

14th Edition

Psychology

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Psychology

Fourteenth Edition

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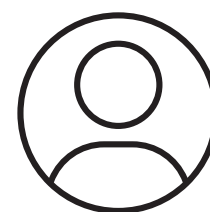
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—Carole Wade

For Ronan
—Carol Tavis

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About This Course

From the Authors

From the very first edition of this text, our primary goal has been to weave critical and scientific thinking into the fabric of our writing, and today, in this era of misinformation and “alternative facts”—not to mention in the face of societal crisis and turmoil—this goal is more important than ever. Students must negotiate the Internet and social media, which contain vast amounts of information but which are also full of conspiracy theories and nonsense, on topics ranging from how to study most effectively to how best to cope with a global pandemic. Psychological science can offer students the tools they need to separate fact from fiction and pseudoscience—and to distinguish wishful thinking from thinking wisely. Therefore, a good text should not be a laundry list of definitions and studies, and its writers cannot simply be reporters. For us, the most important job of any text is to help students learn to think like psychologists and to motivate them to enjoy the process.

In our own experience, Introduction to Psychology is often a team-taught course. Given that psychology is such a diverse field, this team-based approach is an ideal way to introduce students to a wide range of perspectives with expertise as well as balance. It is the approach we adopt in this text as well, as your author team includes researchers with expertise in clinical neuroscience, cognitive psychology, social psychology, and research methods. We believe that this provides our text with important representation across the spectrum of psychological science. Of course, an effective team also needs to share a common set of principles, and in our case it is a commitment to writing a text that is precise and critical and that makes science accessible to a wide range of readers. Our primary goals are to maintain a solid research base and promote critical thinking, all the while offering engaging prose, analyzing contemporary events, and prioritizing the values of representation, inclusivity, and equity in the scientific enterprise. This text is designed to be accessible to students learning psychology at any institution. It is a text intended to reveal to readers that psychology is the scientific study of their daily lives. These, too, have been our objectives in our years of classroom teaching.

For those of you who have used previous editions of this text, we trust that you will find its calling cards still intact: detailed reviews of study design and findings, an emphasis on critical thinking and active learning, the willingness to confront controversial topics, and themes of culture, gender, and diversity infused throughout. We’re confident that returning as well as new users will find benefit in our additional strategies for making science accessible. Examples:

- Each chapter in our interactive Revel course opens with a survey question that prompts students to explore the applicability of the topic at hand to their own lives.

- We’ve punched up the current events and popular culture analyses, enabling readers to consider the ways in which broader cultural forces both shape and reflect individual cognitive and behavioral tendencies.
- Embedded directly into the Revel course is a video series in which Sam Sommers and Lisa Shin try to bring the details of research to life through study reenactments, clinical interviews, and engaging demonstrations.
- **Critical Thinking Illustrated** is a chapter-ending feature that makes use of animation and interactive questions to guide readers through the steps of critical thinking necessary to interrogate provocative claims related to a topic from each chapter.

Finally, it is our firm belief that a critical thinker’s job is never complete. Critical thinkers always find additional questions to ask and must learn to tolerate uncertainty. Indeed, no research study is perfect and no finding—no matter how many textbooks it appears in—should be immune from continued scrutiny. Accordingly, you will note infused throughout this new edition an even more explicit focus on efforts to critically interrogate and replicate previous findings in psychology. Two *new features* in particular speak to these goals. First, you will find in every chapter a **Revisiting the Classics** feature, in which we critically examine, in narrative form, the methods, conclusions, and continuing implications of a particularly well-known study or approach from “classic” psychology. Second, our **Replication Check** feature appears across chapters (often multiple times per chapter), highlighting research findings that replication efforts—in many cases, multi-site endeavors with pre-registered methods and analyses—have identified as particularly robust. We believe that these new features are important additions to our text’s long-standing emphases on critical thinking and research transparency.

Goals and Principles

Five goals and principles have guided the writing of this text from the first edition. Here they are:

1. Thinking Critically About Critical Thinking

True critical thinking cannot be reduced to a set of rhetorical questions or a formula for analyzing studies; it is a process that must be woven seamlessly into the narrative. The primary way we “do” critical and creative thinking is by applying a three-pronged approach: We *define* it, we *model* it, and we give students a chance to *practice* it.

The first step is to define what critical thinking is and what it is not. Chapter 1 introduces specific **Critical Thinking Steps**, which we draw on throughout the text as we evaluate research and popular ideas.

The second step is to model these guidelines in our evaluations of research and popular ideas. Throughout the text, you'll find discussions of these critical-thinking guidelines as we challenge the reader to evaluate what the evidence reveals—and, importantly, does not reveal—about a particular phenomenon. Photo captions, writing prompts, interactives and chapter features, and of course the narrative itself offer opportunities for students to sharpen their critical-thinking skills to become active readers (and active learners) of psychology.

The third step is to give students opportunities to practice what we've preached in the form of end-of-module and end-of-chapter assessments. These tests require more than memorization of definitions; they help students check their progress, measure their understanding of the material, and encourage them to go back and review what they don't recall or comprehend. Many quiz questions include critical-thinking items that invite students to reflect on the implications of findings and consider how psychological principles might illuminate real-life issues. Journal and shared writing prompts offer additional opportunities for critical thinking, as do the animated **Critical Thinking Illustrated** exercises at the end of each chapter.

2. Focus on Culture, Gender, and Diversity

At the time of this text's first edition, some considered the goal of incorporating research on culture, gender, and diversity into introductory psychology to be quite radical, either a bow to political correctness or a passing fad. Today, the issue is no longer whether to include these topics, but how best to do it. From the beginning, our own answer has been to include studies of gender and culture throughout the text. We discuss gender and culture differences—and similarities—in many areas, from the brain, emotion, and motivation to heroism, sexuality, love, and eating disorders. Over the years, most psychologists have come to appreciate the influence of identity and culture on all aspects of life, from nonverbal behavior to the deepest attitudes about how the world should be.

Throughout the text, we also strive for a representative depiction of the world in which our students live. If students can't recognize themselves and their own surroundings in the examples, stories, and images provided, then we as authors have failed them. This text is intended as an invitation to the field of psychology for each and every one of our students, and we strive to write it accordingly. It is our intent that every aspect of this text, from its visual and video programs to the names used in its examples and assessments, be designed in such a way as to promote an inclusive and inviting learning environment. And we seek to do this honestly, with frank consideration of the ways in which the field of psychology—past as well as present—has failed to live up to principles of equity and diversity. For

example, in Chapter 1 we review the specific obstacles faced by women and Black scientists who have sought to enter the field, as well as current demographic trends among psychologists by career type and rank. Similarly, we transparently report that previous psychological research has typically examined gender as a binary and approached attraction and intimate relationships through a predominantly heteronormative lens, all the while endeavoring in our text to expand the scope of the questions we pose, examples we use, and studies we present in covering these important topics.

3. Exploring New Research in Biology and Neuroscience

Findings from the Human Genome Project, studies of behavioral genetics and epigenetics, discoveries about the brain, technologies such as functional magnetic resonance imaging (fMRI) and transcranial magnetic stimulation (TMS), and the proliferation of medications for psychological disorders—all of these developments have had a profound influence on our understanding of human behavior and on interventions to help people with chronic problems. We report new findings from biology and neuroscience wherever they are relevant throughout the text: in discussions of neurogenesis in the brain, memory, emotion, stress, child development, aging, mental illness, personality, and many other topics.

Although we caution students about the dangers of ignoring biological research, we also caution them about the dangers of reducing complex behaviors solely to biology by overgeneralizing from limited data, failing to consider other explanations, and oversimplifying solutions. Our goal is to provide students with a structure for interpreting research they will hear or read about to an ever-increasing degree in the future.

