Education/Undergrad/Principles.aspx](http://www.APA.org/Education/Undergrad/Principles.aspx).)

APA's more specific **2013 Learning Goals and Outcomes**, from their *Guidelines for the Undergraduate Psychology Major*, Version 2.0, were designed to gauge progress in students graduating with psychology majors. (See [www.APA.org/Ed/Precollege/About/PsyMajor-Guidelines.pdf](http://www.APA.org/Ed/Precollege/About/PsyMajor-Guidelines.pdf).) Many psychology departments use these goals and outcomes to help establish their own benchmarks for departmental assessment purposes.

▼ TABLE 6

**Critical Thinking And Research Emphasis** Critical thinking coverage, and in-depth stories of psychology’s scientific research process, can be found on the following pages:

<b>Thinking Critically About . . . boxes:</b>		
Research Design: How Would You Know?, p 26	ESP—Perception Without Sensation?, p. 241	Lie Detection, p. 394
Addiction, p. 105	Does Viewing Media Violence Trigger Violent Behavior?, p. 277	Anger Management, pp. 416–417
How Much Credit or Blame Do Parents Deserve?, p. 155	Repressed or Constructed Memories of Abuse?, p. 311	The Stigma of Introversion, p. 507
Subliminal Persuasion, p. 203	The Fear Factor—Why We Fear the Wrong Things, pp. 326–327	ADHD—Normal High Energy or Disordered Behavior?, p. 532
Hypnosis and Pain Relief, p. 235		Are People With Psychological Disorders Dangerous?, p. 533
<b>Critical Examinations of Pop Psychology:</b>		
Perceiving order in random events, p. 15	Critiquing the evolutionary perspective, pp. 194–195	How valid is the Rorschach test?, pp. 497–498
The need for psychological science, pp. 15–17	Sensory restriction, p. 223	Is Freud credible?, pp. 498–500
Do we use only 10 percent of our brains?, p. 61	Can hypnosis alleviate pain?, p. 235	Is repression a myth?, pp. 499–500
Has the concept of “addiction” been stretched too far?, p. 105	Is there extrasensory perception?, p. 241	Is psychotherapy effective?, pp. 584–586
Near-death experiences, p. 112	Do other species have language?, pp. 341–342	Evaluating alternative therapies, pp. 587–589
How much credit or blame do parents deserve?, p. 155	Do violent video games teach social scripts for violence?, pp. 472–473	
<b>Thinking Critically With Psychological Science:</b>		
The scientific attitude, pp. 2–3	Exploring cause and effect, pp. 23–25	The evolutionary perspective on human sexuality, pp. 192–195
“Critical thinking” introduced as a key term, p. 3	Random assignment, p. 24	Statistical reasoning, pp. A-1–A-10
The limits of intuition and common sense, pp. 15–17	Independent and dependent variables, pp. 25–26	Describing data, pp. A-1–A-6
The scientific method, pp. 17–27	Choosing the right research design, p. 26	Regression toward the mean, p. A-6
Correlation and causation, pp. 22–23		Making inferences, pp. A-6–A-9
<b>Scientific Detective Stories:</b>		
Is breast milk better than formula?, pp. 23–24	How are memories constructed?, pp. 306–310, 311	The pursuit of happiness: Who is happy, and why?, pp. 431–438
Our divided brains, pp. 63–66	How do we store memories in our brain?, pp. 292–296	Why do people fail to help in emergencies?, pp. 481–483
Twin and adoption studies, pp. 69–73	Do other species exhibit language?, pp. 341–342	Self-esteem versus self-serving bias, pp. 518–520
Why do we sleep?, pp. 92–93	Aging and intelligence, p. 355–356	What causes major depressive disorder and bipolar disorder?, pp. 547–555
Why we dream, pp. 99–102	Why do we feel hunger?, pp. 378–380	Do prenatal viral infections increase the risk of schizophrenia?, pp. 558–559
How a child’s mind develops, p. 130	Why—and in whom—does stress contribute to heart disease?, pp. 414–417	Is psychotherapy effective?, pp. 584–586
What determines sexual orientation?, pp. 189–191	How and why is social support linked with health?, pp. 423–425	
How do we see in color?, pp. 213–214		
Parallel processing, p. 216		
How can hypnosis provide pain relief?, p. 235		

Some instructors are eager to know whether a given text for the introductory course helps students get a good start at achieving these APA benchmarks. TABLE 7 (on the next page) outlines the way *Exploring Psychology*, tenth edition, could help you to address the 2013 APA Learning Goals and Outcomes in your department.

In addition, an APA working group in 2013 drafted guidelines for **Strengthening the Common Core of the Introductory Psychology Course** (<http://tinyurl.com/14dsdx5>). Their goals are to “strike a nuanced balance providing flexibility yet guidance.” The group noted that “a mature science should be able to agree upon and communicate its unifying core while embracing diversity.”

▼ TABLE 7

*Exploring Psychology, Tenth Edition, Corresponds to 2013 APA Learning Goals*

Relevant Feature from <i>Exploring Psychology, Tenth Edition</i>	APA Learning Goals				
	Knowledge Base in Psychology	Scientific Inquiry and Critical Thinking	Ethical and Social Responsibility in a Diverse World	Communication	Professional Development
Text content	•	•	•	•	•
Thinking Critically boxes	•	•	•		•
Learning Objective Questions previewing text sections	•	•		•	
Retrieve It self-tests throughout text	•	•		•	
Section Reviews	•	•		•	
"Try this"-style activities integrated throughout	•	•		•	•
<i>Experience the Testing Effect</i> self-tests	•	•		•	
Psychology at Work appendix	•	•	•		•
Subfields of Psychology appendix, with Careers in Psychology in LaunchPad	•		•		•
LaunchPad with LearningCurve formative quizzing	•	•	•	•	•
"Immersive Learning: How Would You Know?" activities in LaunchPad	•	•	•	•	
Assess Your Strengths feature in LaunchPad	•	•	•	•	•

## MCAT Now Includes Psychology

Since 2015, the Medical College Admission Test (MCAT) has devoted 25 percent of its questions to the "Psychological, Social, and Biological Foundations of Behavior," with most of those questions coming from the psychological science taught in introductory psychology courses. From 1977 to 2014, the MCAT focused on biology, chemistry, and physics. Hereafter, reported the *Preview Guide for MCAT 2015*, the exam will also recognize "the importance of socio-cultural and behavioral determinants of health and health outcomes." The exam's new psychology section includes the breadth of topics in this text. For example, see TABLE 8, which outlines the precise correlation between the topics in this text's Sensation and Perception chapter and the corresponding portion of the MCAT exam. To improve their MCAT preparation, I [ND] have taught premedical students an intensive course covering the topics that appear in this text. For a complete pairing of the new MCAT psychology topics with this book's contents, see [www.MacmillanHigherEd.com/Catalog/Product/ExploringPsychology-TenthEdition-Myers](http://www.MacmillanHigherEd.com/Catalog/Product/ExploringPsychology-TenthEdition-Myers).

## Multimedia for *Exploring Psychology, Tenth Edition*

*Exploring Psychology*, tenth edition, boasts impressive multimedia options. For more information about any of these choices, visit Worth Publishers' online catalog at [www.MacmillanHigherEd.com/Catalog/Product/ExploringPsychology-TenthEdition-Myers](http://www.MacmillanHigherEd.com/Catalog/Product/ExploringPsychology-TenthEdition-Myers).

▼ TABLE 8

Sample MCAT Correlation With *Exploring Psychology*, Tenth Edition

MCAT 2015	<i>Exploring Psychology</i> , Tenth Edition, Correlations	
Sample Content Category 6A: Sensing the environment		Page Number
<b>Sensory Processing</b>	<b>Sensation and Perception</b>	198–243
Sensation	Basic Concepts of Sensation and Perception	200–209
<i>Thresholds</i>	Thresholds	201–203
	<i>Difference Thresholds</i>	202–203
<i>Weber’s Law</i>	<i>Weber’s law</i> (key term)	202–203
<i>Signal detection theory</i>	<i>Signal detection theory</i> (key term)	201
<i>Sensory adaptation</i>	Sensory Adaptation	204–205
Sensory receptors	Transduction	200
<i>Sensory pathways</i>	Vision: Sensory and Perceptual Processing	209–225
	Hearing	226–230
	Pain	231–235
	Taste	236
	Smell	236–238
	Body Position and Movement	238–239
<i>Types of sensory receptors</i>	The Eye	209–211
	<i>Color Processing</i>	213–214
	Hearing	226–230
	Understanding Pain	231–233
	Taste	236
	Smell	236–238
	Body Position and Movement	238–239
	<i>Table 6.3, Summarizing the Senses</i>	240
<b>Vision</b>	Vision: Sensory and Perceptual Processing	209–225
Structure and function of the eye	The Eye	209–211
Visual processing	Information Processing in the Eye and Brain	211–216
<i>Visual pathways in the brain</i>	<i>Figure 6.17, Pathway from the eyes to the visual cortex</i>	212
<i>Parallel processing</i>	<i>Parallel Processing</i>	216
<i>Feature detection</i>	<i>Feature Detection</i>	214–215
<b>Hearing</b>	Hearing	226–230
Auditory processing	Hearing	226–230
<i>Auditory pathways in the brain</i>	The Ear	227–229
	<i>Pitch</i> (key term)	226
	<i>Figure 6.35, The physical properties of waves</i>	227
	<i>Locating Sounds</i>	230
Sensory reception by hair cells	<i>The Ear</i>	227–229
	<i>Table 6.3, Summarizing the Senses</i>	240

