

David G. Myers Psychology



Fourth Edition

Fourth Edition

Psychology

David G. Myers

Hope College
Holland, Michigan

WORTH PUBLISHERS

To Laura

Psychology, Fourth Edition

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Preface

Throughout its four editions, my vision for *Psychology* has remained the same: *to merge rigorous science with a broad human perspective in a book that engages both mind and heart*. Across the dozen years spent shaping this book, my aim has been to create a state of the art introduction to psychology's methods and findings, written with sensitivity to students' needs and interests. I aspire to help students gain insight into, and appreciate the wonder of, important phenomena of their everyday lives. I also want to convey the inquisitive, critical, and compassionate spirit in which psychologists *do* psychology. Believing with Thoreau that "Anything living is easily and naturally expressed in popular language," I seek to communicate today's scholarship with crisp narrative and vivid storytelling.

New to the Fourth Edition

This new edition retains the voice, and much of the organization and content of its predecessors. It is, however, the most effortful and significant revision to date.

Enhanced "Thinking Critically" Theme

New Chapter 1, *Thinking Critically With Psychological Science*, takes an innovative critical thinking approach to teaching methods (see table of contents at right). The chapter shows how psychology's methods address everyday questions of behavior with a set of formal procedures for gathering and evaluating evidence that diminish the errors of everyday intuition. It looks at how psychology's methods can help us answer many significant questions and think more intelligently. Later chapters reinforce the "thinking critically" theme, often with boxes that model critical analysis. A Critical Thinking Exercise at the end of each chapter tests student understanding of the principles, with sample answers in an end-of-book appendix. These creative exercises use the model established by well-known critical thinking researcher Jane Halonen, whose new *Critical Thinking Companion for Introductory Psychology* is available from Worth Publishers for use with this text. By the book's end, students should not only have learned psychology's most important concepts and findings, but also how and why we play the science game.

Chapter 1

Thinking Critically With Psychological Science

The Scientific Attitude

The Limits of Intuition and Common Sense

Did We Know It All Along?

The Hindsight Bias

Overconfidence

Research Strategies: How Psychologists Ask and Answer Questions

The Scientific Method

Description

Correlation

Experimentation

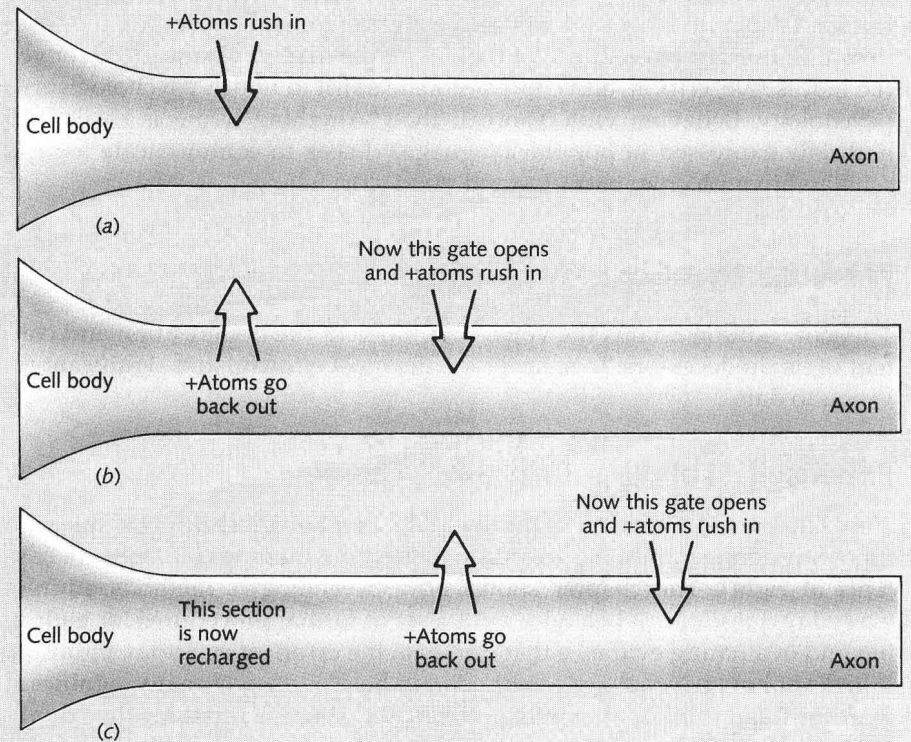
Commonly Asked Questions About Psychology

Strengthened Neuroscience Perspective

Chapter 2, now titled Neuroscience and Behavior, offers increased and updated coverage of psychology's neuroscience foundations. The art program has been enhanced and expanded so that it more effectively helps students visualize what is presented in the text (for example, see Figure 2–2 below). On the stated assumption that “everything psychological is simultaneously biological,” information on the neurobiology and genetics of behavior, cognition, and emotion is also integrated throughout the text at more than three dozen locations (see cross-reference guide, page 74).