4. Facing the Controversies

Psychology has always been full of lively, sometimes angry, debates, and we feel that students should not be sheltered from them. They are what make psychology so interesting! In this text, we candidly address controversies in the field of psychology, try to show why they are occurring, and suggest the kinds of questions that might lead to useful answers in each case. For example, we discuss the controversies about oversimplification of brain-scan technology (Chapter 4), the disease versus learning models of addiction (Chapter 15), the extent of parents' influence on their children's personality development (Chapter 12), and conflicts of interest in research on medication for psychological disorders (Chapter 16).

5. Applications and Active Learning

Finally, throughout this text, we have kept in mind one of the soundest findings about learning: It requires the active encoding of material. Several pedagogical features in particular encourage

students to become actively involved in what they are reading, including **chapter opening survey questions** that allow students to compare their own perceptions about psychological topics with those of other students taking the course; a **Taking Psychology With You** feature in each chapter that illustrates the practical implications of psychological research for individuals, groups, institutions, and society; our *new* **Revisiting the Classics** and **Replication Check** features; **interactive review tables**; a **running glossary** that defines boldfaced technical terms where they occur for handy reference and study; carefully selected **videos** in each chapter, including an interactive animated series created and narrated by the authors called **Critical Thinking Illustrated** that comes at the end of each chapter; **chapter outlines**; and **chapter summaries** in paragraph form to help students review.

The Importance of Testing Yourself on What You've Studied

In our decades of teaching, we have found that certain study strategies can greatly improve learning, and so we'd like to offer you, our reader, the following suggestions: Do not try to read this text the way you might read a novel, taking in large chunks at a sitting. If you are like most students, your favorite strategy is to read the text and your notes, and then simply read them again, but this is not really the best way to learn.

If you could do just one thing that would improve your learning and improve your grades, it is this: Test yourself early, often, and repeatedly on what you've studied. Ask yourself questions, answer them, and then go back and restudy what you didn't know. Test yourself again and again until you learn

the material. Even when you have learned it, you need to keep testing yourself regularly over the semester so that what you've learned stays learned. Within Chapter 1, we provide you with some other proven techniques to help you learn.

To get the most from your studying, we recommend that you read only part of each chapter at a time. Instead of simply reading silently, nodding along saying "hmmmm" to yourself, try to restate what you have read in your own words at the end of each section. At specific points in each chapter, you will find **Journal Writing Prompts** that challenge you not to just recall what you've learned, but also to actively develop your understanding of the material. These exercises will help you to discover what you know or still don't understand.

We have never gotten over our own initial excitement about psychology, and we have done everything we can think of to make the field as lively and absorbing for you as it is for us. However, what you bring to your studies is as important as what we have written. This text will remain only a collection of paragraphs unless you choose to read actively, using the many active-learning and critical-thinking features we have provided.

Psychology can make a real difference in your own life, and we hope you will enjoy studying it in this text. Welcome to the field! Thank you for accepting our invitation to enter the engaging, informative, and thought-provoking scientific world of psychology.

Carole Wade

Carol Tavis

Sam Sommers

Lisa Shin

Content Highlights

Changes in the 14th Edition

In the 14th edition of *Psychology*, we have retained the core concepts that characterized previous editions—an emphasis on critical thinking, applications to culture and human diversity, insights from research ranging from the biological and neuroscientific to the more clinically and social science oriented—and added opportunities for students to test themselves on the material as they’re learning it. We have also added several new features to this edition:

- Each chapter includes a new **Revisiting the Classics** feature, in which we critically examine the methods, conclusions, and continuing implications of a well-known study from the past.
- Also new to this edition is our **Replication Check** feature, which appears as a brief paragraph multiple times across chapters, highlighting research findings that replication efforts have identified as particularly robust.

We’ve taken care to present the chapters in such a way that they can be easily reordered in Revel or however you teach your course. Each chapter continues to include a **Taking Psychology With You** section devoted to various lessons that we hope readers will be able to apply to their own lives. As always, in every chapter, we have updated the research to reflect progress in the field and cutting-edge discoveries. Here are a few highlights:

- New discussion of the five pillars of modern psychology, based on the American Psychological Association Introductory Psychology Initiative.
- Expanded section on gender, race, and diversity in psychology, including coverage of the American Psychological Association’s (2021) apology for promoting, perpetuating, and failing to challenge racism and racial hierarchy.
- Increased emphasis of the importance of representative samples, including new **Revising the Classics** feature on convenience sampling and the overrepresentation of “WEIRD” samples across psychology.
- New coverage of transcranial alternating current stimulation and how it could help treat individuals with cognitive impairment.
- New information on the prevalence and impact of sleep loss.
- An updated and expanded discussion of the biology of weight and factors that contribute to eating disorders.
- Data on the brain structures that are involved in the experience of emotions.
- Expanded coverage of origins and myths surrounding Maslow’s hierarchy of needs theory.

- New coverage of gender identity, including a discussion of how to distinguish among assigned sex, gender identity, gender typing, and sexual orientation, as well as developmental questions related to social transitions among gender-nonconforming children.
- Analysis of the connection between cult activity and the current epidemic of misinformation and conspiracy theory.
- Addition of new research examining the extent to which personality traits predict long-term cognitive, social, and health outcomes.
- Inclusion of the *DSM-5-TR* in the discussion of psychological disorders and treatments.
- Expanded focus on recent real-world events and popular culture to illustrate psychological principles and spark students’ curiosity. In particular, new examples throughout are related to the COVID-19 pandemic, including implications for learning, memory, sleep, social connection, and mental health.

In addition, all content is mapped to revised **learning objectives**, which highlight the major concepts throughout each chapter. The complete list of learning objectives for each chapter can be found in the *Instructor’s Resource Manual*. Test bank items are also keyed to these learning objectives.

Teaching and Learning Resources

As valuable as a good text is, it is one element of a comprehensive learning package. We have made every effort to provide high-quality instructor and student supplements that will save you preparation time and enhance the classroom experience.

Revel™: Educational Technology Designed for the Way Today’s Students Read, Think, and Learn

REVEL: INSPIRE ENGAGEMENT THROUGH ACTIVE LEARNING Revel® improves results by empowering students to actively participate in learning. More than a digital textbook, Revel delivers an engaging blend of author content, media, and assessment.

With Revel, students read and practice in one continuous experience. Interactive content and assessments integrated throughout the narrative provide opportunities for students to explore and apply concepts. And Revel is mobile and user-friendly, so students can learn on the go—anytime, anywhere, on any device.

Learn more about Revel

www.pearsonhighered.com/revel

Foster Critical Thinking Through Writing

Writing Solutions in Revel enable educators to integrate writing—among the best ways to foster and assess critical thinking—into the course without significantly impacting their grading burden. With more flexible grading options, instructors can create and grade their own prompts. Or they can use a Pearson-created prompt, grade the first batch of assignments, and let the assisted auto-scoring functionality in Revel do the rest.

Instructor Supplements

The following instructor supplements can be downloaded from the Instructor's Resource Center website (www.pearsonhighered.com/irc) or accessed from the Instructor's Resources section in the Revel course.

Test Bank

This test bank contains over 3,000 multiple-choice, true/false, short-answer, and essay questions. An additional feature for the test bank is the inclusion of *rationales for the multiple-choice questions*. The rationales help instructors evaluate the questions they are choosing for their tests and give instructors the option to use the rationales as an answer key for their students.

A Total Assessment Guide chapter overview makes creating tests easier by listing all of the test items in an easy-to-reference grid. All questions (categorized at the skill levels of remember the facts, understand the concepts, apply what you know, and analyze it) are assigned difficulty levels and correlated to the chapter's learning objectives and the American Psychological Association (APA) **learning objectives**.

Pearson MyTest

The test bank comes with the Pearson MyTest, a powerful assessment generation program that helps instructors easily create and

print quizzes and exams. Questions and tests can be authored online, allowing instructors ultimate flexibility and the ability to efficiently manage assessments anytime, anywhere. For more information, go to www.PearsonMyTest.com.