▼ TABLE 8

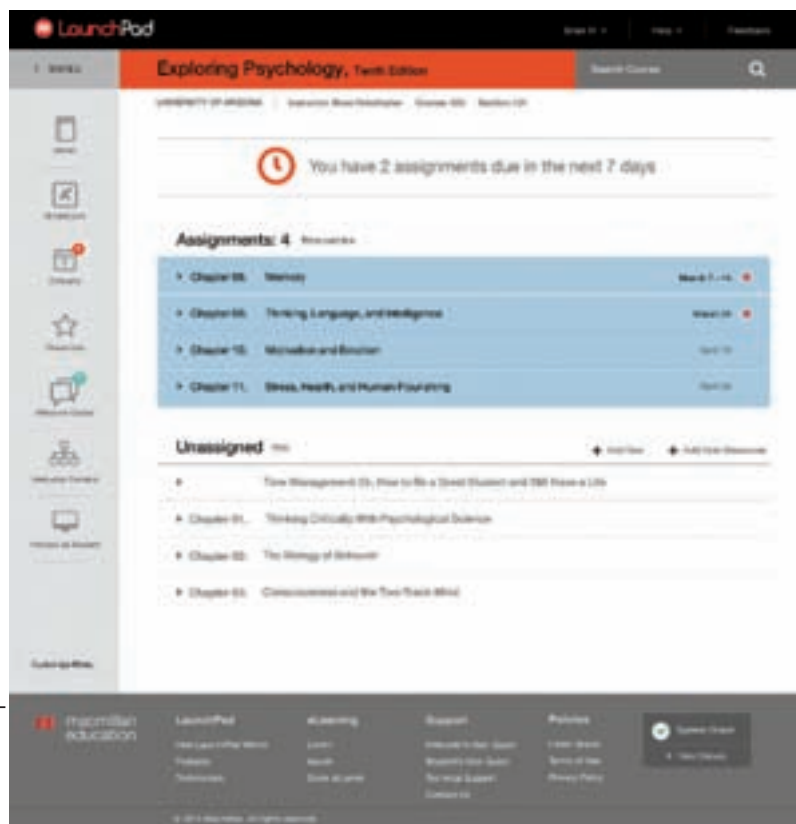
Sample MCAT Correlation With *Exploring Psychology, Tenth Edition* (continued)

MCAT 2015	<i>Exploring Psychology, Tenth Edition, Correlations</i>	
Sample Content Category 6A: Sensing the environment		Page Number
<b>Other Senses</b>	Touch, Taste, Smell, Body Position and Movement	230–239
Somatosensation	Touch	230–231
	Sensory Functions (of the cortex)	58
	<i>Somatosensory cortex</i> (key term)	58
	<i>Table 6.3, Summarizing the Senses</i>	240
<i>Pain perception</i>	Pain	231–235
	<i>Understanding Pain</i>	231–233
	<i>Controlling Pain</i>	234–235
	<i>Hypnosis and Pain Relief</i>	235
Taste	Taste	236
<i>Taste buds/chemoreceptors that detect specific chemicals</i>	Taste	236
	<i>Table 6.3, Summarizing the Senses</i>	240
	<i>Figure 6.44, Taste, smell, and memory</i>	238
	Smell	236–238
<i>Olfactory cells/chemoreceptors that detect specific chemicals</i>	Smell	236–238
	<i>Table 6.3, Summarizing the Senses</i>	240
	<i>Pheromones</i>	<i>Smell of sex-related hormones</i>
<i>Olfactory pathways in the brain</i>	<i>Figure 6.44, Taste, smell, and memory</i>	238
	Sensory Interaction	239–243
Kinesthetic sense	Body Position and Movement	238–239
Vestibular sense	Body Position and Movement	238–239
<b>Perception</b>	Sensation and Perception	198–243
Perception	Basic Concepts of Sensation and Perception	200–209
<i>Bottom-up/Top-down processing</i>	Basic Concepts of Sensation and Perception: <i>bottom-up</i> and <i>top-down</i> processing (key terms)	200
<i>Perceptual organization (e.g., depth, form, motion, constancy)</i>	Perceptual Organization: Form Perception, Depth Perception, and Perceptual Constancy (also includes relative motion)	217–222
	<i>Figure 6.22, Parallel processing (of motion, form, depth, color)</i>	216
<i>Gestalt principles</i>	Perceptual Organization: Form Perception— <i>gestalt</i> (key term)	217

## LaunchPad With LearningCurve Quizzing and “Immersive Learning: How Would You Know?” Activities

Built to solve key challenges in the course, LaunchPad ([www.MacmillanHigherEd.com/LaunchPad/Exploring10e](http://www.MacmillanHigherEd.com/LaunchPad/Exploring10e)) (see FIGURE 3) gives students everything they need to prepare for class and exams, while giving instructors everything they need to quickly set up a course, shape the content to their syllabus, craft presentations and lectures, assign and assess homework, and guide the progress of individual students and the class as a whole.

- An **interactive e-Book** integrates the text and all student media, including the new *Immersive Learning: How Would You Know?* activities, *PsychSim 6* tutorials, and *Assess Your Strengths* activities.
- **LearningCurve adaptive quizzing** gives individualized question sets and feedback based on each student's correct and incorrect responses. All the questions are tied back to the e-Book to encourage students to read the book in preparation for class time and exams.
- **PsychSim 6 has arrived!** Tom Ludwig's (Hope College) fabulous new tutorials further strengthen LaunchPad's abundance of helpful student activity resources.
- The new **Video Assignment Tool** makes it easy to assign and assess video-based activities and projects, and provides a convenient way for students to submit video coursework.
- **LaunchPad Gradebook** gives a clear window on performance for the whole class, for individual students, and for individual assignments.
- A **streamlined interface** helps students manage their schedule of assignments, while **social commenting tools** let them connect with classmates, and learn from one another. 24/7 help is a click away, accessible from a link in the upper right-hand corner.
- We [DM and ND] curated **optional pre-built chapter units**, which can be used as is or customized. Or choose not to use them and build your course from scratch.
- **Book-specific instructor resources** include PowerPoint sets, textbook graphics, lecture and activity suggestions, test banks, and more.
- LaunchPad offers **easy LMS integration** into your school's learning management system.



▲ FIGURE 3

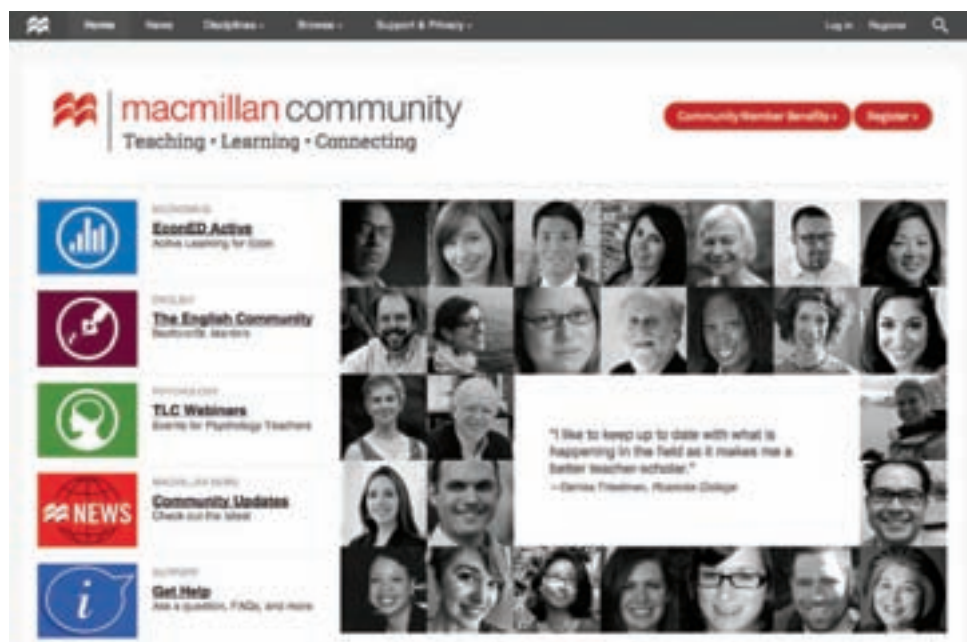
Sample from LaunchPad

## Faculty Support and Student Resources

- **Instructor's Resources** available in LaunchPad
- **Lecture Guides** available in LaunchPad
- **Macmillan Community** Created *by* instructors *for* instructors, this is an ideal forum for interacting with fellow educators—including Macmillan authors—in your discipline (FIGURE 4, on the next page). Join ongoing conversations about everything from course prep and presentations to assignments and assessments to teaching with media, keeping pace with—and influencing—new directions in your field. Includes exclusive access to classroom resources, blogs, webinars, professional development opportunities, and more.
- Enhanced course management solutions (including course cartridges)
- e-Book in various available formats

## Video and Presentation

- The **Video Collection** is now the single resource for all videos for introductory psychology from Worth Publishers. Available on flash drive and in LaunchPad, this includes more than 130 clips.



- **Interactive Presentation Slides for Introductory Psychology** is an extraordinary series of PowerPoint® lectures. This is a dynamic, yet easy-to-use way to engage students during classroom presentations of core psychology topics. This collection provides opportunities for discussion and interaction, and includes an unprecedented number of embedded video clips and animations.