Figure 2–2

Axonal Transmission A neuron fires an impulse when stimulated by pressure, heat, light, or chemical messages from adjacent neurons. This brief electrical charge, called an action potential, travels down the axon, beginning (a) at the juncture of the cell body and the axon. A thousandth of a second later (b), the electrical change produces another action potential a little farther along the axon, and the first section begins to recharge. After another thousandth of a second (c), the action potential appears to have moved farther along the axon, and the first section has completely recharged.



New Pedagogical Aids

A new system of study aids has been introduced—**PRTR**. Major chapter sections now begin with a “Preview” that helps focus student reading on each section’s overarching concepts (see sample below from Chapter 5 section on Hearing). Chapters have been broken down into more digestible sections to help students chart their Reading. Critical Thinking is incorporated as a theme throughout the book—within the narrative, in “Thinking Critically About . . .” boxes, and in end-of-chapter exercises. Each major section ends with a “Summing Up” that Reviews the most important concepts (see sample below). To enhance student review, the key terms are now defined and organized by major chapter section at the end of each chapter.

Samples of “Preview” and “Summing Up”

Hearing

Somewhat less mysterious than sight, but still pretty amazing, is another aspect of our ordinary experience: the process by which we convert air pressure waves into neural messages that the brain interprets as a meaningful symphony of sound. How do we do it? What breaks in the system typically cause hearing loss? What is it like to live without hearing?

Summing Up

The Stimulus Input: Sound Waves The pressure waves we experience as sound vary in frequency and amplitude, and correspondingly in perceived pitch and loudness.

The Ear Through a mechanical chain of events, sound waves traveling through the auditory canal cause minuscule vibrations in the eardrum. Transmitted via the bones of the middle ear to the fluid-filled cochlea, these vibrations create movement in tiny hair cells, triggering neural messages to the brain.

Research on how we hear pitch supports both the place theory, which best explains the sensation of high-pitched sounds, and frequency theory, which best explains the sensation of low-pitched sounds. We localize sound by detecting minute differences in the loudness and timing of the sounds received by each ear.

Hearing Loss and Deaf Culture Hearing losses linked to conduction and nerve disorders can be caused by prolonged exposure to loud noise and by diseases and age-related disorders. Those who live with hearing loss face social challenges.

Thorough Updating

A 3-year search of tens of thousands of article titles led to nearly 3000 filed items, which were winnowed to 829 new citations (32 percent of the book's references). I aim not to drown the reader with bibliography, but to credit and make available both classic and current information.

Integrated and Focused Coverage of Culture and Gender

Introductory text authors wrestle with whether to cover topics such as culture, ethnicity, and gender as an in-depth focus or whether to distribute such coverage in smaller bites throughout the text. This book pursues both strategies.

- *Focused coverage* of diversity in the book's capstone chapter addresses one of the great issues of our time: As people of differing cultures, ethnicities, and genders, how are we different and how we are alike? How can we understand and accept our diversity while affirming our human kinship? And how in a world torn asunder by differences can we define shared values? How can we realize the ideal of *community incorporating diversity*?
- *Integrated coverage* of diversity permeates the other chapters (see cross-references, below). For example, 60 percent of the book's 391 references to "culture" and "cultural" appear *before* Chapter 19. Countless additional mentions are made of specific ethnic and cultural groups. An inclusive illustration program makes human diversity visible. For this and succeeding editions my aim is more and more to offer a world-based psychology for a worldwide student body. Rather than covering multicultural and gender issues exclusively in boxes or special sections, all this is naturally embedded in the ongoing flow.

