

FIFTH CANADIAN EDITION

# PSYCHOLOGY



WADE TAVRIS GARRY SAUCIER ELIAS

# PSYCHOLOGY

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FIFTH CANADIAN EDITION

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**CAROLE WADE**

Dominican University of California

**CAROL TAVRIS**

**MARYANNE GARRY**

Victoria University of Wellington

**DEBORAH SAUCIER**

University of Ontario Institute of Technology

**LORIN ELIAS**

University of Saskatchewan

**PEARSON**

Toronto

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**PEARSON**

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To Howard, whose support has made it all possible.

*Carole Wade*

For Ronan, in loving memory.

*Carol Tavis*

To Devon, Beth, and all the apples.

*Maryanne Garry*

To Chai and Mia.

*Deb Saucier*

To Lana, Mileva, and Noam.

*Lorin Elias*

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# From the Authors

From the very first edition of our book, our primary goal has been the integration of critical and scientific thinking into the fabric of our writing, a goal that we believe is more important now than ever. A textbook is not a laundry list of items, and its writers are not simply reporters. For us, the most important job of an introductory textbook in psychology is to help students learn to think like a psychologist and to understand why scientific and critical thinking is so important to the decisions they make in their own lives. Today, for example, the public in general, and students in particular, need to learn about the astonishing new developments in neuroscience, but they also need to learn to think intelligently about them. Not all of these developments are as dramatic or applicable as they are often made to appear in the popular press. Not all of the findings that are reported are based on good science, no matter how fancy the tools that produced them.

## Changes in the Fifth Canadian Edition

In this fifth edition of *Psychology*, we have welcomed aboard an additional author, Maryanne Garry, professor of psychology at Victoria University of Wellington, New Zealand. Dr. Garry's breadth of knowledge in the areas of memory, cognition, and learning have not only enhanced this edition's coverage of these fields but also improved the book's pedagogical focus. In particular, we have introduced the **read-recite-review (3R)** approach, which is grounded in empirical research demonstrating its benefits on student learning and memory for the material (McDaniel, Howard, & Einstein, 2009). In contrast to the usual "read and cram before tests" approach that students often rely on, this method requires students to read the material; close the book and actually recite *out loud* as much as they can about the terms and concepts they have just learned; and then go back, reread, and review that section to make sure they understood it correctly.

At the end of Chapter 1, "Taking Psychology with You" is devoted to how **Psychology Can Help You Get Better Grades**. This special feature reviews how students can understand the 3R approach (Read, Recite, Review) and other effective techniques (such as Retrieval Practice, Mnemonics, and Applying Your Learning) for studying and mastering the material. In this feature, we reassure students that they need not worry about their particular "learning style," whether visual or auditory; visualizing material helps everybody, and so does plain old active listening.

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 findings from the exciting field of epigenetics.
- New techniques for mapping the brain, such as transcranial direct current stimulation (tDCS) and event-related potentials (ERP).
- New data on the brain's plasticity and the origins of individual differences in brain function due to culture and experience.
- The new movement in psychological research to incorporate confidence intervals and Bayesian statistics to improve judgments about a finding's strength, reliability, and importance.
- New methods of determining implicit prejudice, such as measures of "microaggressions" (the small insults that members of minority or stigmatized groups endure).
- New findings on working memory and its role in staying on task and intelligence.



In addition, all chapter content is now mapped to **learning objectives**, which replace the “You are about to learn . . .” statements from previous editions. Students can use these learning objectives to set goals and read with purpose while studying with the 3R method. The Instructor’s Resource Manual and Test Bank items are also keyed to these learning objectives.

## Goals and Principles

From the first edition of this book, five goals and principles have guided our writing. Here they are.



### 1. Thinking Critically about Critical Thinking

In a textbook, true critical thinking cannot be reduced to a set of rhetorical questions, a short boxed feature, 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 *practise* it.

The first step is to define what critical thinking is and what it is not. Chapter 1 introduces eight guidelines in **Thinking Critically and Creatively about Psychological Issues**, which we draw on throughout the text as we evaluate research and popular ideas. These guidelines are also listed and described briefly on the inside front cover of the book.