## Assessment

- **LearningCurve** quizzing in LaunchPad
- Diploma Test Banks, downloadable from LaunchPad and our online catalog

▲ FIGURE 4

Sample from Macmillan Community (<http://Community.Macmillan.com>)

- Chapter Quizzes in LaunchPad
- Clicker Question Presentation Slides now in PowerPoint®

## Print

- Study Guide
- *Pursuing Human Strengths: A Positive Psychology Guide*, Second Edition
- *Critical Thinking Companion*, Third Edition
- *Psychology and the Real World: Essays Illustrating Fundamental Contributions to Society*, Second Edition. This project of the FABBS Foundation brought together a virtual “Who’s Who” of contemporary psychological scientists to describe—in clear, captivating ways—the research they have passionately pursued and what it means to the “real world.” Each contribution is an original essay written for this project.
- *The Horse That Won’t Go Away* Tom Heinzen, Scott Lilienfeld, and Susan Nolan explore the confounding story of Clever Hans and how we continue to be deceived by beliefs with no supporting logic or evidence. This supplemental book shows just how important it is to rely on the scientific method as we navigate our way through everyday life.

## In Appreciation

If it is true that “whoever walks with the wise becomes wise” then we are wiser for all the wisdom and advice received from colleagues. Aided by thousands of consultants and reviewers over the last three decades, this has become a better, more effective, more accurate book than two authors alone (these two authors, at least) could write. All of us together are smarter than any one of us.

Our indebtedness continues to each of the teacher-scholars whose influence was acknowledged in the nine previous editions, to the innumerable researchers who have been so willing to share their time and talent to help us accurately report their research, and to the hundreds of instructors who have taken the time to offer feedback over the phone, in a survey or review, or at one of our face-to-face focus groups.



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 University of Minnesota  
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 University of St. Thomas

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Although the information gathering is never ending, the formal planning began as the author-publisher team gathered for a two-day retreat. This happy and creative gathering included John Brink, Thomas Ludwig, Richard Straub, Nathan, and Dave from the author team, along with assistants Kathryn Brownson and Sara Neevel. We were joined by Worth Publishers executives Tom Scotty, Joan Feinberg, Craig Bleyer, Doug Bolton, Catherine Woods, Kevin Feyen, and Elizabeth Widdicombe; editors Christine Brune, Nancy Fleming, Tracey Kuehn, Betty Probert, Trish Morgan, and Dora Figueiredo; sales and marketing colleagues Kate Nurre, Carlise Stembridge, Tom Kling, Lindsay Johnson, Mike Krotine, Kelli Goldenberg, Jen Cawsey, and Janie Pierce-Bratcher; media specialists Rachel Comerford, Gayle Yamazaki, Andrea Messineo, and Pepper Williams; and special guest Jennifer Peluso (Florida Atlantic University). The input and brainstorming during this meeting of minds gave birth, among other things, to LaunchPad's new "Immersive Learning: How Would You Know?" activities and the text's improved and expanded system of study aids.

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After hearing countless dozens of people say that this book's resource package has taken their teaching to a new level, we reflect on how fortunate we are to be a part of a team in which everyone has produced on-time work marked by the highest professional standards. For their remarkable talents, their long-term dedication, and their friendship, we thank John Brink, Thomas Ludwig, and Richard Straub. With this new edition, we also welcome and thank Sue Frantz for her gift of instructors' resources.

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\* \* \*

The day this book went to press was the day we started gathering information and ideas for the next edition. Your input will influence how this book continues to evolve. So, please, do share your thoughts.



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# Content Changes

*Exploring Psychology*, tenth edition, includes hundreds of new research citations, new “Immersive Learning: How Would You Know?” research activities in LaunchPad, exciting new “visual scaffolding” two-page chapter openers, a lightly revised organization, a fresh new design, and many fun new photos and cartoons. In addition, you will find the following significant content changes in this new tenth edition.

## CHAPTER 1

### Thinking Critically With Psychological Science

- Chapter organization lightly modified and improved. (For example, The Scientific Attitude and Critical Thinking now appear at the beginning of the chapter, establishing these foundational principles at the discussion’s outset.)

#### → The History and Scope of Psychology

- Improved organization and expanded coverage of psychology’s historical and contemporary development.
- New discussion of cross-cultural and gender psychology, with new illustrations.
- New introduction of positive psychology.
- New photos provide examples of famous psychology majors.
- *Evolutionary psychology* and *behavior genetics* are now key terms.
- New material on *community psychology*, which is now a key term.
- New illustration introduces the biopsychosocial approach more effectively.
- Updated table of current perspectives.

#### → Research Strategies: How Psychologists Ask and Answer Questions

- Updated discussion of critical thinking in public policy.
- New research support for hindsight bias in people of all ages from across the world.
- Importance of research replication given increased emphasis.
- New research with figure on Twitter message moods, and on the relationship between negative emotions on Twitter and heart disease rates in more than a thousand U.S. counties, illustrates discussion of “big data” methods in naturalistic observation.
- Updated research examples reinforce correlational studies’ not being cause-effect.

- New research updates breast-feeding versus bottle-feeding example.
- New research examples update discussion of the placebo effect, and indicate that the effect persists even upon learning that one has received a placebo.
- New Thinking Critically About Research Design: How Would You Know? feature explores research design in psychological science and introduces the new “Immersive Learning: How Would You Know?” LaunchPad activities.

## CHAPTER 2

### The Biology of Behavior

- New co-author Nathan DeWall led the revision of this chapter for the tenth edition.

#### → Neural and Hormonal Systems

- New research explores our inaccurate tendency to consider biological and psychological influences on behavior separately.
- Research updates discussion of neural network pruning throughout life.
- New photo illustrates complex network of human cortical neurons.
- Expanded discussion of how neurons generate electricity from chemical events, with new figure.
- Improved figure more effectively demonstrates action potential.
- New discussion, with *refractory period* as new key term.
- *All-or-none response* and *reuptake* are now key terms.
- New coverage of *agonists* and *antagonists*, which are now key terms.
- Sensory neurons are now identified as afferent (inward), and motor neurons as efferent (outward).
- Expanded illustration of the functional divisions of the nervous system.
- Updated research on the effect of oxytocin on social trust.

### ➤ Tools of Discovery and Older Brain Structures

- The Tools of Discovery boxed essay has been expanded, updated, and transformed into text discussion.
- New photo shows living human brain.
- New research on use of neuroimaging in the media and advertising.
- Updated information on massive Human Connectome Project.
- *Hippocampus* now a key term here as well as in the **Memory chapter**, with new research example.
- New research examples demonstrate the amygdala's role in fear and rage.
- Updated discussion of the hypothalamus with new research on *hedonic hotspots*, desire, and substance use disorders.

### ➤ The Cerebral Cortex and Our Divided Brain

- New research example of robotic limbs controlled by a device implanted in the motor cortex.
- *Coverage of the somatosensory cortex* (previously referred to as the “sensory cortex”) has been fully updated.
- New research notes the effects of simple versus complex tasks on brain activity.
- New research updates discussion of Phineas Gage, with new art.
- New photo example of brain injury, crime, and punishment.
- New diffusion spectrum image shows neural networks connecting hemispheres.
- Includes new research on brain plasticity in those who cannot hear.

### ➤ Genetics, Evolutionary Psychology, and Behavior

- New photo explains the nature–nurture interaction.
- *Heredity* and *genome* are new key terms.
- Updated discussion of twin and adoption studies, includes autism spectrum disorder diagnoses, and personality and behavioral similarities.
- New photo examples of identical twins and unrelated lookalikes.
- New photo examples of celebrities who were adopted.
- Gene-Environment Interaction includes new research on identical twins creating shared experiences.
- New photo example of space study with astronauts Scott and Mark Kelly.

- Distinction between genetics and epigenetics clarified.
- Additional examples demonstrate effects of environmental factors on epigenetic molecules.
- New research examples illustrate the mismatch of our prehistoric genetic legacy with modern life.
- Updated discussion of evolution and faith.

#### CHAPTER 3

## Consciousness and the Two-Track Mind

### ➤ Consciousness: Some Basic Concepts

- Expanded coverage of conscious awareness, with new research examples.
- New art illustrates inattention blindness.
- New research example illustrates the effects of driver distraction on traffic accidents.
- Includes new Eric Kandel estimate that 80 to 90 percent of what we do is unconscious.
- *Parallel processing* is now a key term in this chapter, as well as in **Chapter 6**.

### ➤ Sleep and Dreams

- New research updates discussion of night “owls” and morning “larks.”
- New research examples illustrate sleep pattern variations.
- Suprachiasmatic nucleus figure is improved.
- Updated research on sleep's functions and benefits, sleep deprivation, and the function of dreams.
- Updated table on natural sleep aids.
- New photo illustrates CPAP machine for sleep apnea.
- New research example explores “The Great Sleep Recession.”
- New research suggests sleep-deprived brains find fatty foods more enticing.
- Updated research on sleep-deprived students experiencing more relationship conflicts.
- What We Dream section updated with new research, including cases of those unable to see or walk from birth having these abilities in their dreams.
- Lightly updated table compares dream theories.
- New figure illustrates sleep's consolidation of learning into long-term memory.
- New research suggests we can learn to associate sounds with odors while asleep.
- New figure and photo illustrate sleep patterns across the life span.

## ➔ Drugs and Consciousness

- Coverage of hypnosis now appears in a Thinking Critically box on pain control in **Chapter 6**, Sensation and Perception.
- *Cocaine* is now a key term.
- New table outlines When Is Drug Use a Disorder?
- New research on alcohol “intervention studies” that have lowered college students’ positive expectations and also reduced consumption.
- Powerful new photo shows firefighters reenacting an alcohol-related car accident.
- Expanded explanation of the opiates and their effects.
- Updates on lethal effects of smoking, including life expectancy 10+ years shorter.
- New research on smokers’ relapse under stress.
- New coverage of synthetic marijuana, or “spice,” and its effects.
- New research suggests drop in IQ scores among persistent teen marijuana users.
- Discussion of biological influences on drug use updated with new research.
- Table showing selected psychoactive drugs has been expanded and updated.
- New photo shows media models of smoking that influence teens.
- Updated graph of high school trends in drug use.