Instructor's Resource Manual

The *Instructor's Resource Manual* includes a chapter summary, a detailed Chapter Lecture Outline, Lecture Launcher suggestions that draw on classic and current research findings, classroom-tested Student Activities, learning objectives for each chapter, and more resources to improve your classroom presentations.

Video PowerPoint Slides

Bring design into the classroom, drawing students into the lecture and providing appealing interactive activities, visuals, and videos. The slides are built around the text's learning objectives and offer direct links to interactive exercises, simulations, and activities.

Standard Lecture PowerPoint Slides

These accessible, standard Lecture PowerPoint slides provide an active format for presenting concepts from each chapter and feature relevant figures and tables from the text.

Art PowerPoint Slides

These slides contain only the photos, figures, and line art from the text.

About the Authors

Carole Wade earned her Ph.D. in cognitive psychology at Stanford University. She began her academic career at the University of New Mexico, where she taught courses in psycholinguistics and developed the first course at the university on the psychology of gender. She was professor of psychology for 10 years at San Diego Mesa College and then taught at College of Marin and Dominican University of California. Dr. Wade has written and lectured widely on critical thinking and the enhancement of psychology education. In addition to this text, she and Carol Tavris have written *Psychology; Psychology in Perspective*; and *The Longest War: Sex Differences in Perspective*.

Carol Tavris earned her Ph.D. in the interdisciplinary program in social psychology at the University of Michigan. She writes and lectures extensively on diverse topics in psychological science and critical thinking. Dr. Tavris co-authored with Elliot Aronson of *Mistakes Were Made (But Not by Me): Why We Justify Foolish Beliefs, Bad Decisions, and Hurtful Acts*. She is also the author of *The Mismeasure of Woman* and *Anger: The Misunderstood Emotion*. Many of her book reviews and opinion essays have been collected in *Psychobabble* and *Biobunk: Using Psychology to Think Critically About Issues in the News*.

Samuel R. Sommers earned his Ph.D. in psychology at the University of Michigan and has been a professor of psychology at Tufts University since 2003, where he currently serves

as Department Chair. He is a social psychologist whose research focuses on issues related to racial equity and diversity, with a frequent focus on the intersection of psychology and law. Dr. Sommers teaches courses in Experimental Psychology, Social Psychology, and team-teaches Introduction to Psychology and a course on Psychological Lessons for Coping with COVID-19 with Dr. Shin. In addition to this text, he is a co-author of the Aronson et al. *Social Psychology* textbook and has written two general audience books, *Situations Matter: Understanding How Context Transforms Your World*, and *This Is Your Brain on Sports: The Science of Underdogs, the Value of Rivalry, and What We Can Learn from the T-Shirt Cannon*.

Lisa M. Shin earned her Ph.D. in psychology at Harvard University, and completed a postdoctoral fellowship in the Department of Psychiatry at The Massachusetts General Hospital/Harvard Medical School. She has been on the faculty at Tufts University since 1998, where she is currently Director of Undergraduate Studies in the Department of Psychology. Dr. Shin's research involves examining brain function and cognitive processing in patients with anxiety disorders, particularly posttraumatic stress disorder (PTSD). Dr. Shin teaches courses in the Biological Bases of Psychopathology and Emotion and Memory, and team-teaches Introduction to Psychology and a course on Psychological Lessons for Coping with COVID-19 with Dr. Sommers.

Authors' Acknowledgments

Like any cooperative effort, writing a book requires a support system. We are indebted to the reviewers of this and previous editions of this text for their many insightful and substantive suggestions and for their work on supplements.

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Timothy Fleming, Georgia State University
Kathy Steinberg, Indiana University–Purdue University
Indianapolis
William Suits, Seminole State College of Florida
Elaine Tingey, BYU–Idaho

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Carole Wade

Carol Tavis

Sam Sommers

Lisa Shin

Learning Outcomes and Assessment

Goals and Standards

In recent years, many psychology departments focus on core competencies and how methods of assessment can better enhance students' learning. In response to this need, in 2008, the American Psychological Association (APA) established 10 recommended goals for the undergraduate psychology major. These goals were revised in 2013 and currently cover five goals. Specific learning outcomes have been established for each goal, and suggestions are provided on how best to tie assessment practices to these goals. In writing this text, we have used the APA goals and assessment recommendations as guidelines for

structuring content and integrating the teaching and homework materials. For details on the APA learning goals and assessment guidelines, please see www.apa.org.

Based on APA recommendations, each chapter is structured around detailed learning objectives. All of the instructor and student resources are also organized around these objectives, making the text and resources a fully integrated system of study. The flexibility of these resources allows instructors to choose which learning objectives are important in their courses as well as which content they want their students to focus on.

APA Correlation for *Psychology* 14th edition

The APA Guidelines for the Undergraduate Psychology Major, Version 2.0

APA LEARNING OUTCOMES AND OBJECTIVES

TEXT LEARNING OBJECTIVES AND FEATURES

Goal 1: Knowledge Base in Psychology

Demonstrate fundamental knowledge and comprehension of major concepts, theoretical perspectives, historical trends, and empirical findings to discuss how psychological principles apply to behavioral problems.

1.1 Describe key concepts, principles, and overarching themes in psychology

Learning Objectives: 1.1a, 1.1b, 1.1c, 1.2a, 1.2b, 1.3b, 1.4a, 1.4b, 1.5b, 2.1a, 2.1c, 2.2a, 2.2b, 2.2c, 2.2d, 2.2e, 2.2f, 2.3a, 2.3b, 2.4a, 2.4b, 2.4c, 2.5a, 2.5b, 2.5c, 2.6a, 2.6b, 3.1a, 3.1b, 3.1c, 3.2a, 3.2b, 3.3a, 3.3b, 3.4a, 3.4b, 3.5a, 3.5b, 3.5c, 3.5d, 4.1a, 4.1b, 4.2a, 4.2b, 4.2c, 4.2d, 4.2e, 4.3a, 4.3b, 4.4a, 4.4b, 4.4c, 4.4d, 4.4e, 4.4f, 4.4g, 4.5a, 4.5b, 4.6a, 4.6b, 4.6c, 5.1a, 5.1b, 5.1c, 5.1d, 5.2a, 5.2b, 5.2c, 5.2d, 5.2e, 5.3a, 5.3b, 5.3c, 5.4a, 5.4b, 5.4c, 5.4d, 6.1a, 6.1b, 6.2a, 6.2b, 6.3a, 6.3b, 6.4a, 6.4b, 6.5a, 6.5b, 6.5c, 7.1a, 7.1b, 7.1c, 7.3a, 7.3b, 7.4a, 7.4b, 7.5a, 7.5b, 7.6a, 7.6b, 8.1a, 8.1b, 8.2a, 8.2b, 8.2c, 8.3a, 8.3b, 8.4a, 8.5a, 8.5b, 8.5c, 8.6a, 8.6b, 8.6c, 9.1a, 9.1b, 9.1c, 9.1d, 9.2a, 9.2b, 9.2c, 9.2d, 9.3a, 9.3b, 9.3c, 9.3d, 9.4a, 9.4b, 9.4c, 10.1a, 10.1b, 10.1c, 10.1d, 10.2a, 10.2b, 10.2c, 10.3a, 10.3b, 10.3c, 10.3d, 10.4a, 10.4c, 11.1a, 11.1b, 11.1c, 11.2a, 11.2b, 11.2c, 11.3a, 11.3b, 11.4a, 11.4b, 11.4c, 11.5a, 11.5b, 11.5c, 12.1a, 12.1b, 12.1c, 12.2a, 12.2b, 12.3a, 12.3b, 12.4a, 12.4b, 12.5a, 12.5b, 12.6a, 12.6b, 12.6c, 13.1a, 13.1b, 13.1c, 13.1d, 13.2a, 13.2b, 13.2c, 13.2d, 13.3a, 13.3b, 13.3c, 13.3d, 13.4a, 13.4b, 13.4c, 13.4d, 13.5a, 13.5c, 14.1a, 14.1b, 14.1c, 14.2a, 14.2b, 14.3a, 14.3b, 14.4a, 14.4b, 14.4c, 14.5a, 14.5b, 14.6a, 14.6b, 14.6c, 15.1a, 15.1b, 15.1cc, 15.2a, 15.2b, 15.2c, 15.3a, 15.3b, 15.4a, 15.4b, 15.5a, 15.5b, 15.5c, 15.6a, 15.6b, 15.7a, 15.7b, 15.8a, 15.8b, 16.1a, 16.1b, 16.2a, 16.2b, 16.2c, 16.2d, 16.3a, 16.3b, 16.3c, 16.3d