The second step is to model these guidelines in our evaluations of research and popular ideas. Many, though by no means all, of our **critical-thinking discussions** in the text itself are signalled by a lightbulb symbol, along with marginal “signposts” containing provocative questions. We have explicitly identified the relevant guideline in each signpost so that students can see more easily how the guidelines are actually applied. *The questions in the signposts are not, in themselves, illustrations of critical thinking.* Rather, they serve as pointers to critical analyses in the text and invite readers into the discussion. Some of the **critical-thinking signposts** include a provocative photograph that we believe will stimulate thought. It’s one thing to ask students to think critically about, say, the line that divides fashionable slimness from unhealthy gauntness, but quite another when they see a photo of an emaciated fashion model next to the healthy, “overweight” Nikki Blonsky of *Hairspray*.

The third step is to give students opportunities to practise what we’ve preached. We have changed the Quick Quiz feature that was in previous editions to incorporate a new form of self-testing, “Recite & Review.” 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 the students to reflect on the implications of findings and consider how psychological principles might illuminate real-life issues.

### 2. Exploring New Research in Biology and Neuroscience

Findings from the Human Genome Project, studies of behavioural genetics and epigenetics, discoveries about the brain, technologies such as fMRI, and the proliferation of medications for psychological disorders—all have had a profound influence on our understanding of human behaviour and on interventions to help people with chronic problems. This work cannot be confined to a single chapter. Accordingly, we report new findings from biology and neuroscience wherever they are relevant throughout

the book: in discussions of neurogenesis in the brain, memory, emotion, stress, child development, aging, mental illness, personality, and many other topics.

To further emphasize the integration of biology with other areas of research in understanding human problems, many chapters also have a feature called **Biology and . . .**—for example, “Biology and Hypnosis,” “Biology and Beliefs,” “Biology and Economic Choice,” and “Biology and the Adolescent Brain.” Although we caution students about the dangers of ignoring biological research, we also caution them about the dangers of reducing complex behaviours 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 in the future.

### 3. Mainstreaming Culture and Gender

At the time of our first edition, some considered our goal of incorporating research on gender and culture into introductory psychology to be quite radical, either a sop to political correctness or a fluffy and superficial 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 in the main body of the text, wherever they are relevant to the larger discussion, rather than relegating these studies to an intellectual ghetto of separate chapters or boxed features. We discuss gender 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 culture on all aspects of life, from nonverbal behaviour to the deepest attitudes about how the world should be. We present empirical findings about culture and ethnicity as topics warrant throughout the book. In addition, Chapter 8 highlights the sociocultural perspective in psychology and includes extended discussions of ethnocentrism, prejudice, and cross-cultural relations. However, the scientific study of cultural diversity is not synonymous with the popular movement called multiculturalism. The study of culture, in our view, should increase students’ understanding of what culture means, how and why ethnic and national groups differ, and why no group is inherently better, kinder, or more moral than another. Thus, we try to apply critical thinking to our own coverage of culture, avoiding the twin temptations of ethnocentrism and stereotyping.

To highlight the importance of culture, many chapters contain a feature (comparable to “Biology and . . .”) called **Culture and . . .**—for example, “Culture and the Brain,” “Culture and Psychotherapy,” “Culture and the Ideal Body,” and “Culture and Mental Disorder.”

### 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 book, 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 evolutionary psychology’s explanations of human dating and mating practices (Chapter 3); limitations and the oversimplified of brain-scan technology (Chapter 4); the disease versus learning models of addiction (Chapter 15); the extent of parents’ influence on their children’s personalities (Chapters 13 and 14); conflicts of interest in research on medication for psychological disorders (Chapter 16); and the scientist-practitioner gap in psychotherapy (Chapter 16).

## 5. Applications and Active Learning: Getting Involved

Finally, throughout this book, 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.

**Get Involved** exercises in each chapter make active learning entertaining. They consist of quick demonstrations, mini-studies, or ways to help students relate course material to their own lives. Thus, after reading the discussion of recall versus recognition in Chapter 10, students are asked whether they can remember all the names of Santa's eight reindeer—or do better trying to recognize them among a set of many other names. Instructors may want to assign some of these exercises to the entire class and then discuss the results and what they might mean.