Integrated Cultural Diversity

From the Introduction to Chapter 18 the integrated coverage of cultural diversity permeates the book in discussions of culture and:

Adolescence, pp. 117, 125–126	Culture shock, p. 490	Life expectancy, p. 131	Self-serving bias, p. 484
Aggression, p. 636	Deaf culture, pp. 171–173, 346	Management style, p. 424	Social responsibility norm, p. 643
Aging, p. 129	Depression, pp. 518, 520	Math performance, pp. 390–391	Social clock, p. 139
Alcoholism, p. 502	Developmental similarities, pp. 106–107	Moral development, p. 122	Somatoform disorders, p. 510
Altruism, p. 643	Dieting, p. 607	Multiple personality, p. 513	Study time, pp. 389–390
Anger, p. 446	Eating disorders, p. 406	Obesity, pp. 604, 606	Suicide, p. 516
Attractiveness, p. 646	Experiencing emotion, p. 443	Participative management, p. 426	Taste preferences, pp. 404–405
Behavioral effects of culture, p. 32	Expressing emotion, pp. 440–441	Perception, p. 200	Teen sexuality, pp. 125–126
Bilingualism, p. 353	Father care (Ch. 3 box), p. 100	Psychological disorders, pp. 499, 502, 510, 513, 516, 518	Vygotsky's sociocultural theory, p. 78
Child-rearing, pp. 105–106	Intelligence, pp. 371–372, 388–391	Schizophrenia, p. 526	Work-related values, pp. 139, 424
Cognitive development, p. 120			
Conformity, p. 622			

Integrated Gender Diversity

The psychology of women and men is similarly integrated into the book's ongoing narrative at dozens of points **before** Chapter 19:

Abortion stress, p. 578	Empty nest, p. 141	Hormones and sexual development, pp. 80, 118–119	Premenstrual syndrome, p. 591
Alcoholism, p. 532	Fatherhood, p. 100	Intimacy and identity, p. 125	Rape, pp. 267, 637–640
Body image, p. 407	Freud's views, pp. 464–465, 467, 469–470	Leadership, p. 425	Sexual dysfunction, pp. 412–413
Bonding, pp. 96–97	Generic pronoun “he,” pp. 352–353	Menarche, p. 118	Sexual orientation, p. 415
Depression, pp. 517, 520, 532	Happiness, p. 453	Menopause, p. 130	Sexuality, pp. 408–413
Dieting, p. 607	Heart disease, p. 581	Personality disorder, pp. 530, 532	Smoking, p. 602
Dreams, p. 228	Help-receiving, p. 641	Physician's visits, p. 592	Stereotyping, p. 210
Early versus late maturation, p. 119	Hormones and aggression, p. 633	Pornography, pp. 411–412, 637–640	Suicide, pp. 516–517
Eating disorders, pp. 406–407	Hormones and sexual behavior, pp. 410–411		
Employment of women, pp. 141–142			

Goals for the Fourth Edition

Throughout this revision, I have steadfastly followed eight principles:

1. **To exemplify the process of inquiry** I strive to show students not just the outcome of research, but how the research process works. Throughout, the book tries to excite the reader's curiosity. It invites 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.
2. **To teach critical thinking** By presenting research as intellectual detective work, I exemplify an inquiring, analytical mind-set. Whether students are studying development, cognition, or statistics, 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 subliminal persuasion, ESP, and facilitated communication to astrology, basketball streak-shooting, and repressed and recovered memories.
3. **To put facts in the service of concepts** My 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 I place emphasis on those concepts I hope students will carry with them long after they complete the course. Always, I try to follow Albert Einstein's dictum that “Everything should be made as simple as possible, but not simpler.”
4. **To be as up-to-date as possible** Few things dampen students' interests as quickly as the sense that they are reading stale news. While re-

taining psychology's classic studies and concepts, I also present the discipline's most important recent developments. Twenty-three percent of the references in this edition are dated 1992 to 1995.

5. **To integrate principles and applications** Throughout—by means of anecdotes, case histories, and the posing of hypothetical situations—I 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—I have not hesitated to shine its light.
6. **To enhance comprehension by providing continuity** Many chapters have a significant issue or theme that links subtopics, forming a thread that ties the chapter together. The Learning chapter conveys the idea that bold thinkers can serve as intellectual pioneers. The Thinking and Language chapter raises the issue of human rationality and irrationality. The Psychological Disorders chapter conveys empathy for, and understanding of, troubled lives. “The uniformity of a work,” observed Edward Gibbon, “denotes the hand of a single artist.” Because the book has a single author, other threads, such as nature-nurture interaction and cultural diversity, weave throughout the *whole* book, and students hear a consistent voice.
7. **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 thereby reinforced, in later chapters. Marginal pedagogical aids augment learning without interrupting the text narrative. Major sections begin with previews and end with summaries that highlight the organization and key concepts. Chapters conclude with defined key terms (grouped by major chapter section), and suggested readings attuned to students' interests and abilities.
8. **To convey respect for human unity and diversity** Time and again, 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, childrearing and care for the elderly, and life priorities.