1.2 Develop a working knowledge of the content domains of psychology

Learning Objectives: 1.1a, 1.1b, 1.2b, 1.3a, 1.3b, 1.4a, 1.4b, 1.5c, 1.6b, 2.1d, 2.2a, 2.2b, 2.2c, 2.2d, 2.2e, 2.2f, 2.3a, 2.3b, 2.4a, 2.4b, 2.4c, 2.5a, 2.5b, 2.5c, 2.6a, 2.6b, 3.1a, 3.1b, 3.2a, 3.2b, 3.3a, 3.3b, 3.4a, 3.4b, 3.5a, 3.5b, 3.5c, 3.5d, 4.1a, 4.1b, 4.2e, 4.3a, 4.3b, 4.5a, 4.6b, 5.1a, 5.1b, 5.1c, 5.1d, 5.2a, 5.2b, 5.2c, 5.2d, 5.2e, 5.3a, 5.3b, 5.3c, 5.4a, 5.4b, 5.4c, 5.4d, 6.1a, 6.2a, 6.2b, 6.3a, 6.3b, 6.4a, 6.4b, 6.5a, 6.5b, 6.5c, 7.1a, 7.1b, 7.1c, 7.3a, 7.3b, 7.4a, 7.4b, 7.5a, 7.5b, 7.6a, 7.6b, 8.1a, 8.1b, 8.2a, 8.2b, 8.2c, 8.3a, 8.3b, 8.4a, 8.5a, 8.5b, 8.5c, 8.6a, 8.6b, 9.1a, 9.1b, 9.1c, 9.1d, 9.2a, 9.2b, 9.2c, 9.2d, 9.3a, 9.3b, 9.3c, 9.3d, 9.4a, 9.4b, 9.4c, 10.1a, 10.1d, 10.2c, 10.3a, 10.3b, 10.3c, 10.3d, 11.1a, 11.1b, 11.1c, 11.2a, 11.2b, 11.2c, 11.3a, 11.3b, 11.4a, 11.4b, 11.4c, 11.5a, 11.5b, 11.5c, 12.1a, 12.1b, 12.1c, 12.2a, 12.2b, 12.3a, 12.3b, 12.4a, 12.4b, 12.5a, 12.5b, 12.6a, 12.6b, 12.6c, 13.1a, 13.1b, 13.1c, 13.1d, 13.2a, 13.2b, 13.2c, 13.3a, 13.3b, 13.3c, 13.3d, 13.4a, 13.4b, 13.4c, 13.5a, 13.5c, 14.1a, 14.1b, 14.1c, 14.2a, 14.2b, 14.3a, 14.3b, 14.4a, 14.4b, 14.4c, 14.5a, 14.5b, 14.6a, 14.6b, 14.6c, 15.2a, 15.2b, 15.2c, 15.3a, 15.3b, 15.4a, 15.4b, 15.5a, 15.5b, 15.5c, 15.6a, 15.6b, 15.7a, 15.7b, 15.8a, 15.8b, 16.1a, 16.1b, 16.2a, 16.2b, 16.2c, 16.2d, 16.3a, 16.3b, 16.3c, 16.3d

1.3 Describe applications that employ discipline-based problem solving

Learning Objectives: 1.1b, 1.2a, 1.2b, 2.1a, 2.1b, 2.1c, 2.1d, 3.5a, 3.5b, 3.5c, 4.6a, 5.1b, 5.1c, 5.2a, 5.2b, 5.2c, 5.4d, 6.2a, 6.2b, 6.3b, 6.4a, 6.4b, 6.5a, 6.5b, 6.5c, 7.1a, 7.2a, 7.2b, 7.2c, 7.2d, 7.3b, 7.5a, 7.5b, 7.6a, 7.6b, 8.3a, 8.3b, 8.3c, 8.5c, 8.6b, 8.6c, 9.1c, 9.1d, 9.2a, 9.2b, 9.2c, 9.2d, 9.3b, 9.3c, 10.1b, 10.1c, 10.1d, 10.2a, 10.2b, 10.2c, 10.3a, 10.3b, 10.3d, 10.4a, 10.4b, 10.4c, 11.1a, 11.1b, 11.2a, 11.2b, 11.2c, 11.3a, 11.3b, 11.3c, 11.4a, 11.4b, 11.4c, 11.5a, 11.5b, 11.5c, 12.1a, 12.2b, 12.3a, 12.4a, 12.5a, 12.5b, 12.6c, 13.1a, 13.1d, 13.2b, 13.2c, 13.2d, 13.3c, 13.3d, 13.5c, 14.1c, 14.6c, 15.1b, 15.6a, 15.6b, 15.7b, 16.1a, 16.2a, 16.2b, 16.2c, 16.2d, 16.3b, 16.3c, 16.3d

Goal 2: Scientific Inquiry and Critical Thinking

Understand scientific reasoning and problem solving, including effective research methods.

2.1 Use scientific reasoning to interpret behavior

Learning Objectives: 1.2a, 1.2b, 1.3a, 1.4a, 1.4b, 1.5a, 2.1a, 2.1b, 2.1c, 2.1d, 2.5b, 2.5c, 3.1a, 3.1b, 3.2a, 3.2c, 3.3a, 3.3b, 4.6b, 4.6c, 5.2c, 6.3a, 6.3b, 6.4b, 7.1c, 7.5a, 8.2b, 8.3a, 8.6a, 9.2a, 9.2b, 9.2c, 9.2d, 9.3b, 9.4a, 9.4b, 9.4c, 10.1b, 10.1c, 10.2a, 10.3b, 11.1a, 11.1b, 11.1c, 11.2a, 11.2b, 12.2a, 12.4a, 13.1d, 13.2a, 13.2d, 13.3d, 14.1a, 14.1b, 14.1c, 14.3b, 14.4b, 14.4c, 15.2a, 15.3a, 15.3b, 15.4a, 15.5a, 15.5b, 15.6a, 15.6b, 15.7a, 15.7b, 15.8b, 16.3a, 16.3c

2.2 Demonstrate psychology information literacy

Learning Objectives: 1.1b, 2.5a, 2.5b

2.3 Engage in innovative and integrative thinking and problem-solving

Learning Objectives: 1.2a, 1.2b, 7.2a, 7.2b, 7.2c, 7.2d

2.4 Interpret, design, and conduct basic psychological research

Learning Objectives: 1.1b, 1.5a, 2.1a, 2.1d, 2.2a, 2.2b, 2.2c, 2.2d, 2.2e, 2.2f, 2.3a, 2.3b, 2.4a, 2.4b, 2.4c, 2.5a, 2.5b, 2.5c, 3.4b, 4.3a, 4.3b, 5.1b, 9.3b, 12.2a, 14.1c, 14.6c, 16.3a, 16.3c

2.5 Incorporate sociocultural factors in scientific inquiry

Learning Objectives: 1.3a, 1.3b, 1.4a, 1.4b, 2.1b, 2.1c, 2.1d, 2.5b, 2.5c, 3.3a, 3.3b, 4.6b, 7.4b, 8.5c, 9.3b, 10.2b, 10.3a, 10.3b, 11.2a, 11.2b, 11.2c, 12.1b, 12.2a, 12.3a, 12.6a, 13.1b, 13.1c, 14.1c, 14.5a, 14.5b, 15.7a, 16.2a, 16.3d

Goal 3: Ethical and Social Responsibility

Develop ethically and socially responsible behaviors for professional and personal settings.