### CHAPTER 4

## Developing Through the Life Span

- New co-author Nathan DeWall led the revision of this chapter for the tenth edition.

## ➔ Developmental Issues, Prenatal Development, and the Newborn

- Discussions of Nature and Nurture, Continuity and Stages, and Stability and Change moved to this section (from later in the chapter), creating a more cohesive introduction.
- Figure comparing stage theories moved here from later in the chapter.
- New research expands Stability and Change discussion.
- Conception discussion expanded and clarified.
- New research demonstrates newborns’ preference for hearing their mother’s language.
- New research shows effects of smoking and extreme stress during pregnancy.

## ➔ Infancy and Childhood

- New research explores relationship between rapid increase in infant brain size and early development.

- New research in Brain Development shows that premature babies given skin-to-skin contact are better off even 10 years later.
- New research notes that mice and monkeys, like human children, forget their early life.
- New photo shows egocentrism in action.
- New same-sex marriage example illustrates accommodation.
- New research demonstrates the ways preschoolers think like scientists.
- New real-life example illustrates the *curse of knowledge*.
- New research suggests social benefits for children with advanced ability to take another’s perspective.
- New research suggests benefits of positive self-talk are not limited to children.
- “Autism Spectrum Disorder and Mind-Blindness” boxed essay has been updated and improved and has become its own text section, “Autism Spectrum Disorder.”
- New photo of twins with ASD.
- Expanded perspective on the Harry Harlow experiments includes quotes from Harlow and his biographer.
- New research demonstrates relationship between heredity, temperament, and attachment style.
- Attachment Styles and Later Relationships updated with new research examples demonstrating the later effects of secure and insecure attachments.
- New table outlines dual-parenting facts.
- New research illuminates the effects of deprivation of attachment and growing up under adversity.
- New research shows effects of abuse and conflict on children’s brains, and epigenetic marks left by child abuse.
- New research discussion of Western parents’ assertions that their children are more special than other children.
- New Gallup survey illustrates joy and stress of raising children.

## ➔ Adolescence

- New research and new figure explores adolescent decision making and risk taking, and effects of frontal lobe immaturity in juvenile offenders and drug users.
- Developing Morality section updated with new research demonstrating development of moral judgment, benefits of moral action, effects of delayed gratification on human flourishing, and connections to the two-track mind.
- New photo illustrates moral reasoning during Superstorm Sandy.
- Includes new research on American teens’ contentment with their lives and the importance of emotional intimacy to adolescent identity formation.



- New research illustrates increased brain activation in adolescents when in one another's company, and the effects of this activation.
- Updated research notes the different types of teen-parent bickering that typically occur with adolescent boys versus adolescent girls.
- Thinking Critically About: How Much Credit or Blame Do Parents Deserve? feature updated with new research on cultural differences in parenting.
- New research notes teens' tendency to discount the future and focus on immediate rewards when in the presence of their peers.
- New research notes prevalence of online social networking and its effects on peer relationships.
- Emerging Adulthood discussion includes updated figure on the lengthening transition to adulthood.

### ➔ Adulthood

- New research on baseball players demonstrating that humans peak physically in their mid-twenties.
- New research explains effects of aging on the brain, and the brain's plasticity.
- New research supports benefits of exercising on aging.
- New research on "reminiscence bump," and older adults' greater tendency for tip-of-the-tongue memories.
- New section on Sustaining Mental Abilities includes concept of "brain fitness."
- New research indicates human tendency to prefer social connection over learning when facing death.
- Personal examples from authors demonstrate importance of chance events in our development.
- New research shows lowering divorce rates.
- Adulthood's Commitments section expanded and updated.
- New figure illustrates increased online meeting of relationship partners.
- New photo illustrates connection between job satisfaction and life satisfaction.
- New figure shows importance of social connecting throughout life.
- New research explores older adults' experience of complex emotions, tendency to attend more to positive information, and reduced number and increased stability of friendships.
- New research with grieving parents explores factors that may prolong the grieving process.

#### CHAPTER 5

## Sex, Gender, and Sexuality

- Chapter title changed from "Gender and Sexuality" in previous edition, reflecting new discussion of the distinction between gender and biological sex.

- Updated introduction includes new research on women's and men's evolving gender roles and women in business, as well as new personal stories from the authors.

### ➔ Gender Development

- *Sex*, now a key term, is included in an updated, expanded discussion of differentiating sex and gender.
- New photo example illustrates tragic effects of *relational aggression*, which is now a key term.
- Thoroughly updated discussion of male-female differences in aggression, social power, and social connectedness, with new research examples throughout.
- Expanded and updated discussion of biological sex, including differences in sexual development, with new research examples throughout.
- *Spermarche* is now a key term.
- *Disorder of sexual development* is now a key term.
- The Nurture of Gender section revised and updated with new research throughout, including preferential hiring of female professors to teach STEM classes.
- New coverage of gender cognition in transgender children.
- How Do We Learn Gender? section updated with new photos of Caitlyn Jenner's transition.
- *Androgyny* is now a key term.

### ➔ Human Sexuality

- New research indicates that people's brains crave their partner's presence.
- New research updates discussion of effects of women's hormonal surges at ovulation.
- New research considers whether women's mate preferences change across the menstrual cycle.
- Statistics updated on the worldwide prevalence of sexually transmitted infections.
- New data on the proportion of women with HIV and number of worldwide HIV deaths.
- New research explores relationship of fantasy to orgasms in women.
- Teen Pregnancy updated with new research.
- New photo illustrates the hypersexualization of female characters in video games.
- New research indicates the cross-cultural differences in attitudes toward same-sex unions.
- New research updates the numbers of people who identify with particular sexual orientations, and explores accuracy of self-identification.
- New research explores effects of a lack of social support on nonheterosexual teens.
- Updated research on the relative fluidity of women's sexual orientation.

- Discussion of genetic influences on sexuality updated with new research examples.
- New hands-on activity asks students to predict research answers to questions about male-female sexuality differences.
- Male-Female Differences in Sexuality updated with new research on sex drives and sexual habits of heterosexual and homosexual men and women.
- Reworked and updated Natural Selection and Mating Preferences section includes new research on what men and women seek in potential mates.
- New research examples question evolutionary psychology's explanation of mating preferences.
- Critiquing the Evolutionary Perspective includes new counter-argument noting the smaller behavioral differences between men and women in cultures with greater gender equality, and the influence of social scripts.
- New Sex and Human Values section includes new research on benefits of sex in committed relationships and the interplay between sexual desire and love.

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**CHAPTER 6**

## Sensation and Perception

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### → Basic Concepts of Sensation and Perception

- New neuroscience research on the ability of priming to evoke brain activity without conscious awareness.
- New coverage of the adaptation of emotion perception, with photo example for students to try.
- New figure illustrates perceptual set.
- New photo asks students to identify an emotion removed from its context.
- New research example notes the effect of holding a firearm on one's perceptions of others as gun-toting, and the tragic consequences of this phenomenon.
- Updated research on music's effect on perception.
- New research on how emotions and motives color our social and environmental perceptions.

### → Vision: Sensory and Perceptual Processing

- New research details the effects of light intensity—including even imagined light intensity—and our cognitive and emotional states on the pupil and iris.
- Color Processing section shifted up to follow discussion of Retinal Processing.
- Updated art more effectively demonstrates the figure-ground relationship.
- New research example explores the role of learning in infants' depth perception.

- New research supports performing cataract surgery in children at as young an age as possible.

### → The Nonvisual Senses

- New coverage of the speed of audition.
- Updated coverage of hearing loss, including global statistics and cochlear implants, with new art.
- Includes new research on the influence of cognition on response to touch, including the effect of familiar touch on experience of pain.
- New research shows women's greater sensitivity to pain.
- New photo example illustrates powerful effect of distraction on experience of pain.
- New research shows women's tendency to recall pain of childbirth in terms of average of peak and end pain.
- New research shows how the ending of an experience affects perception of pain and also pleasure.
- New research supports maximizing pain relief with placebos, distraction, and hypnosis.
- Hypnosis moved here from ninth edition Chapter 3; now covered in a new Thinking Critically About: Hypnosis and Pain Relief box.
- Includes new research example of learning to like what we eat.
- New research notes that each taste receptor has a matching partner cell in the brain.
- New cognitive neuroscience research helps explain smell-cognition connection.
- New research illustrates blending of tactile and social judgments.
- New photo example demonstrates value of sensory interaction for hard-of-hearing people.
- Updated Summarizing the Senses table includes new column noting the key brain areas in which events take place.
- ESP discussion includes new research on psychic predictions about missing-person cases, and on multiple unsuccessful attempts to replicate experiments demonstrating psychic abilities.

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**CHAPTER 7**

## Learning

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- Compelling new chapter introduction.

### → Basic Learning Concepts and Classical Conditioning

- New figure illustrates Pavlov's device for recording salivation.
- New research shows how we tend to fall back on old habits when our willpower is low.

- Research update supports finding that we generalize our like or dislike based on learned facial features.
- New information on what happened to “Little Albert.”

### ➤ Operant Conditioning

- New research supports idea that children’s compliance increases after “time out” punishment.
- Discussion of physical punishment and increased aggressiveness updated with new research, as well as global figures on legal protections for children.
- New research supports idea that punishment should focus on prohibitions rather than positive obligations.
- Updated research on how adaptive learning software supports individualized learning.
- Updated summary of how best to reinforce desired behaviors.