**Learning Objectives** set reading and comprehension goals for each major section within a chapter.

Other pedagogical features designed to help students study and learn better include **review tables**, a **running glossary** that defines boldfaced technical terms on the pages where they occur for handy reference and study, a **cumulative glossary** at the back of the book, a list of **key terms** at the end of each chapter that includes page numbers so that students can find the sections where the terms are covered, **chapter outlines**, and **chapter summaries** in paragraph form to help students review.

**Taking Psychology with You**, a feature that concludes each chapter, illustrates the practical implications of psychological research for individuals, groups, institutions, and society. This feature tackles topics of personal interest and relevance to many students: Does watching media violence or playing violent video games increase violence? How much control do we have over our emotions and our health? How can we motivate ourselves to reach our goals? How can we avoid being suckered by the “Barnum Effect”?

At the very end of the book, an epilogue called “Taking This Book with You” wraps up the text's major themes and suggests ways that students can apply what they have learned to ongoing concerns in their lives.

# From the Publisher

## **NEW MyPsychLab®**

The **new MyPsychLab** for *Psychology*, Fifth Canadian Edition, delivers proven results in helping students succeed, provides engaging experiences that personalize learning, and comes from a trusted partner with educational expertise and a deep commitment to helping students and instructors achieve their goals. MyPsychLab has a wealth of instructor and student resources including the following:

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We have always loved learning about psychological discoveries and introducing them to students. We hope you will enjoy reading and using this book as much as we have enjoyed writing it.

*Deborah Saucier  
Lorin Elias*

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# About the Authors

**CAROLE WADE** earned her PhD in cognitive psychology at Stanford University. At the University of New Mexico she taught courses in psycholinguistics and developed the first course there on the psychology of gender. She was professor of psychology for ten years at San Diego Mesa College, then taught at College of Marin and Dominican University of California. In addition to this text, she and Carol Tavris have written *Invitation to Psychology*; *Psychology in Perspective*; and *The Longest War: Sex Differences in Perspective*. Dr. Wade has long sought to make psychology accessible to students and the general public, focusing on the promotion of critical-thinking skills. She chaired the APA Board of Educational Affairs's Task Force on Diversity Issues at the Precollege and Undergraduate Levels of Education in Psychology, presented a G. Stanley Hall lecture at the APA convention, and served on the steering committee for the National Institute on the Teaching of Psychology. She is a Fellow of two divisions of the American Psychological Association and a Fellow of the Association for Psychological Science.

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**CAROL TAVRIS** earned her PhD in social psychology at the University of Michigan. In addition to her other books with Carole Wade, she is coauthor, with Elliot Aronson, of *Mistakes Were Made (But Not by Me)*, and author of *The Mismeasure of Woman* and *Anger: The Misunderstood Emotion*. She has written on psychological topics for a wide variety of magazines, journals, edited books, and newspapers; some of her essays have been collected in *Psychobabble and Biobunk: Using Psychological Science to Think Critically about Popular Psychology*. Dr. Tavris lectures widely on topics involving science vs. pseudoscience in psychology and many other subjects of contemporary interest. She has taught in the psychology department at UCLA and at the Human Relations Center of the New School for Social Research in New York. She is a Fellow of three divisions of the American Psychological Association, a charter Fellow of the Association for Psychological Science, and a member of the editorial board of the APS journal *Psychological Science in the Public Interest*.

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**MARYANNE GARRY** earned her PhD at the University of Connecticut and did postdoctoral training at the University of Washington before moving to Victoria University of Wellington in 1996. She is best known for her research on the causes and consequences of false memories, including “imagination inflation” and its dangers as a therapeutic technique, the effects of inert substances such as fake alcohol on susceptibility to misleading information, and the power of photographs to rewrite our childhood stories and bias our decisions. In her efforts to apply psychological science to the law, she has worked with the New Zealand Law Commission and police, served as a Director of the Innocence Project New Zealand, and acted as an expert witness in criminal and civil trials worldwide on the (un)reliability of human memory. She is a Fellow of the Association for Psychological Science and served as President of the Society for Applied Research in Memory and Cognition. Dr. Garry has received her university's Merit Awards for Excellence in Research and for Excellence in Teaching.