3.1 Apply ethical standards to psychological science and practice

Learning Objectives: 2.6a, 2.6b, 8.5c, 13.1b, 13.1c, 16.3c

3.2 Promote values that build trust and enhance interpersonal relationships

Learning Objectives: 11.4a, 11.4b, 13.4a, 16.3c, 16.3d

3.3 Adopt values that build community at local, national, and global levels

Learning Objectives: 1.5a, 6.5a, 6.5b, 6.5c, 8.6c, 9.3b, 10.1d, 10.3b, 10.4a, 11.2a, 11.2b, 11.3a, 11.3b, 12.6c, 13.4a, 13.4b, 13.4c, 13.5a, 13.5b, 13.5c, 14.5a, 15.1a, 15.1b, 16.3a, 16.3b, 16.3d

Goal 4: Communication

Demonstrate competence in written, oral, and interpersonal communication skills and be able to develop and present a scientific argument.

4.1 Demonstrate effective writing in multiple formats

Learning Objectives: 2.5a, 2.5b

4.2 Exhibit effective presentation skills in multiple formats

4.3 Interact Effectively with Others

Goal 5: Professional Development

Apply psychology-specific content and skills, effective self-reflection, project management skills, teamwork skills and career preparation to support occupational planning and pursuit.

5.1 Apply psychological content and skills to professional work

Learning Objectives: 1.1b, 1.2a, 1.2b, 1.5a, 1.5b, 2.1b, 2.1c, 2.1d, 3.3a, 3.3b, 4.2c, 4.6a, 5.4d, 6.5a, 6.5b, 6.5c, 7.2a, 7.2b, 7.2c, 7.2d, 8.4a, 8.5a, 8.6c, 9.1c, 9.1d, 9.3a, 9.3b, 9.3c, 10.1b, 10.1c, 10.1d, 10.3b, 11.3b, 11.4a, 11.4b, 11.4c, 11.5a, 11.5b, 11.5c, 13.4a, 13.4b, 15.1a, 15.1b, 16.1a, 16.3a, 16.3b

5.2 Exhibit self-efficacy and self-regulation

Learning Objectives: 10.4a

5.3 Refine project management skills

Learning Objectives: 13.3a, 13.3b

5.4 Increase teamwork capacity

Learning Objectives: 13.3a, 13.3b

5.5 Develop meaningful professional direction for life after graduation

APA Goals are reinforced throughout the program with learning tools: journal prompts, shared writing, essays to assign, experiment simulations, video quizzes, and the instructor's teaching and assessment package.

Chapter 1

What Is Psychology?



Courtesy of Mark Bussell



Learning Objectives

- LO 1.1.A** Define psychology, and describe how it addresses daily life from a scientific perspective.
- LO 1.1.B** Explain what separates psychological science from pseudoscience, pop psychology, and other sources of dubious claims regarding psychological issues.
- LO 1.2.A** Explain why critical thinking applies to all scientific pursuits and why it should also guide everyday judgments and decision-making.
- LO 1.2.B** Identify important steps to critical thinking, and give an example of how each applies to the science of psychology.
- LO 1.3.A** Discuss some of the early approaches to explaining psychological topics, from ancient times through the early 1800s.
- LO 1.3.B** Discuss some of the influential perspectives and individuals in the early years of modern psychology.
- LO 1.4.A** List and describe five pillars of psychological science.
- LO 1.4.B** Review the lack of diversity in early psychology and its consequences, and explain how feminist psychology illustrates the benefits of including a range of perspectives in scientific inquiry.
- LO 1.5.A** Distinguish basic psychology and applied psychology, and summarize the kinds of research that various psychologists might conduct.
- LO 1.5.B** Compare the training and work settings of different psychological practitioners such as counselors, clinical psychologists, psychotherapists, psychoanalysts, and psychiatrists.

What About You?

Interactive

Psychology is the scientific study of how we think, feel, and act on a daily basis. As we begin this chapter, we have a question for you about your own life. When you submit your answer, you will see the data from others who have read this chapter. We hope that this will be just the first of several times you think about your own life experiences when reading this chapter.

Do you consider yourself good at predicting how people around you will behave and react under different circumstances?

Every day, the world witnesses tales of cowardice and heroism, playfulness and terror, love and hate. Human nature runs a broad continuum, from the terrific to the horrific. And the scientific study of why we think, feel, and act the way we do?

That's psychology.

When your authors tell people that we are psychologists, the first response is usually a variation on, "Ooh, are you analyzing me right now?" (We always say yes.) Sometimes this is followed by, "Are you reading my mind?" (Again, just for fun, we always say yes.) While it is true that some psychologists see patients (and only a subset of these professionals make use of psychoanalysis), many of us do not. And when we're being honest, we ultimately have to admit that we can't read minds either.

Even though people often associate psychology with psychological disorders, personal problems, and psychotherapy, psychologists take as their subject the entire spectrum of beautiful and brutish things that human beings do—the kinds of things you see and read and hear about every day. Psychologists want to know why some people seem to be outgoing extraverts, whereas others prefer to keep to themselves more quietly. They ask why some people cheat and lie in the pursuit of success, and how those who do so rationalize their dishonesty to themselves and others. They explore the reasons that nations and ethnic groups so often see the world in terms of "us versus them" and resort to armed conflict to settle their differences. They investigate the mysteries of human memory, from people who can memorize in mere minutes the sequence of an entire deck of playing cards to why it is that some of us can't remember the four things we need to buy at the grocery store.

In short: Psychologists are interested in how ordinary human beings learn, remember, solve problems, sense and interpret the world, feel emotion, and get along (or fail to get along) with friends and family members. They are therefore as likely to study commonplace experiences—raising children, gossiping, feeling stressed, daydreaming, falling in love, and making a living—as exceptional ones.

If you have ever wondered what makes people tick, or if you want to gain insight into your own behavior, then you are in the right course. We will begin every chapter with a survey question to prompt you to think about your own life and how it relates to the topics we are about to explore. In this chapter, we asked if you think you are good at predicting how people around you will behave. Even at the start of the semester, a majority of our students typically say yes to this question. That's great! But we promise that after taking this course, you'll be even better at it. And we also promise that by the end of this text, at least one—and probably more!—assumptions about human nature that you've previously relied upon will be proven to be more myth than truth.

1.1 Psychology, Pseudoscience, and the Perils of Common Sense

To get a clear picture of this field, you need to know about its methods, its findings, and its ways of interpreting information. We will get to all this; we promise. But first, let's look more closely at what psychology is, and equally importantly, what it is *not*.

We have (another) question for you: When you hear *psychology*, what is the first word you think of? We asked this question of hundreds of our own students, over e-mail, before the very first day of our introductory psychology course. Their responses can be found in the word cloud to the right; the bigger a word in this image, the greater the number of students who gave that response. We will revisit this question (and this word cloud) at the end of the text, to see how students' responses do and don't change as they experience their own introduction to psychology. Can you see your own beliefs about psychology reflected in this word cloud?

1.1.A What Psychology Is

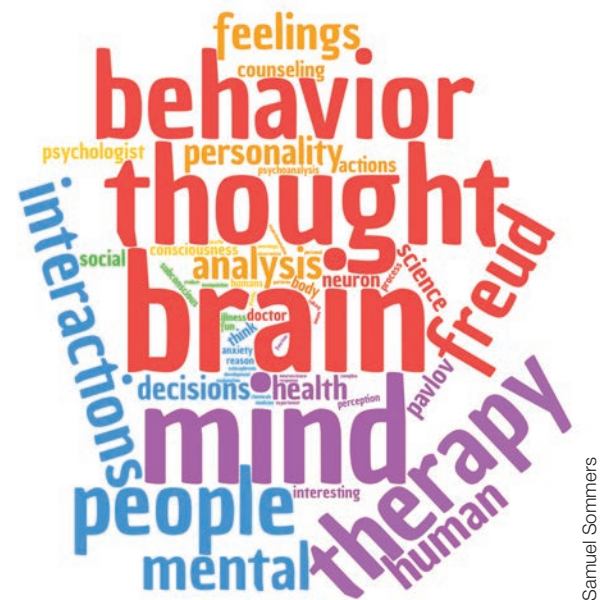
Learning Objective 1.1.A Define psychology, and describe how it addresses daily life from a scientific perspective.