### ➤ Biology, Cognition, and Learning

- New photo illustrates research on the association of the color red with sexual attractiveness.
- New research suggests that a focus on intrinsic rewards in schooling and career may lead to extrinsic rewards as well.
- New research supports children’s and infants’ natural propensity for imitation.
- New research supports vicarious reinforcement, with even learned fears being extinguished when we observe others safely navigating the feared situation.
- New discussion of current debate regarding importance of mirror neurons.
- Updated research on the prevalence of imitation in other species.
- Expanded coverage, with new photos, of social learning among other animals.
- Includes new research on the effects of a vicarious prompt on empathy and imitation.
- New research notes how prosocial media boosts helping behaviors.
- Thinking Critically About: Does Viewing Media Violence Trigger Violent Behavior? feature updated with new research examples.

## CHAPTER 8

# Memory

### ➤ Studying and Encoding Memories

- Includes new music and face recognition research examples, and new photo of face recognition in sheep research.
- New research shows those with large working memory capacity retain more after sleep and tend to be creative problem solvers.

- New research details the spacing effect’s influence on motor skills and online game performance, and the benefits of distributed practice.
- New research supports testing effect and notes ineffectiveness of other common study habits.

### ➤ Storing and Retrieving Memories

- New research shows memory components’ distribution across a network, with some of those brain cells activating again upon memory retrieval.
- *Episodic memory* and *semantic memory* are now key terms.
- New research notes activity of the hippocampus and nearby brain networks as people form explicit memories, with new image of the hippocampus.
- *Memory consolidation* is now a key term.
- Updated discussion of infantile amnesia includes new research on increased retention in the maturing hippocampus.
- New research on flashbulb memory and tunnel vision memory.
- Research update on how experience and learning increase synaptic number as well as efficiency.
- *Hippocampus* is now a key term.
- New personal story from author illustrates effect of having insufficient time for memory consolidation.
- Discussion of synaptic changes in memory processing includes new research on memory-blocking drugs.
- Updated research explores how priming can influence behaviors.
- New examples illustrate context-dependent memory.

### ➤ Forgetting, Memory Construction, and Improving Memory

- New research updates discussion of those with superior autobiographical memories.
- Discussion of Henry Molaison updated with new research on the effects of his hippocampus removal, and his nondeclarative memory abilities.
- Includes new research on wide belief in repression of traumatic memories.
- *Reconsolidation* is now a key term.
- Memory construction now demonstrated with author’s personal experience at Loftus presentation.
- New research updates discussion of memory reconsolidation of negative or traumatic events.
- Updated research on false memories examines mistakenly convicted people who were victims of faulty eyewitness identification.
- New photo illustrates research on false memories.

- Discussion of memories of abuse includes new research and has become a Thinking Critically About feature.
- New research offers more tips for effective study habits.
- New research updates discussion of encoding failure.

## CHAPTER 9

## Thinking, Language, and Intelligence

### Thinking

- New narrative and photo examples of *prototype*.
- New figure demonstrates how categorizing faces influences recollection.
- New research shows how insight improves when electrical stimulation disrupts assumptions created by past experiences.
- Updated research supports effectiveness of intuitive judgments.
- Discussion of availability heuristic enhanced with climate change example.
- Includes new research about cigarette package warnings.
- Updated discussion of why we fear the wrong things, with new research examples throughout.
- New research example demonstrates how overconfidence can feed extreme political views.
- New research explains the planning fallacy.
- Includes new research on value and perils of using intuition for complex decisions; new examples relate to attitudes and decision making.
- Research updates discussion of unconsciously learned associations.
- Includes new research on importance of intelligence and working memory for aptitude.
- Includes new research and photo example on the development of creative traits in girls.
- New research expands discussion of fostering creativity.
- Discussion of animals' cognitive skills updated with new research.

### Language and Thought

- Updated research shows humans, regardless of language, prefer some syllables over others.
- New research updates discussion of babies' language comprehension and productive language development.
- New research supports diversity of human language.
- Discussion of the brain and language updated with new research on distributed processing of language in the brain.
- Includes new research on animal cognition, as well as neuroscience research on a gene unique to humans that helps enable speech.

- Improved figure illustrates brain activity when speaking and hearing words.
- New research updates discussion of language's ability to influence our thinking, emotions, and cultural associations.
- Additional research example demonstrates language's impact on perceived differences.
- Includes new research on the advantages of bilingualism.

### Intelligence and Its Assessment

- Discussion of the *g* factor includes new research exploring how distinct brain networks enable distinct abilities.
- Now includes Gardner's ninth possible intelligence, existential intelligence.
- Includes new photo example of savant syndrome.
- New photo demonstrates spatial intelligence genius.
- New research with professional musicians demonstrates importance of both natural talent and self-disciplined grit in achieving success.
- Updated table comparing theories of intelligence includes new category, *emotional intelligence*.
- Expanded discussion of history of intelligence tests includes more on Alfred Binet's research and Lewis Terman's support of the eugenics movement.
- Discussion of intelligence's stability over the life span includes new data from the Scottish intelligence survey of 1932, with new figure.
- Updated discussion of intelligence extremes includes new research on adult achievements of those who scored high on SAT in their youth.

### Genetic and Environmental Influences on Intelligence

- New research updates and clarifies discussion of the heritability of intelligence.
- New research supports quality preschool programs and experiences, nutritional supplements for newborns and mothers, and interactive reading programs.
- New research notes the increased variability of males' intelligence.
- New photo example of Shakuntala Devi, "the human computer."
- New cross-cultural research supports impact of cultural and other expectations on academic flourishing.
- New research updates discussion of intelligence variation due to racial, ethnic, and socioeconomic differences.
- New research discusses influence of stereotype threat on gender gap in high-level math achievements.

- Includes updated discussion of stereotype threat, importance of a growth mind-set and self-discipline, belief in the power of effort, and intellectual curiosity for real-world achievements.
- New research notes the limitations of general intelligence tests in reflecting competence.

## CHAPTER 10

## Motivation and Emotion

- Powerful new chapter introduction.

### ➔ Basic Motivational Concepts, Affiliation, and Achievement

- New research on risk-taking behavior, and on uncertainty amplifying motivation.
- New research examples illustrate the search for arousal in the absence of stimulation and the effects of overstimulation.
- New research suggests decreasing arousal can decrease stress.
- *Hunger Games* example now illustrates Maslow's hierarchy.
- New table compares Classic Motivation Theories.
- *Affiliation need* is now a key term.
- Includes new research on attachment bonds, whom we befriend, and the benefits of close friendship.
- Updated research on the relationship between marriage and life satisfaction.
- New research example notes increased doctor visits in lonely older adults.
- Includes new research on need to belong driving formation of social connections, and benefits of these connections.
- The Pain of Being Shut Out updated with new research, with *ostracism* a new key term.
- Connecting and Social Networking section fully updated, with *narcissism* now a key term.
- New research in Achievement Motivation demonstrates importance of *grit*, now a key term.

### ➔ Hunger

- New *Unbroken* photo example illustrates how hunger can drive an obsession with food.
- New research illustrates power of motivational “hot” states from hunger, fatigue, or sexual arousal.
- New research on the body's weight regulation.
- New research updates discussion of biological and cultural influences on taste preferences and situational influences on eating.
- New research offers ways to encourage healthier eating in children.

- Obesity and Weight Control updated with cross-cultural comparisons and global statistics; new research on physiology of obesity; negative social, health, and memory effects of obesity; and genetic basis for weight.
- Waist Management boxed essay is now a table of evidence-based tips for weight loss.

### ➔ Theories and Physiology of Emotion

- New research shows subjectivity of emotional experience.
- New research illustrates brain activity underlying emotions and emotion-fed actions.
- Includes new research on reappraisal and its effects.

### ➔ Expressing and Experiencing Emotion

- New research updates discussion of gender differences in emotional experience.
- New research on humans' ability to detect nonverbal threats and status signs.
- New research updates discussion of effects of facial expressions, including findings on Botox, depression, and the facial feedback effect.
- *Behavior feedback effect* now a key term.

## CHAPTER 11

## Stress, Health, and Human Flourishing

- New co-author Nathan DeWall led the revision of this chapter for the tenth edition.
- Compelling new chapter introduction.

### ➔ Stress and Illness

- New figure demonstrates how researchers study stress.
- New research shows effects of stress on workers and pregnant women.
- Includes new research on stress effects of traumatic events.
- Now introduces concept of *acculturative stress*.
- New research shows younger adults reporting higher daily stress.
- New research updates discussion of daily hassles and social stress.
- Includes new research on lasting effects of childhood stress.
- New research shows effects of stress on vaccine effectiveness.
- Discussion of stress and AIDS updated with new research and current data.
- Updated research on the stress-cancer link.
- New research and data updates discussion of stress and heart disease.

- The ninth edition boxed essay on Handling Anger has been revised and updated to become Thinking Critically About: Anger Management.
- Includes new discussion of the Type D personality.
- New research updates the discussion of the health effects of pessimism and depression.

### ➔ Health and Happiness

- Coping With Stress updated with new research.
- Includes expanded explanation of learned helplessness.
- New research updates Depleting and Strengthening Self-Control.
- Includes new research on the traits of optimists and pessimists, and the potential for learning optimism.
- New research demonstrates importance of social support to psychological and physical well-being, with information on cultural differences in seeking support.
- New research illustrates effect of aerobic exercise on longevity, depression, and relationships, and the recent decline of Americans' physical activity.
- Relaxation and Meditation section revised and updated, including research showing link between meditation and decreased depression and anxiety, and improved decision making.
- *Mindfulness meditation* is now a key term.
- New research suggests happiest 20-year-olds were later more likely to marry and less likely to divorce.
- New research illustrates do-good, feel-good phenomenon.
- New research suggests mood rebounds after bad events, and happiness levels can return to near-normal after significant trauma.
- New research updates list of tips for being happier.
- New research explores connection between wealth and well-being, including well-being effects of income inequality.