The Supplements Package

Psychology is accompanied by widely acclaimed materials to enhance teaching and learning. For students who desire additional help mastering the text, there is Richard O. Straub's (University of Michigan, Dearborn) *Study Guide*. Each chapter uses the PRTR: *Preview/Read/Think Critically/Review* format to guide students at each step of their study. For each section of the text chapter, a list is provided of the idioms and other phrases potentially unfamiliar to students for whom English is a second language. Each word or phrase is carefully explained and related to the text material. The list of words and phrases appears in the Guided Study section, and the definitions are provided at the back of the chapter in a clearly defined box. Progress tests help students check their mastery of the material. The study guide is also computerized in a highly interactive program for use on IBM PC or Macintosh computers.

The *Instructor's Resources*, created by Martin Bolt (Calvin College) for *Psychology*, has been hailed as the finest set of psychology teaching resources ever assembled. With 25 percent new items in this edition, it features dozens of ready-to-use demonstration handouts, along with learning objectives, lecture/discussion ideas, student projects, classroom exercises, and video and film suggestions. Martin Bolt's *Lecture Guides*, which come in both printed and easily modifiable IBM PC and Macintosh formats, offer instructors an additional resource for lecture preparation.

The award-winning computer software developed by Thomas Ludwig (Hope College) brings some of psychology's most important concepts and methods to life. *PsychSim: Interactive Graphic Simulations for Psychology* contains 20 programs, including four new to this edition, for use in the Macintosh or IBM Windows formats. Some simulations engage the student as experimenter—conditioning a rat, electrically probing the hypothalamus, or working in a sleep lab. Others engage the student as subject—responding to tests of memory or visual illusions, or interpreting facial expressions. Still others provide a dynamic tutorial/demonstration of, say, hemispheric processing or cognitive development principles. Student worksheets are provided. The *PsychSim* programs for this edition are significantly enhanced over an earlier version that received the 1990 Educom/NCRIPTAL Higher Education Software Award for “Best Psychology Software”—marking the first time that software specifically designed for introductory psychology has been so honored.

The *Test Bank*, by John Brink (Calvin College), provides a minimum of 150 questions per chapter for a total of 3150 multiple-choice questions, plus essay questions. Each question is keyed to a learning objective, page-referenced to the textbook, and rated in level of difficulty. (Optional questions are also included for the *PsychSim* programs and *The Brain* and *The Mind* modules, see below.) The *Test Bank* is available in test-generation systems for IBM PC, Macintosh, and the Apple II family of microcomputers.

Our *Psychology Videodisc* will help you bring to life for your students all of the major topics in *Psychology*, combining brief, exciting video clips and animated segments with a library of stills. This two-sided CAV videodisc is accompanied by an extensive *Instructor's Guide*, by Martin Bolt and Richard O. Straub, complete with bar codes, descriptions of each item and suggestions for how to incorporate the material into your lecture, and a subject index that references and cross-references all items by topic across chapters. A software package by Thomas Ludwig, for use on IBM-PC or Macintosh computers, includes an indexing program as well as slide show and lecture template programs. The indexing program makes it easy to assemble a list of relevant videodisc clips and stills for any lecture topic. Instructors may print this list for use with a remote control keypad or barcode reader, or may control the videodisc player directly from the computer to display the clips and stills in “slide show” fashion or as part of a complete computerized lecture.

For users of the *Discovering Psychology* telecourse, we now have a *Discovering Psychology Study Guide*. This Study Guide is designed for use with the text and with the *Discovering Psychology* telecourse, narrated by Philip Zimbardo and produced by the Annenberg/CPB Project. Based on the idea that learning is most effective when it is active, this Study Guide contains objectives to be answered as the student reads the text and views the video. Progress tests, including a minimum of 50 multiple-choice questions, help students to check their mastery of the material. The questions for the two media are carefully integrated to make the text and program work together.