Psychology can be defined generally as the scientific discipline concerned with behavior and mental processes and how they are affected by an organism's physical state, mental state, and external environment. In many respects, psychology is the exploration of daily life experiences, preferences, and tendencies—psychologists investigate many of the same issues regarding human nature that you and your friends might discuss over coffee or over late-night group texts. But unlike these informal conversations, psychological science is inquiry based on research and **empirical** evidence, which is gathered by precise observation, experimentation, and measurement.

Accordingly, psychology is not just another name for common sense. Often, psychological research produces findings that directly contradict prevailing beliefs, and throughout the chapters that follow you will discover many of them. Do memories get stored and put away in pristine condition just waiting to be recalled at a later date, as if they had been recorded in perfect detail in the brain? Do policies of abstinence from alcohol reduce rates of alcoholism? If you play Beethoven to your infant, will your child become smarter? Can hypnosis help you accurately remember your third birthday or allow you to perform feats that would otherwise be impossible? Many people would answer these questions with a “yes,” but they would be wrong. Visit [Revel](#) to watch a video and learn about other common but mistaken beliefs.

At the start of an introductory psychology course, many students hold beliefs that have been promoted in the popular culture, or are based on “common sense,” but that are not scientifically supported. When two instructors gave their introductory psychology students a list of such misconceptions in a true/false questionnaire on the first day of class—a questionnaire consisting entirely of false statements—the students accurately detected the false statements only 38.5% of the time, which is actually worse than chance (Taylor & Kowalski, 2004). By the last week of class, however, when the students took a test containing all of the earlier items, their overall accuracy was much better: 66.3% (see Figure 1.1). Although there was still room for improvement, the students had also lost confidence in their remaining misconceptions, suggesting that they had learned one of the most important lessons in science: Uncertainty about untested assumptions and beliefs is a good thing. The effects of taking an introductory psychology course continue past the end of the semester as well. In one more recent study, students still demonstrated fewer misconceptions about human nature a year after their course had ended (McCarthy & Franz, 2016).

Psychological findings need not be surprising to be important. Sometimes they validate common beliefs and then explain or extend them. Like all scientists, psychological researchers strive not only to discover new phenomena and correct mistaken ideas, but also to deepen our understanding of an already familiar world—for example, by identifying the varieties of love, the origins of violence, the reasons different people can hear the same recorded sound in different ways, and why it is that a catchy musical rhythm can lift our hearts. Fully understanding basic human processes that most people take for granted often



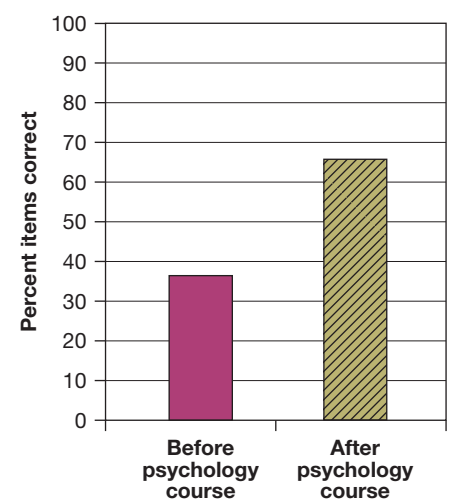
Samuel Sommers

What do you think of when you hear the word *psychology*? Give us a semester and 16 or so chapters, and let's see if your answers to this question change at all...

psychology

The scientific discipline concerned with behavior and mental processes and how they are affected by an organism's physical state, mental state, and external environment.

Figure 1.1 Psychology: It's Not Just “Common Sense”



On the first day of class, students in an introductory psychology course actually did worse than chance on a true/false psychological information questionnaire. But by the end of the semester, after they had learned to examine the scientific evidence for their beliefs, their performance had improved (Taylor & Kowalski, 2004).

empirical

Relying on or derived from observation, experimentation, or measurement.

involves examining them in a new light, turning common wisdom on its head for a different perspective, or shaking up cherished beliefs to see why and when they hold true. In fact, psychology has this potential not only to shape how ordinary people view human nature, but also to influence the thinking of researchers in other fields. We learn from analyses of how often scientists in one discipline cite the work of scientists in other disciplines, that psychology is a “hub science,” in that it serves as a central link to surrounding research in many other fields (Cacioppo, 2013).

If you don’t want to take our word for the importance and potential influence of psychology—after all, we’re psychologists ourselves, so we might be just a tad biased here—maybe you’ll be more persuaded by former U.S. president Barack Obama, who wrote in an executive order in 2015 that “research findings from fields such as behavioral economics and psychology . . . can be used to design government policies to better serve the American people.” Please visit [Revel](#) to watch a video and learn more about the many ways psychology impacts daily lives.

1.1.B What Psychology Is Not

Learning Objective 1.1.B Explain what separates psychological science from pseudoscience, pop psychology, and other sources of dubious claims regarding psychological issues.

Perhaps just as informatively, let’s consider what psychology is *not*. First, the psychological science that you are about to study bears little relation to the popular psychology (“pop psych”) often found in self-help books or on talk shows. In recent decades, the public’s appetite for psychological information has created a huge market for “psychobabble”: pseudoscience covered by a veneer of psychological language. Pseudoscience (*pseudo* means “false”) promises quick fixes to life’s problems, such as resolving your unhappiness as an adult by “reliving” the supposed trauma of your birth or becoming more creative on the job by “reprogramming” your brain. Once again, the psychology about which you will learn in this text is based on the scientific method and empirical observation.

Furthermore, psychological science differs radically from nonscientific competitors such as fortune-telling, numerology, and astrology. Yes, promoters of these systems—like psychologists—try to explain people’s problems and predict or guide their behavior: If you are having romantic problems, an astrologer may advise you to choose an Aries instead of an Aquarius as your next love. Yet whenever the predictions of psychics, astrologers, and the

like are put to the test, they turn out to be so vague as to be meaningless (“Your spirituality will increase next year”) or just plain wrong, as in the case of all the doomsday predictions that have occurred for centuries, especially during times of great social change and anxiety (Shaffer & Jadwischczok, 2010). Contrary to what one might think from watching TV shows or going to psychic websites, psychics don’t regularly find missing children, identify serial killers, or help police solve any other crime by using “psychic powers” (Radford, 2011). Usually, their “help” merely adds to the heartbreak felt by a victim’s family.

So why does belief in psychic abilities and other forms of pseudoscience persist, even in scientifically advanced societies? For one thing, it gives people a sense of control and predictability in a confusing world (Hood, 2009; Mermelstein & German, 2021). Pseudoscience can also confirm our existing beliefs and prejudices, whereas scientific psychology often challenges them. You do not have to be a psychologist to know that people do not always take kindly to having their beliefs challenged. You rarely hear someone cheerfully say, “Oh, thank you for explaining to me why my irrational beliefs are mistaken!” The person is more likely to say, “Oh, get out of here, and take your stupid ideas with you.”



Digital N/Shutterstock

Tarot cards, horoscopes, psychic readings, and other nonscientific ways of predicting future outcomes remain popular today. Why? Because they often tell us what we want to hear and offer predictions for an otherwise unpredictable world. Scientific data are often messier, telling more complicated stories that can challenge our assumptions.

Because so many pop-psych ideas have filtered into the media, education, the law, and politics, it is important to develop an ability to distinguish between psychobabble and serious psychology, and between unsubstantiated popular opinion and scientific findings based on research evidence. Such skills will serve you well in your introductory psychology class, but also in other courses and in your efforts to become a more informed citizen and consumer in an era teeming with social media bots and trolls, “deep-fake” images and videos, self-proclaimed experts on YouTube, and a variety of other dubious sources of (mis)information. Indeed, we will focus on the importance of critical thinking in psychology throughout this text, starting with the journal prompt that you will find at the end of each section of each chapter.