## CHAPTER 12

# Social Psychology

- Social Psychology chapter (12) now precedes Personality chapter (13).

### ➔ Social Thinking and Social Influence

- New research updates discussion of the effect of attribution on our judgment of others.
- New photo example of Charleston Bible study murders demonstrates dispositional versus situational attributions.
- Discussion of effect of attitudes on actions updated with climate-change debate example.

- Role Playing updated with new research on reliability of Zimbardo study and effects of military training.
- New research illuminates brain activity associated with cognitive dissonance.
- Discussion of automatic mimicry updated with new research.
- Milgram discussion includes updated coverage of replications of his research with different groups, and new discoveries about his data.
- New research example considers how the circumstances of the Rwandan genocide promoted obedience.
- Includes updates on the Internet as social amplifier, demonstrating group polarization online.
- New table compares social facilitation, social loafing, and deindividuation.

### ➔ Antisocial Relations

- New research demonstrates accuracies and inaccuracies of stereotypes.
- Updated research on sexual orientation prejudice.
- New research explores unfounded prejudice toward Muslims, with new photo example.
- New photo example of Trayvon Martin illustrates the updated discussion of race-influenced perceptions.
- New research explores effects of networking and mutual support on ingroup bias.
- New research offers additional contributors to aggression, and updates the biopsychosocial understanding of aggression figure.
- New research updates discussion of media models for aggression.

### ➔ Prosocial Relations

- New research updates discussion of modern matchmaking, including meeting online, with new graph.
- New photo example of Angela Merkel illustrates the mere exposure effect.
- Includes new research clarifying the *reward theory of attraction*.
- New research suggests charitable donations increase the giver's happiness levels.
- New research shows people who are generously treated tend later to be generous themselves.
- New research illustrates mirror-image perceptions feeding global hostilities.
- *Self-fulfilling prophecy* is a new key term.
- New research updates discussion of promoting peace.

## CHAPTER 13

## Personality

- New co-author Nathan DeWall led the revision of this chapter for the tenth edition.
- Personality chapter (13) now follows Social Psychology chapter (12).
- Compelling new chapter introduction.

### → Classic Perspectives on Personality

- Updated coverage of Freud's ideas and their significance.
- Now includes brief explanation of Thematic Apperception Test (TAT).
- New research updates critique of Rorschach test.
- New research expands discussion of the modern unconscious mind.
- New research supports value of humanistic psychology's positive regard and empathic listening.

### → Contemporary Perspectives on Personality

- New Thinking Critically About: The Stigma of Introversions feature.
- Big Five discussion updated with new research on cultural changes over time and brain structure/function, with new figure.
- New research examples, and new personal example from author, explore stability and endurance of personality traits.
- New research explores maladaptive personality traits.
- New research suggests music preferences, personal and online spaces, and written communications relate to personality traits.
- Social-Cognitive Theories revised and updated; now includes gene-environment interaction.
- New photo example from the TV show *Chopped* demonstrates the value of assessing behavior in situations.
- Table comparing major personality theories lightly updated.
- Exploring the Self section updated with new research.
- New research outlines importance of positive goal-setting in considering possible selves.
- Benefits of Self-Esteem updated with new research, including on the damaging effects of undeserved praise, and on effects of threats to self-esteem.
- Revised and updated discussion of self-serving bias and its effects.
- Discussion of narcissism updated with new research.
- Expanded, revised, and updated discussion of individualism and collectivism, with new cross-cultural research examples.

- New discussion explores effects of social history and biology on cultural differences, and introduces subfield of cultural neuroscience.

## CHAPTER 14

## Psychological Disorders

- New organization groups the disorders into four manageable sections and better reflects the DSM-5 updates: Basic Concepts of Psychological Disorders; Anxiety Disorders, OCD, and PTSD; Major Depressive Disorder and Bipolar Disorder; and Schizophrenia and Other Disorders.

### → Basic Concepts of Psychological Disorders

- New table demonstrates how care providers use the DSM-5.
- New photos illustrate different cultures' perceptions of normality.
- New photo of Stone Age trephination demonstrates brutal "therapies" of the past.
- Updated research on prevalence of mental health problems on college campuses.
- Discussion of biopsychosocial approach enriched with coverage of epigenetics, with associated updates throughout the chapter; *epigenetics* is a new key term.
- New research updates discussion of ADHD, including controversies related to higher diagnoses.
- Thinking Critically About: Insanity feature significantly revised, with new focus and title—Are People With Psychological Disorders Dangerous? Includes new photo example of Newtown shootings.
- New *Iron Man 3* photo example of improved media portrayals of psychological disorders.

### → Anxiety Disorders, OCD, and PTSD

- New research updates discussion of stimuli perception for those with anxiety disorders.
- New research shows greater panic symptoms in smokers.
- New pro golfer photo example illustrates successful coping with panic disorder.
- Updated statistics on OCD prevalence.
- Discussion of PTSD updated with new research and prevalence information, with new photo example.
- New research and examples update discussion of learning and neural, hormonal, and genetic influences on anxiety disorders, OCD, and PTSD.
- New research supports genetic basis for anxiety disorders and the interaction between genes and experience.
- New research discusses brain activity of those with PTSD when viewing traumatic images.
- New research shows infants attending more to sounds of ancient than modern-day threats.

## ➔ Major Depressive Disorder and Bipolar Disorder

- New art offers insight into the experience of bipolar disorder.
- Updated research on relationship of low self-esteem to depressed mood.
- New research shows mild sadness improves recall of faces.
- Discussion of major depressive disorder and bipolar disorder updated with new research, including current statistics and data on gender and age differences and cultural influences.
- Explanation of heritability expanded and clarified.
- Includes new research on factors that put women at greater risk for depression.
- Discussion of bipolar disorder updated with new data on prevalence, including among those in creative professions.
- Understanding Major Depressive Disorder and Bipolar Disorder updated with new research exploring genetic, biochemical, cognitive, and behavioral predictors, with new photo example.
- *Rumination* is a new key term.
- Discussion of suicide rates and nonsuicidal self-injury updated.
- Includes new suicide-prevention guidelines and resources.

## ➔ Schizophrenia and Other Disorders

- *Chronic* and *acute schizophrenia* are new key terms.
- New information on schizophrenia recovery rates.
- New research updates discussion of schizophrenia's symptoms, onset, and development.
- Includes new research on brain abnormalities (and their genetic basis) in people with schizophrenia.
- Updated discussion of prenatal environment contributing to risk of schizophrenia.
- Includes new international study of genome locations linked with schizophrenia.
- Updated research on the debates surrounding dissociative identity disorder, including abnormal brain anatomy that may accompany DID, and new photo example of Shirley Mason.
- New research on emotional intelligence and impulsivity in antisocial personality disorder.
- Understanding Antisocial Personality Disorder updated and improved with new genetics research and discussion of adaptive aspects of some symptoms of psychopathy, such as fearlessness and dominance.

- Eating Disorders updated with new examples and new research (including genetic), with new photo.

## CHAPTER 15

# Therapy

## ➔ Introduction to Therapy and the Psychological Therapies

- Discussion now distinguishes psychotherapy and biomedical therapy more clearly.
- Psychoanalysis and Psychodynamic Therapy revised and updated with new research examples.
- New photos illustrate virtual reality exposure therapy.
- New research on positive reinforcement in children with ASD.
- Cognitive Therapies discussion updated with new research and examples.
- New paragraph discusses techniques and goals of dialectical behavior therapy.
- Updated discussion of self-help groups notes importance of redemptive narrative for maintaining sobriety.
- New research updates discussion of psychotherapy's effectiveness.
- New research and new photo support importance of *therapeutic alliance*, now a key term.
- New research suggests "culture of honor" may prompt reluctance to seek mental health care.

## ➔ The Biomedical Therapies and Preventing Psychological Disorders

- Includes updated explanation of who now prescribes psychiatric drugs.
- New research suggests exposure to advertising about a drug's effectiveness can increase its effect.
- Includes new research on newer-generation antipsychotics for those with severe symptoms.
- Revised explanation more explicitly differentiates today's gentler ECT from its earlier forms.
- New research introduces possibility of quicker-acting antidepressants.
- Includes new neuroscience research on how ECT may work.
- New research updates discussion of neurostimulation, including rTMS, for depression.
- New image from Human Connectome Project shows possible "depression switch" in the brain.
- Therapeutic Lifestyle Change updated with new research supporting value of healthy choices, including time spent outdoors.



- Updated research suggests importance of envisioning new possibilities to foster *posttraumatic growth*, now a key term.

#### APPENDIX A: Statistical Reasoning in Everyday Life

- New research and real-life examples demonstrate that we find precise numbers more credible.
- Now explains and distinguishes descriptive and inferential statistics.
- New research demonstrates the dangers of statistical illiteracy.

#### APPENDIX B: Psychology at Work

- New research suggests intrinsic motivation predicts performance.
- Includes new research on training programs' positive effect on job seeking.
- New research demonstrates stability of people's interests, and shows interests predicting academic and career success.
- Revised, expanded Discovering Your Interests and Strengths section includes links to several resources helping students to discover their personal strengths and vocational interests.
- New research suggests those who are conscientious and agreeable will flourish in many work settings.
- New research suggests interviewers judge people relative to those interviewed just before and after them.
- Includes new photo example of positive coaching.

- New research shows social leadership and team building increase morale and productivity.
- New research suggests workers in family-friendly organizations with flexible-time hours report greater job satisfaction and loyalty to their employers.