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**DEBORAH SAUCIER** earned her PhD in psychology at the University of Western Ontario. She earned her BSc and MSc degrees in psychology from the University of Victoria. Currently, she is the Provost and Vice-President Academic at the University of Ontario Institute of Technology. Dr. Saucier researches how individual differences in spatial cognition are related to steroid hormones in human and non-human animals. She receives research funding from the Natural Sciences and Engineering Research Council, and her research has been published in *Nature*, *Behavioural Neuroscience*, *Journal of Neuroscience*, *Brain and Cognition*, *Laterality*, and *Cognitive Brain Research*. When Dr. Saucier is not busy discussing issues like bedtime with her daughter, Mia, she tries to get on top of her gardening and quilting, although she is often out playing with Mia and her soft-coated wheaten terrier (Khali) and black cat (Mr. Barry White).

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**LORIN ELIAS** earned his PhD in behavioural neuroscience at the University of Waterloo. He was then appointed as an assistant professor in the Department of Psychology at the University of Saskatchewan, the same institution where he completed his BA (Honours) degree in psychology. He now serves the Department of Psychology at the University of Saskatchewan as a full professor and the Department Head. Dr. Elias is an active and award-winning teacher and researcher. He has won seven teaching excellence awards and teaches a variety of courses in introductory psychology, cognitive neuroscience, and evolutionary psychology at both the undergraduate and graduate levels while maintaining an active research program. His federally funded research program has mainly focused on the functional differences between the left and right hemispheres of the brain. However, he has also investigated a number of unusual perceptual phenomena, including a condition called synesthesia. Dr. Elias's research has been published in a number of academic journals, including *Neuropsychologia*, *Cortex*, *Brain and Cognition*, *Laterality*, *Neurosurgery*, *Cognitive Brain Research*, and *Behavioural Neuroscience*. When Dr. Elias is not busy writing, teaching, doing research, or performing other professional duties, he is active in the audiophile community and he writes reviews of high-end audio equipment.

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Lorin Elias and Deborah Saucier also co-authored *Neuropsychology: Clinical and Experimental Foundations*, for Pearson Allyn & Bacon, published in 2006.

# PSYCHOLOGY

# 1

# What Is Psychology?

Herb Watson/Corbis/Glow Images





## Ask questions. . . be willing to wonder

How does “pop psych” on the internet and TV differ from the psychology in this book?

If you want to think critically, must you always be critical?

If you call yourself a psychotherapist, will you be breaking the law?

What’s the difference between a psychologist, a clinical psychologist, and a psychiatrist?

Would you like to unlock the secret of happiness? Manage your stress? Fall in love? Get over love? Improve your study habits? Stop procrastinating? Get rich? Lose weight? Stop worrying?

If you are like most people, you probably answered “You bet!” to at least some of these questions. If so, the internet is full of advice for you. Some advice comes from experts who know what they’re talking about; some comes from bloggers who know as much about psychology as they do about astrophysics; some comes from psychotherapists who will send you a diagnosis and treatment program based solely on what you write in an email. And hundreds of internet companies offer “natural” herbal remedies for anxiety, nervousness, sexual problems, and depression, or prescription drugs at impossibly low prices. A better life may seem to be just a click away.

Perhaps you would prefer a book? There’s *Why Your Life Sucks: And What You Can Do About It*; *Idea Mapping: How to Access Your Hidden Brain Power, Learn Faster, Remember More, and Achieve Success in Business*; and *How to Make Anyone Fall in Love with You* (and then you will undoubtedly want the sequel, *How to Make Someone Love You Forever! In 90 Minutes or Less*). If you like things laid out in easy-to-follow lists, you can buy *Ten Secrets for Success and Inner*

*Peace*, and if 10 is too many, you can try *Getting Unstuck: 8 Simple Steps to Solving Any Problem*.