JOURNAL 1.1 THINKING CRITICALLY—DEFINE YOUR TERMS

Interactive

Your friend Casey is a chemistry major who likes to give you a hard time for enrolling in a psychology course. “Psychology isn’t a science,” he claims. “It’s all just common sense anyway.” Why is Casey wrong about psychology? What does it mean for a field to be scientific? Can you think of a specific example of a so-called common sense assumption that you would like to see tested by psychological research?

In [Revel](#), you can find Quiz 1.1 to test your knowledge.

1.2 Thinking Critically About Psychology

The primary goal of this text is to introduce you to the basic methods, theories, and findings of psychology. But our hope (and, we’re sure, the hope of your course instructor as well) is that your introduction to psychology will also provide you with thinking and analytical skills that transcend a particular academic discipline. Throughout this text, you will gain practice in distinguishing scientific psychology from pseudoscience by thinking critically. As an approach to science, critical thinking forms the basis for all research methodologies. It can also serve as an excellent starting point for the way you approach the world in general, including your efforts to be the best student you can be. Separating fact from fiction, knowing what to believe and what to discard, and understanding how to evaluate evidence are important skills to have handy in your mental toolkit. So let us now ask: What does it mean to think critically, and how can you become skilled at it?

1.2.A What Is Critical Thinking?

Learning Objective 1.2.A Explain why critical thinking applies to all scientific pursuits and why it should also guide everyday judgments and decision-making.

One of the greatest benefits of studying psychology is that you learn not only how the brain works in general but also how to use yours in particular—by thinking critically. **Critical thinking** is the ability and willingness to assess claims and make objective judgments on the basis of well-supported reasons and evidence, rather than emotion or anecdote. Critical thinkers look for flaws in arguments and resist claims that have no support. They realize that criticizing an argument is not the same as criticizing the person making it, and they are willing to engage in vigorous debate. Critical thinking, however, is not the same as negative thinking. It includes the ability to be creative and constructive—the ability to come up with alternative explanations for events, think of implications of research findings, and apply new knowledge to social and personal problems (Halpern, 2014; Levy, 2010; Mueller et al., 2020).

Most people know that keeping your body in shape requires exercise, but they may not realize that clear thinking also requires effort and practice. All around us, we can see examples of ineffective thinking. Sometimes people justify their mental laziness by proudly telling you they are open-minded. It’s good to be open-minded, but open-mindedness does not mean that all opinions are created equal and that one person’s beliefs are as good as



David Castillo Dominici/123RF

Unfortunately, we often stop asking “why” questions as we get older. If you remember only one critical thinking tip from this chapter, make it be that we should all ask “why?” more often.

critical thinking

Assessing claims and making objective judgments on the basis of well-supported reasons and evidence rather than emotion or anecdote.



FG Trade/E+/Getty Images

In times of crisis, critical thinking becomes especially . . . well, critical. Consider the vast amount of misinformation arising during the COVID-19 pandemic regarding virus transmission, the effectiveness of masking, vaccination, and the use of drugs not specifically indicated for treating the virus. Differentiating credible from noncredible information—“good science” from “bad science”—is particularly important when public and personal health are on the line (van Stekelenburg et al., 2021).

everyone else’s (Hare, 2009). On matters of personal preference, that is true; if you prefer the look of a Chevy truck to the look of a Honda Accord, no one can argue with you. But if you say, “The Chevy truck is safer than a Honda and gets better mileage too,” you have uttered more than mere opinion. Now you have to support your belief with evidence of the vehicle’s safety record and mileage (Ruggiero, 2011). And if you say, “Chevy trucks are the best in the world and Hondas do not exist; they are artifacts of government conspiracy,” you forfeit the right to have your opinion taken seriously. Your opinion, if it ignores reality, is *not* equal to any other.

Critical thinking can also help you use the Internet better. You may pride yourself on being able to find things quickly online, but a team of researchers found that most college students are less skilled than they think at distinguishing credible material from unreliable or biased information (Pan et al., 2007; Thompson, 2011). Instead, many students tend to rely on whatever comes up first at the top of the search results list or social media news feed. But students aren’t alone! In the past few years, there has been a rapid spike in concern surrounding “fake news”—fabricated or uncorroborated information that takes the form of more traditional and reliable sources of content.

Millions of people have read or reposted this sort of misleading information about politics, crime, vaccination, nutrition, the spread of COVID-19, and other topics (Allcott & Gentzkow, 2017; Rochwerg et al., 2020), and recent research across age groups indicates that the more often we hear a piece of false information, the less able we become to distinguish between truth and falsehood (Fazio & Sherry, 2020). For all of these reasons, scientists have begun calling for more research to study how, when, and why such misinformation spreads (Hornsey, 2020; Lazer et al., 2018; Mayo, 2019).

Of course, critical thinking is not only indispensable in ordinary life, it is fundamental to all science. When the American Psychological Association (APA) published its guidelines for how best to educate undergraduate psychology majors, the second major goal identified—right after building a knowledge base in psychology—focused on critical thinking and scientific inquiry (APA, 2016; Mueller et al., 2020). Specific objectives in this report include asking relevant questions to gather more information about claims, describing common fallacies that impair accurate conclusions, and using psychological concepts to explain personal experiences. You will get ample practice developing these and related skills as you read this text.

1.2.B Critical Thinking Steps

Learning Objective 1.2.B Identify important steps to critical thinking, and give an example of how each applies to the science of psychology.

Let’s take a look at five essential critical thinking steps that we will emphasize in this text.

ASK QUESTIONS, BE WILLING TO WONDER What is one kind of question that most exasperates caregivers of young children? “Why” questions: “Why is the sky blue?” “Why is ice cold?” “Why is a cactus prickly?” Unfortunately, as children grow up, they tend to stop asking “why” questions. (Why do you think this is?) But critical and creative thinking begins with wondering why. This crime prevention program isn’t working; why not? I want to stop smoking or lose weight or improve my grades; why can’t I seem to do it? Is my way of doing things the best way, or just the most familiar way? Critical thinkers are willing to question received wisdom—“We do it this way because this is the way we have always done it around here”—and ask, in essence, “Oh, yeah? But . . . why?”

In psychological science, knowledge begins with asking a question. What is the biological basis of consciousness? How are memories stored and retrieved? Why do we sleep and dream? How do children learn complex rules of grammar? Why do people seem to behave

differently when they're on their own versus in a crowd? What causes schizophrenia? Critical thinkers are not discouraged by the fact that questions like these have not yet been fully answered and, indeed, don't lend themselves to easy answers; they see the ongoing process of wrestling with questions like these as an exciting challenge.

DEFINE YOUR TERMS Once you have raised a general question, the next step is to frame it in clear and concrete terms. "What makes people happy?" is a fine question for a conversation with friends, but it will not lead to answers until you have defined what you mean by "happy." Do you mean being in a state of euphoria most of the time? Do you mean feeling pleasantly contented with life? Do you mean being free of serious problems or pain?

Vague or poorly defined terms in a question produce misleading or incomplete answers. For example, are people becoming less prejudiced against other groups? The answer depends in part on how you define "prejudice." Everyone might agree that a conscious dislike of another group qualifies as a prejudice. But what about someone who feels uncomfortable with another group because they are unfamiliar with its rules and beliefs; is that person bigoted or uninformed? What about someone who blurts out an offensive remark while drunk; is that person prejudiced or just inebriated? What if someone truly believes that they don't hold any prejudiced beliefs or feelings, yet a test suggests that they harbor unconscious prejudice; what does that mean? Many psychologists have studied this phenomenon of prejudice, and they obtain different results depending on how they define it.