#### APPENDIX C: Subfields of Psychology

- This appendix focuses on educational requirements, type of work, and likely places to work for each of psychology's main subfields. LaunchPad offers a related, regularly updated Careers in Psychology unit.
- New photo examples illustrate community psychology and forensic psychology.

#### APPENDIX D: Complete Chapter Reviews

- In an effort to encourage students to self-test, the Reviews at the end of each chapter section include only a list of the Learning Objective Questions—repeated from within that section. Answers to those questions form these Complete Chapter Reviews, which students may use to check their answers or review the material.

#### APPENDIX E: Answers to *Experience the Testing Effect* Questions

- Students may check their answers here for the multiple-format questions found in a self-test at the end of each chapter section.

# Time Management

Or, How to Be a Great Student and Still Have a Life

—Richard O. Straub, University of Michigan, Dearborn

## ➔ How Are You Using Your Time Now?

### ➔ Design a Better Schedule

Plan the Term

Plan Your Week

### ➔ Make Every Minute of Your Study Time Count

Take Useful Class Notes

Create a Study Space That Helps You Learn

Set Specific, Realistic Daily Goals

Use SQ3R to Help You Master This Text

Don't Forget About Rewards!

### ➔ Do You Need to Revise Your New Schedule?

Are You Doing Well in Some Courses But Not in Others?

Have You Received a Poor Grade on a Test?

Are You Trying to Study Regularly for the First Time and Feeling Overwhelmed?



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**WE** all face challenges in our schedules. If you are making the transition from high school to college, you may be delighting in new freedoms, but also struggling to balance your many new responsibilities. Or you may be a student returning to school after spending a few years at work. You may be balancing work and family along with your classes.

How can you balance all of your life's demands and be successful? Time management. Manage the time you have so that you can find the time you need.

In this section, I will outline a simple, four-step process for improving the way you make use of your time.

1. Keep a time-use diary to understand how you are using your time. You may be surprised at how much time you're wasting.
2. Design a new schedule for using your time more effectively.
3. Make the most of your study time so that your new schedule will work for you.
4. If necessary, refine your new schedule, based on what you've learned.

## How Are You Using Your Time Now?

Although everyone gets 24 hours in the day and seven days in the week, we fill those hours and days with different obligations and interests. If you are like most people, you probably use your time wisely in some ways, and not so wisely in others. Answering the questions in TABLE 1 can help you find trouble spots—and hopefully more time for the things that matter most to you.

The next thing you need to know is how you actually spend your time. To find out, record your activities in a time-use diary for one week. Be realistic. Take notes on how much time you spend attending class, studying, working, commuting, meeting personal and family needs, fixing and eating meals, socializing (don't forget texting, gaming, and social networking), exercising, and anything else that occupies your time, including life's small practical tasks, which can take up plenty of your 24/7. As you record your activities, take notes on how you are feeling at various times of the day. When does your energy slump, and when do you feel most energetic?

## Design a Better Schedule

Take a good look at your time-use diary. Where do you think you may be wasting time? Do you spend a lot of time commuting, for example? If so, could you use that time more productively? If you take public transportation, commuting is a great time to read and test yourself for review.

Did you remember to include time for meals, personal care, work schedules, family commitments, and other fixed activities?

How much do you sleep? In the battle to meet all of life's daily commitments and interests, we tend to treat sleep as optional. Do your best to manage your life so that you can get enough sleep to feel rested. You will feel better and be healthier, and you will also do better academically and in relationships with your family and friends. (You will read more about this in **Chapter 3**.)

Are you dedicating enough time for focused study? Take a last look at your notes to see if any other patterns pop out. Now it's time to create a new and more efficient schedule.

### Plan the Term

Before you draw up your new schedule, think ahead. Use your phone's calendar feature, or buy a portable calendar that covers the entire school term, with a writing space for each day. Using the course outlines provided by your instructors, enter the dates of all exams, term-paper deadlines, and other important assignments. Also be sure to enter your own long-range personal plans (work and family commitments, etc.). Keep your calendar up-to-date, refer to it often, and change it as needed. Through this process, you will develop a regular schedule that will help you achieve success.

### Plan Your Week

To pass those exams, meet those deadlines, and keep up with your life outside of class, you will need to convert your long-term goals into a daily schedule. Be realistic—you will be living with this routine for the entire school term. Here are some more things to add to your calendar.

1. Enter your class times, work hours, and any other fixed obligations. Be thorough. Allow plenty of time for such things as commuting, meals, and laundry.
2. Set up a study schedule for each course. Remember what you learned about yourself in the study habits survey (TABLE 1) and your time-use diary. TABLE 2, *More Tips for Effective Scheduling*, offers some detailed guidance drawn from psychology's research.
3. After you have budgeted time for studying, fill in slots for other obligations, exercise, fun, and relaxation.



▼ TABLE 1

#### Study Habits Survey

Answer the following questions, writing *Yes* or *No* for each line.

1. Do you usually set up a schedule to budget your time for studying, work, recreation, and other activities?  
\_\_\_\_\_
2. Do you often put off studying until time pressures force you to cram?  
\_\_\_\_\_
3. Do other students seem to study less than you do, but get better grades?  
\_\_\_\_\_
4. Do you usually spend hours at a time studying one subject, rather than dividing that time among several subjects?  
\_\_\_\_\_
5. Do you often have trouble remembering what you have just read in your course work? \_\_\_\_\_
6. Before reading a chapter do you skim through it and read the section headings?  
\_\_\_\_\_
7. Do you try to predict test questions from your class notes and reading?  
\_\_\_\_\_
8. Do you usually try to summarize in your own words what you have just finished reading? \_\_\_\_\_
9. Do you find it difficult to concentrate for very long when you study?  
\_\_\_\_\_
10. Do you often feel that you studied the wrong material for a test?  
\_\_\_\_\_

Thousands of students have participated in similar surveys. Students who are fully realizing their academic potential usually respond as follows: (1) yes, (2) no, (3) no, (4) no, (5) no, (6) yes, (7) yes, (8) yes, (9) no, (10) no.

Do your responses fit that pattern? If not, you could benefit from improving your time management and study habits.



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## Make Every Minute of Your Study Time Count

How do you study from a textbook? Many students simply read and reread in a passive manner. As a result, they remember the wrong things—the catchy stories but not the main points that show up later in test questions. To make things worse, many students take poor notes during class. Here are some tips that will help you get the most from your class and your text.

### TABLE 2

#### More Tips for Effective Scheduling

There are a few other things you will want to keep in mind when you set up your schedule.

**Spaced study is more effective than massed study.** If you need 3 hours to study one subject, for example, it's best to divide that into shorter periods spaced over several days.

**Alternate subjects, but avoid interference.** Alternating the subjects you study in any given session will keep you fresh and will, surprisingly, increase your ability to remember what you're learning in each different area. Studying similar topics back-to-back, however, such as two different foreign languages, could lead to interference in your learning. (You will hear more about this in **Chapter 8**).

**Be smart about your Smartphone.** Texting, snapchatting, browsing, and e-mail can be real distractions. When your concentration is interrupted, it takes extra time and energy to regain the focus you need to make study time count. Consider scheduling a time for checking the phone—perhaps once per hour on the hour—and ignore it during the rest of your study time. (**Chapter 10** has more tips for maintaining balance and focus in your social networking.)

**Determine the amount of study time you need to do well in each course.** The time you need depends on the difficulty of your courses and the effectiveness of your study methods. Ideally, you would spend at least 1 to 2 hours studying for each hour spent in class. Increase your study time slowly by setting weekly goals that will gradually bring you up to the desired level.

**Create a schedule that makes sense.** Tailor your schedule to meet the demands of each course. For the course that emphasizes lecture notes, plan a daily review of your notes soon after each class. If you are evaluated for class participation (for example, in a language course), allow time for a review just before the class meets. Schedule study time for your most difficult (or least motivating) courses during hours when you are the most alert and distractions are fewest.

**Schedule open study time. Life can be unpredictable.** Emergencies and new obligations can throw off your schedule. Or you may simply need some extra time for a project or for review in one of your courses. Try to allow for some flexibility in your schedule each week.

Following these guidelines will help you find a schedule that works for you!

### Take Useful Class Notes

Good notes will boost your understanding and retention. Are yours thorough? Do they form a sensible outline of each lecture? If not, you may need to make some changes.

### Keep Each Course's Notes Separate and Organized

Keeping all your notes for a course in one location will allow you to flip back and forth easily to find answers to questions. Three options are (1) separate notebooks for each course, (2) clearly marked sections in a shared ring binder, or (3) carefully organized folders if you opt to take notes electronically. For the print options, removable pages will allow you to add new information and weed out past mistakes. Choosing notebook pages with lots of space, or using mark-up options in electronic files, will allow you to add comments when you review and revise your notes after class.

### Use an Outline Format

Use Roman numerals for major points, letters for supporting arguments, and so on. (See **FIGURE 1** for a sample.) In some courses, taking notes will be easy, but some instructors may be less organized, and you will have to work harder to form your outline.

### Clean Up Your Notes After Class

Try to reorganize your notes soon after class. Expand or clarify your comments and clean up any hard-to-read scribbles while the material is fresh in your mind. Write important questions in the margin, or by using an electronic markup feature, next to notes that answer them. (For example: "What are the sleep stages?") This will help you when you review your notes before a test.

### Create a Study Space That Helps You Learn

It's easier to study effectively if your work area is well designed.

### Organize Your Space

Work at a desk or table, not on your bed or in a comfy chair that will tempt you to nap.