How in the world are you supposed to separate out useful information in this sea of opinions, marketing ploys, and downright rubbish? Fortunately for you, you are taking an introductory psychology course, and by the time you finish it you will have some good answers.

Before you head for the bookstore, however, we want to tell you that the psychology you are about to study—*real* psychology—bears little relation to the popular psychology (“pop psych”) seen on television or found in these and thousands of similar books on the web. It is more complex, more informative, and, we think, far more helpful because it is based on scientific research and **empirical** evidence—evidence gathered by careful observation, experimentation, and measurement.

The psychology you will be studying also addresses a far broader range of issues than does popular psychology. When people think of psychology, they usually think of mental and emotional disorders, personal problems, and psychotherapy. But psychologists take as their subject the entire spectrum of brave and cowardly, intelligent and foolish, beautiful and brutish things that people do. They want to know how ordinary human beings—and other animals, too—learn, remember, solve problems,

## OUTLINE

Psychology, Pseudoscience, and Popular Opinion

Thinking Critically and Creatively about Psychology

Psychology’s Past: From the Armchair to the Laboratory

The Birth of Modern Psychology

Three Early Psychologies

Psychology’s Present: Behaviour, Body, Mind, and Culture

The Major Psychological Perspectives

Other Influential Movements in Psychology

What Psychologists Do

Psychological Research

Psychological Practice

Regulation of Psychological Research, Training, and Practice in Canada

Psychology in the Community

**BIOLOGY, CULTURE, and Psychology**

Beyond the Borders

Taking Psychology with You

Psychology Can Help You Get Better Grades

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



Psychologists use scientific methods to study many puzzles of human behaviour. Why do people lose their inhibitions when they dress up in funny outfits? Why do people strive to become champion athletes in spite of physical disabilities? And what would motivate terrorists to kill themselves and thousands of innocent people?

Top Left: Eugenio Marongiu/Fotolia. Bottom Left: John Fryer/Alamy. Right: Stacy Walsh Rosenstock/Alamy.

perceive, feel, and get along (or fail to get along) with others. They are therefore as likely to study commonplace experiences—rearing children, gossiping, remembering a shopping list, daydreaming, making love, and making a living—as exceptional ones.

**Psychology** can be defined generally as *the discipline concerned with behaviour and mental processes and how they are affected by an organism's physical state, mental state, and external environment*. This definition, however, is a little like defining a car as a vehicle for transporting people from one place to another, without explaining how a car differs from a train or a bus, how a Ford differs from a Ferrari, or how a catalytic converter works. To get a clear picture of what psychology is, you are going to need to know more about its methods, its findings, and its ways of interpreting information. We will begin by looking more closely at what psychology is *not*.

## Learning Objectives

- 1 Compare “psychobabble” and serious psychology.
- 2 Articulate what’s wrong with psychologists’ nonscientific competitors, such as astrologers and psychics.

**psychology** The discipline concerned with behaviour and mental processes and how they are affected by an organism’s physical state, mental state, and external environment; the term is often represented by  $\Psi$ , the Greek letter psi (usually pronounced “sigh”).

**psychobabble** Pseudoscience and quackery covered by a veneer of psychological and scientific-sounding language.

## Psychology, Pseudoscience, and Popular Opinion

In recent decades, the public’s appetite for psychological information has created a huge market for “**psychobabble**”: pseudoscience and quackery covered by a veneer of psychological and scientific-sounding language. Pseudoscience promises easy fixes to life’s problems and challenges, 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. Some forms of psychobabble play on the modern consumer’s love of technology. All sorts of electrical gizmos have been marketed with the promise that they will get both halves of your brain working at their peak: the Graham Potentializer, the Tranquillite, the Floatarium, the Transcutaneous Electro-Neural Stimulator, the Brain SuperCharger, and the Whole Brain Wave Form Synchro-Energizer. (We are not making these up.) And today you can find all sorts of psychobabble on the internet, where promoters promise that a higher IQ, a perfect love life, or a better personality is just a click away.