ANALYZE ASSUMPTIONS AND BIASES *Assumptions* are beliefs that are taken for granted. Critical thinkers try to identify and evaluate the unspoken assumptions on which claims and arguments may rest—in the books they read, the political speeches they hear, and the ads that bombard them daily. Everyone, of course, makes assumptions about how the world works; we could not function otherwise. But if we do not recognize our own assumptions and those of other people, our ability to judge an argument's merits may be impaired.

When an assumption or belief keeps us from considering the evidence fairly, it becomes a *bias*. A bias often remains hidden until someone challenges our belief and we get defensive and angry (Tavris & Aronson, 2007). Indeed, another important guideline for critical thinking is to avoid relying too much on emotional reasoning. The fact that you *really, really* feel strongly that something is true—or that you want it to be true—doesn't make it so. Critical thinkers separate emotion from the data. You probably hold strong feelings about many topics of psychological interest, such as drug use, racism, the origins of intelligence, gender differences, what makes people fat or thin, and what is the most effective way to study for an exam. As you read this text, you may find yourself quarreling with findings that you dislike. Disagreement is great! It means that you are reading actively and are engaged with the material. All we ask is that you think about *why* you are disagreeing: Is it because the evidence is unpersuasive or because the results make you feel anxious, threatened, or defensive? Bias—and the emotional responses often associated with it—creates intellectual blinders.

EXAMINE THE EVIDENCE A critical thinker bases conclusions on evidence, avoiding oversimplification, resisting easy generalizations, and rejecting either/or thinking. Think about it: Just because one politician is dishonest, does that mean everyone running for office is corrupt? Just because one individual of a particular racial, ethnic, or religious background commits a crime, should all members of that group be viewed through the same lens of suspicion? Critical thinkers want more evidence than one or two anecdotes before drawing such sweeping conclusions.

For that matter, sometimes people make up their mind without any evidence at all! Have you ever heard someone in the heat of an argument exclaim, "I just know it's true, no matter what you say"? Accepting a claim or conclusion without evidence is a sure sign of lazy thinking. A critical thinker asks, "What evidence supports or refutes this argument and its opposition? How reliable is the evidence?" For example, have you ever received some dire warning or funny "I swear it's true!" story from a friend that you immediately posted on Instagram or TikTok only to learn later that it was a hoax or an urban legend?

A critical thinker would ask, “Is this story something I’d better check out on *snopes.com* before I tell thousands of my friends, co-workers, and neighbors (and thousands of *their* friends, co-workers, and neighbors)?”

Sometimes, of course, checking the reliability of the evidence for a claim is difficult. In those cases, critical thinkers consider whether the evidence comes from a reliable source. Sources who are reliable exercise critical thinking themselves. They have education or experience in the field, and they responsibly draw on this expertise in making their claims. They do not pressure people to agree with them. They are trusted by other experts in the field and share their evidence openly. In psychology, they draw on research conducted according to certain rules and procedures. Visit [Revel](#) to watch a video that provides more tips on distinguishing reliable from less reliable information.

WEIGH CONCLUSIONS Critical thinkers ask questions, define terms, check for biases, and examine the evidence. Then, and only then, are they ready to entertain the possibility of drawing conclusions. This means that one of the hardest lessons of learning to think critically is how to live with uncertainty. Sometimes there is little or no evidence available to examine. Sometimes the evidence permits only tentative conclusions. Sometimes the evidence seems strong enough to permit conclusions until, exasperatingly, new evidence throws our beliefs into disarray. Critical thinkers must be willing to accept this state of uncertainty; they cannot be afraid to say, “I don’t know.” Critical thinkers know that the more important the question, the less likely it is to have a single simple answer; they must be willing to change their minds when the evidence dictates they should.

For that matter, critical thinkers consider alternative explanations, generating as many reasonable interpretations of the evidence as they can before settling on the most likely one. Suppose a news magazine reports that people with chronic depression are more likely than people without depression to develop cancer. Before concluding that depression causes cancer, you would need to consider alternate possibilities. Perhaps people with depression are more likely to smoke and to drink, and those unhealthy habits increase their cancer risk. Or perhaps early, as-yet-undetected cancers produce biochemical changes that create the physical and emotional symptoms of depression. Alternative explanations such as these must be ruled out by further investigation before we can conclude that depression is a direct cause of cancer. (It’s not, by the way.) Visit [Revel](#) to watch a video to learn more on why it is so important to sharpen your critical thinking skills in this manner.

In weighing conclusions, it is important for critical thinkers to *tolerate uncertainty* and *consider other interpretations*. From the perspective of psychological science, this means that researchers must avoid drawing firm conclusions until other researchers have tried to repeat, or replicate, their studies and verify their findings. Secrecy is a big no-no in science; you must be willing to tell others where you got your ideas and how you tested them so that others can replicate and/or challenge them if they think your findings are wrong. As we’ll discuss in more detail in Chapter 2, replication is an essential part of the scientific process because sometimes what seems to be a major discovery turns out to be only a fluke (McShane et al., 2019; Open Science Collaboration, 2015; Shrout & Rodgers, 2018).

In short, critical thinking is a process, not an accomplishment. No one ever becomes a perfect critical thinker, entirely unaffected by emotional reasoning and wishful thinking. We are all less open-minded than we think; it is always easier to poke holes in another person’s argument than to critically examine our own position. Yet we think the journey is well worth the mental effort because the ability to think critically can help people in countless ways, from saving them money to improving their relationships. As you read this text, keep in mind the steps we have described here, which are illustrated in the following photo gallery and summarized in Table 1.1. You can get practice applying these critical thinking guidelines by completing the journal writing prompts you’ll find throughout this text, as well as in the Critical Thinking Illustrated feature at the end of each chapter that will ask you to step into an animated world to critically evaluate a specific claim.

Thinking Critically About Psychological Issues

These critical thinking steps will help you evaluate psychological findings, media claims, and controversies that you encounter in your own life.



Fayaz Aziz/Reuters

ASK QUESTIONS, BE WILLING TO WONDER
Why do some people bravely come to the aid of their fellow human beings, even when it's not their official job? And, on the other hand, why do people often behave in ways that are selfish, cruel, or violent? Asking "why" questions like these is often the first step in designing research to advance scientific knowledge.



Tom Williams/CQ Roll Call/Newscom

DEFINE YOUR TERMS
People refer to intelligence all the time, but what is it exactly? Does the musical genius of a world-class cellist like Yo-Yo Ma count as intelligence? Is intelligence captured by an IQ score, or does it also include wisdom, creativity, and practical "smarts"? Scientists and critical thinkers must be precise in how they define their terms.



Janine Wiedel Photolibrary/Alamy Stock Photo

ANALYZE ASSUMPTIONS AND BIASES
Many Americans share a cultural bias that all psychoactive drugs are inevitably harmful. The Rastafarian church, however, regards marijuana as a "wisdom weed." Will Rastafarians who have used the drug with family, during religious ceremonies, and from a young age, react to it in the same way as an adult who buys it on the street for the first time or who smokes it alone? Critical thinkers must always check their assumptions and watch out for biases and the emotional reasoning they often produce.



Sergey Mironov/Alamy Stock Photo

EXAMINE THE EVIDENCE
When demonstrating supposedly magical phenomena, fortune tellers such as this one exploit people's tendency to not engage in a full examination of evidence. Critical thinkers avoid oversimplifying and overgeneralizing, and they realize that accepting a claim without evidence is a symptom of lazy thinking.



Stanislav Fridkin/Shutterstock

WEIGH CONCLUSIONS
Many parents and other caregivers, because they want so badly for children to turn out well, have trouble accepting uncertainty about how to raise them or considering other interpretations for research conclusions that they read about online or in the news. For example, should adult caregivers co-sleep with children, or will that make them too dependent and clingy? Should they allow their baby to "cry it out" sometimes to learn how to get themselves to sleep, or will that leave emotional scars in the developing little one? Critical thinkers draw the best conclusions they can given the evidence at hand and recognize that important questions rarely have simple answers.