○	<p><b>Sleep (Chapter 3)</b></p> <p><i>When is my daily peak in circadian arousal? Study hardest; subject then!</i></p> <p>I. Biological Rhythms</p> <p>A. Circadian Rhythm (circa-about; diem-day)—24-hour cycle.</p> <p>1. Ups and downs throughout day/night.</p> <p>Dip in afternoon (siesta time).</p> <p>2. Melatonin—hormone that makes us sleepy. Produced by pineal gland in brain. Bright light shuts down production of melatonin.</p> <p>(Dim the lights at night to get sleepy.)</p> <p>B. FOUR Sleep Stages, cycle through every 90 minutes all night! Aserinsky discovered—his son—REM sleep (dreams, rapid eye movement, muscles paralyzed but brain super active). EEG measurements showed sleep stages.</p>
○	<p>1. NREM-1 (non-Rapid Eye Movement sleep; brief, images like hallucinations; hypnagogic jerks)</p> <p>2. NREM-2 (harder to waken, sleep spindles)</p> <p>3. NREM-3 (DEEP sleep—hard to wake up! Long slow waves on EEG; bedwetting, night terrors, sleepwalking occurs here; asleep but not dead—can still hear, smell, etc. Will wake up for baby.)</p> <p>4. REM Sleep (Dreams...)</p>

▲ FIGURE 1

Sample class notes in outline form Here is a sample from a student's notes taken in outline form from a lecture on sleep.

## Minimize Distractions

Turn the TV off, put away your phone, and close distracting windows on your computer. If you must listen to music to mask outside noise, play soft instrumentals, not vocal selections that will draw your mind to the lyrics.

## Ask Others to Honor Your Quiet Time

Tell roommates, family, and friends about your new schedule. Try to find a study place where you are least likely to be disturbed.

## Set Specific, Realistic Daily Goals

The simple note “7–8 P.M.: Study Psychology” is too broad to be useful. Instead, break your studying into manageable tasks. For example, you will want to subdivide large reading assignments. If you aren't used to studying for long periods, start with relatively short periods of concentrated study, with breaks in between. In this text, for example, you might decide to read one major section before each break. Limit your breaks to 5 or 10 minutes to stretch or move around a bit.

Your attention span is a good indicator of whether you are pacing yourself successfully. At this early stage, it's important to remember that you're in training. If your attention begins to wander, get up immediately and take a short break. It is better to study effectively for 15 minutes and then take a break than to fritter away 45 minutes out of your study hour. As your endurance develops, you can increase the length of study periods.

You will hear more about SQ3R in Chapter 1.

## Use SQ3R to Help You Master This Text

David Myers and Nathan DeWall organized this text by using a system called SQ3R (Survey, Question, Read, Retrieve, Review). Using SQ3R can help you to understand what you read, and to retain that information longer.

Applying SQ3R may feel at first as though it's taking more time and effort to "read" a chapter, but with practice, these steps will become automatic.

### Survey

Before you read a chapter, survey its key parts. Study the two-page opener at the beginning of the chapter, which provides a sort of visual scaffolding for the key content to come. Note that text sections have numbered Learning Objective Questions to help you focus. Pay attention to headings, which indicate important subtopics, and to words set in bold type.

Surveying gives you the big picture of a chapter's content and organization. Understanding the chapter's logical sections will help you break your work into manageable pieces in your study sessions.

### Question

As you survey, don't limit yourself to the numbered Learning Objective Questions that appear throughout the chapter. Jotting down additional questions of your own will cause you to look at the material in a new way. (You might, for example, scan this section's headings and ask "What does 'SQ3R' mean?") Information becomes easier to remember when you make it personally meaningful. Trying to answer your questions while reading will keep you in an active learning mode.

### Read

As you read, keep your questions in mind and actively search for the answers. If you come to material that seems to answer an important question that you haven't jotted down, stop and write down that new question.

Be sure to read everything. Don't skip photo or art captions, graphs, boxes, tables, or quotes. An idea that seems vague when you read about it may become clear when you see it in a graph or table. Keep in mind that instructors sometimes base their test questions on figures and tables.

### Retrieve

When you have found the answer to one of your questions, close your eyes and mentally recite the question and its answer. Then write the answer next to the question in your own words. Trying to explain something in your own words will help you figure out where there are gaps in your understanding. These kinds of opportunities to practice *retrieving* develop the skills you will need when you are taking exams. If you study without ever putting your book and notes aside, you may develop false confidence about what you know. With the material available, you may be able to recognize the correct answer to your questions. But will you be able to recall it later, when you take an exam without having your mental props in sight?

Test your understanding as often as you can. Testing yourself is part of successful learning, because the act of testing forces your brain to work at remembering, thus establishing the memory more permanently (so you can find it later for the exam!). Use the self-testing opportunities throughout each chapter, including the periodic Retrieve It items. Also take advantage of the self-testing that is available through LearningCurve and other quizzes in LaunchPad.

## Review

After working your way through the chapter, read over your questions and your written answers. Take an extra few minutes to create a brief written summary covering all of your questions and answers. At the end of each main text section, you should take advantage of the important opportunities for self-testing and review—a list of that section’s Learning Objective Questions for you to try answering before checking **Appendix D** (Complete Chapter Reviews), a list of that section’s key terms for you to try to define before checking the referenced page, and the *Experience the Testing Effect* self-test questions (with answers in Appendix E).

## Don’t Forget About Rewards!

If you have trouble studying regularly, giving yourself a reward may help. What kind of reward works best? That depends on what you enjoy. You might start by making a list of 5 or 10 things that put a smile on your face. Spending time with a loved one, taking a walk or going for a bike ride, relaxing with a magazine or novel, or watching a favorite show can provide immediate rewards for achieving short-term study goals.

To motivate yourself when you’re having trouble sticking to your schedule, allow yourself an immediate reward for completing a specific task. If running makes you smile, change your shoes, grab a friend, and head out the door! You deserve a reward for a job well done.

## Do You Need to Revise Your New Schedule?

What if you’ve lived with your schedule for a few weeks, but you aren’t making progress toward your academic and personal goals? What if your studying hasn’t paid off in better grades? Don’t despair and abandon your program, but do take a little time to figure out what’s gone wrong.

## Are You Doing Well in Some Courses But Not in Others?

Perhaps you need to shift your priorities a bit. You may need to allow more study time for chemistry, for example, and less time for some other course.

## Have You Received a Poor Grade on a Test?

Did your grade fail to reflect the effort you spent preparing for the test? This can happen to even the hardest-working student, often on a first test with a new instructor. This common experience can be upsetting. “What do I have to do to get an A?” “The test was unfair!” “I studied the wrong material!”

Try to figure out what went wrong. Analyze the questions you missed, dividing them into two categories: class-based questions and text-based questions. How many questions did you miss in each category? If you find far more errors in one category than in the other, you’ll have some clues to help you revise your schedule. Depending on the pattern you’ve found, you can add extra study time to review of class notes, or to studying the text.

## Are You Trying to Study Regularly for the First Time and Feeling Overwhelmed?

Perhaps you've set your initial goals too high. Remember, the point of time management is to identify a regular schedule that will help you achieve success. Like any skill, time management takes practice. Accept your limitations and revise your schedule to work slowly up to where you know you need to be—perhaps adding 15 minutes of study time per day.

\* \* \*

I hope that these suggestions help make you more successful academically, and that they enhance the quality of your life in general. Having the necessary skills makes any job a lot easier and more pleasant. Let me repeat my warning not to attempt to make too drastic a change in your lifestyle immediately. Good habits require time and self-discipline to develop. Once established, they can last a lifetime.



### REVIEW Time Management: Or, How to Be a Great Student and Still Have a Life

#### 1. How Are You Using Your Time Now?

- Identify your areas of weakness.
- Keep a time-use diary.
- Record the time you actually spend on activities.
- Record your energy levels to find your most productive times.

#### 2. Design a Better Schedule

- Decide on your goals for the term and for each week.
- Enter class times, work times, social times (for family and friends), and time needed for other obligations and for practical activities.
- Tailor study times to avoid interference and to meet each course's needs.

#### 3. Make Every Minute of Your Study Time Count

- Take careful class notes (in outline form) that will help you recall and rehearse material covered in lectures.
- Try to eliminate distractions to your study time, and ask friends and family to help you focus on your work.
- Set specific, realistic daily goals to help you focus on each day's tasks.
- Use the SQ3R system (survey, question, read, retrieve, review) to master material covered in your text.
- When you achieve your daily goals, reward yourself with something that you value.

#### 4. Do You Need to Revise Your New Schedule?

- Allocate extra study time for courses that are more difficult, and a little less time for courses that are easy for you.
- Study your test results to help determine a more effective balance in your schedule.
- Make sure your schedule is not too ambitious. Gradually establish a schedule that will be effective for the long term.



*Exploring*  
PSYCHOLOGY

➤ The History and Scope of Psychology



➤ Research Strategies: How Psychologists Ask and Answer Questions



# Thinking Critically With Psychological Science

**HOPING** to satisfy their curiosity about people and to relieve their own woes, millions turn to “psychology.” They watch television shows aimed at helping people cope with their problems, overcome their addictions, and save their marriages. They read articles on psychic powers. They attend stop-smoking hypnosis seminars. They play online games hoping to strengthen their brain. They immerse themselves in self-help websites and books on the meaning of dreams, the path to true love, and the road to personal happiness.

Others, intrigued by claims of psychological truth, wonder: How—and how much—does parenting shape children’s personalities and abilities? What factors affect our drive to achieve? Do dreams have deep meaning? Do we remember events that never happened? Does psychotherapy heal?

In working with such questions, how can we separate uninformed opinions from examined conclusions? *How can we best use psychology to understand why people think, feel, and act as they do?* ■



Businessperson

Correlation

Length of marriage is  
CORRELATED  
with baldness.  
Does this mean  
length of marriage

CAUSES  
baldness?

No!