Because so many pop-psych ideas have filtered into public consciousness, the media, education, and even the law, we all need to distinguish between psychobabble and serious psychology, and between unsupported *popular opinion* and findings based on *research evidence*. Are unhappy memories “repressed” and then accurately recalled years later, as if they had been tape-recorded? Do most women suffer from emotional symptoms of premenstrual syndrome (PMS)? Do policies of abstinence from alcohol reduce rates of alcoholism? Do abused children inevitably become abusive parents, caught in a “cycle of abuse”? If you play Beethoven’s symphonies to your infant, will your baby become smarter? Many people would answer “yes” to these questions, but empirical evidence has shown that these and many other widely held ideas about human behaviour are, in fact, wrong.

One purpose of an introductory course like the one you are taking is to correct misconceptions—by teaching you how psychologists study them and showing you how their research might confirm or dispel ideas that many of us take for granted. Two researchers, Annette Kujawski Taylor and Patricia Kowalski (2004), wondered how many students come into their first psych course with a bunch of mistaken ideas in their heads and whether a semester of learning helps dislodge those ideas.

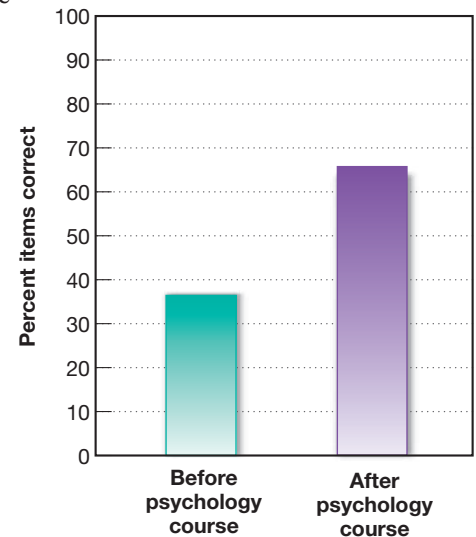
To answer these questions, they gave 90 introductory students a “Psychological Information” questionnaire on the first day of class. The test consisted of 36 true-or-false items—for example, “Under hypnosis you can perform feats that are otherwise impossible,” “Too much sugar causes hyperactivity in children,” “At any point in time, we use only 10% of our brains,” and “Listening to Mozart will enhance your thinking and creativity.” The students also rated their confidence in each of their responses on a scale of one (not at all confident) to 10 (very confident). All the items were on topics that the course was scheduled to cover, and all of them were false. As a group, the students failed the test miserably: Their accuracy was only 38.5%, which is actually worse than chance, and they had more confidence in their wrong answers than their correct ones! Moreover, students with high grade-point averages did no better than those with low ones. (See Figure 1.1.) So much for common sense.

During the last week of class, the same students took another test, one that included all of the earlier items plus 12 new true items that were randomly mixed in but not scored. This time, we’re happy to say, the students’ overall accuracy was much better: 66.3%. The researchers attributed this change in part to the fact that instruction had explicitly focused on the scientific evidence refuting such beliefs. (As you will see, we take the same approach in this book.) Yet even at the end of the course, more than a third of the students’ responses were wrong, meaning that there was still plenty of room left for improvement. The researchers then dug deeper into the evidence, analyzing the students’ confidence ratings. They found that by the end of the semester, the students had gained confidence in their correct beliefs and lost confidence in those beliefs that were still incorrect, suggesting that they were beginning to be unsure about their misconceptions, were in the process of questioning them, and perhaps were on the way to giving them up. If so, they were learning one of the most important lessons in science: Uncertainty about untested assumptions and beliefs can be a good thing.



The marriage of old-fashioned pseudo-science and modern technology has produced gizmos like the “Synchro-Energizer,” which supposedly alters consciousness, boosts intelligence, and enhances sexual functioning, all by simply bombarding you with lights and sounds of different frequencies and intensities.

Peter Menzel



**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 greatly improved.



Nonscientific approaches to psychological problems, such as astrology and psychic readings, promise easy answers and quick solutions. But can they deliver?