In addition, Worth Publishers has produced 38 video modules from *The Mind* series, in association with WNET. These modules were edited by

Frank Vattano (Colorado State University) with the consultation of Charles Brewer (Furman University) and myself. Rather than displace the instructor, as do longer films, these brief clips (which can be dubbed onto individual cassettes) dramatically enhance and illustrate lectures. They do so in ways that written and spoken words cannot—by introducing students to a split-brain patient being tested, a sleeping subject being monitored in a lab, a patient suffering the ravages of schizophrenia, and so forth. In addition to the 38 modules on videocassettes available from Worth Publishers, there is now a two-sided CAV videodisc that includes 14 highlights from *The Mind* modules. These are also available from Worth Publishers, accompanied by a bar-coded Faculty Guide.

Finally, an exciting new CD-ROM version of *Psychology* will be available for students in the fall of 1995. This interactive product will include the text of the book as well as its illustrations, the *PsychSim* modules, the Study Guide, and a set of video and audio clips.

In Appreciation

If it is true that “whoever walks with the wise becomes wise” then I am wiser for all the wisdom and advice received from expert colleagues. Aided by some 300 consultants and reviewers over the last decade, this has become a better, more accurate book than one author alone (this author, at least) could write. My indebtedness continues to each of the teacher-scholars whose influence I acknowledged in the three previous editions.

My gratitude now extends to the colleagues who contributed criticism, corrections, and creative ideas to this new edition. For this expertise and encouragement, I thank the following reviewers:

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Charles Brewer (Furman University) enhanced this book with meticulous critiques, probing questions, and spirit-sustaining encouragement through its first three editions, and helped define priorities as a special consultant at the planning stage of this new edition.

At Worth Publishers—a company with a passion for excellence—a host of people played key roles. Alison Meersschaert commissioned the book and helped me envision its goals. Managing editor Anne Vinnicombe brought the first two editions to fulfillment while painstakingly scrutinizing the accuracy, logic, and clarity of every page.

Christine Brune, chief editor for the last two editions, is a wonder worker. She offers just the right mix of encouragement, gentle admonition, and attention to detail, while coordinating the whole team of reviewers, editors, and supplements authors. An author could not ask for more.

Other Worth staff also played essential roles. Freelance copyeditor Nancy Fleming sensitively fine-tuned the final manuscript. Production editor Barbara B. Toniolo effectively guided the transformation of manuscript into book. And Worth's gifted artistic and production team, including George Touloumes, Sarah Segal, Demetrios Zangos, and Matthew Dvorozniak again crafted the elegant product before you.

At Hope College, the supporting team members for this edition included Kim Ebright and Mary Lee Pikey, who researched countless bits of information and proofed hundreds of pages. In this effort, they were supported by my endlessly supportive librarian colleagues. Mary Lee Pikey also prepared the name index. With infectious good cheer, Kathy Adamski composed my awkward dictation into hundreds of letters to researchers. Typesetters Phyllis and Richard Vandervelde met or exceeded all deadlines, often by working into the wee hours to enter or revise every one of the more than 400,000 words, and finally to code them for electronic delivery.

Again, I gratefully acknowledge the influence of my writing coach, poet Jack Ridl, whose influence lingers in the voice you will be hearing in the

pages that follow. He more than anyone cultivated my delight in dancing with the language, and taught me to approach writing as a craft that shades into art.

After hearing countless dozens of people say that this book's supplements have taken their teaching to a new level, I reflect on how fortunate I am to be a part of a team on which everyone has produced on-time work marked by the highest professional standards. For their remarkable talents, their dedication, and their friendship, I thank Martin Bolt, John Brink, Thomas Ludwig, and Richard Straub. Martin also played a key role in inspiring and guiding the formation of the new Introduction and Chapter 1. And Rick Straub authored the critical thinking exercises that appear at the end of each chapter.

Finally, my gratitude extends to the students and instructors who have written to offer suggestions, or just an encouraging word. It is for them, and those about to begin their study of psychology, that I have done my best to introduce the field I love.

When those who paint the Golden Gate Bridge finish, it is time to start over again. So with this book. The ink is barely dry before one begins envisioning the next edition. By the time you read this, I will be gathering information for the fifth edition. Letters and now electronic mail will again influence how this book continues to evolve. So, please, do share your thoughts.

A handwritten signature in cursive script that reads "David Myers". The signature is fluid and elegant, with a large initial "D" and "M".

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Psychology

Psychology's Roots

Psychology's Big Issues

Psychology's Subfields

Studying Psychology



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