Jeff Greenberg/Alamy

Throughout this book and your introductory course, you, too, will repeatedly find that popular opinion and “common sense” are not always reliable guides to human behaviour. The kind of research you will be learning about won’t always provide the answers you might have wished for, and sometimes it will be unable to provide final answers. Our goal, however, is to show you why the scientific investigation of even our most cherished beliefs can lead to answers that are far more sensible than “common sense.”

Common sense, information in the media, and personal experience are not the only sources of misunderstandings about human behaviour. Psychology has many nonscientific competitors: palm reading, graphology, fortune-telling, numerology, and the most popular, astrology. Like psychologists, promoters of these competing systems

try to explain people’s problems and predict their behaviour. If you are having romantic problems, an astrologer may advise you to choose an Aries instead of an Aquarius as your next love, and a “past-lives channeller” may say it’s because you were jilted in a former life. Belief in these unscientific approaches is widespread, even in scientifically advanced countries; between one-third and one-half of Americans and Canadians believe in astrology, and 17% of Americans have sought out a fortune teller or psychic for advice (De Robertis & Delaney, 2000; National Science Board, 2000).

Yet whenever the claims of psychics and astrologers are put to the test, those claims turn out to be so vague as to be meaningless (“Spirituality will increase next year”)—or just plain wrong (Park, 2000; Radford, 2005; Shermer, 1997). In 2008, one well-known Canadian psychic, who calls herself the “psychic to the stars,” predicted that Sean Penn would be wounded in the Middle East and John Edwards would win the U.S. presidency after Hillary Clinton dropped out of the race. Obviously, she was wrong on all counts. Moreover, contrary to what you might think from watching TV shows like *Medium*, no psychic has ever found a missing child, identified a serial killer, or helped police solve any other crime solely by using “psychic powers.” The “help” given by psychics merely adds to the heartbreak the victim’s family feels. In 2004, when 11-year-old Carlie Brucia was abducted, her family’s hopes were raised by a psychic’s report that Carlie was alive. In fact, the child had been raped and murdered.

So why does belief in psychobabble persist? For one thing, it gives people a sense of control and predictability in a confusing world; indeed, our brains are probably wired to look for patterns in events, even when no patterns exist (Hood, 2009). Psychobabble also confirms 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, buzz off, and take your stupid ideas with you.”

Psychological findings do not have to be surprising or counterintuitive, however, to be important. Like scientists in other fields, psychological researchers strive not only to discover new phenomena and correct mistaken ideas but also to deepen our understanding of an already familiar world—by identifying the varieties of love, the origins of violence, or the reasons that a great song can lift our hearts.

## Learning Objectives

- 3 Articulate what it means to think critically.
- 4 Explain why not all opinions are created equal.
- 5 List eight guidelines for evaluating psychological claims.

# Thinking Critically and Creatively about Psychology

In this book, you will gain practice in distinguishing scientific psychology from pseudoscience 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 are able to look for flaws in arguments and to 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 about the validity of an idea. Critical thinking, however, is not merely 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. Critical thinking is indispensable in ordinary life. Without it, people cannot formulate a rational argument or see through misleading ads that play on their emotions. They may have trouble assessing a political proposal or candidate, deciding whether or when to have children, or making medical decisions. 👁

Most people know that you have to exercise the body to keep it in shape, but they may not realize that clear thinking also requires effort and practice. All around us we can see examples of flabby thinking. Sometimes people justify their mental laziness by proudly telling you they are open-minded. It's good to be open-minded, many scientists have observed, but not so open that your brains fall out! Open-mindedness does not mean that all opinions are created equal and that everybody's beliefs are as good as anyone else's (Hare, 2009).

On matters of personal preference, all opinions are created equal: If you prefer the look of a Ford Taurus to the look of a Honda Accord, no one can argue with you. But if you say, “The Ford is a better car than a Honda,” you have uttered more than mere opinion. Now you have to support your belief with evidence of the car's reliability, track record, and safety (Ruggiero, 2004). And if you say, “Fords are the best in the world and Hondas do not exist; they are a conspiracy of the Japanese government,” you forfeit the right to have your opinion taken seriously. Your opinion, if it ignores reality, is *not* equal to any other.

Critical thinking is not only indispensable in ordinary life; it is also fundamental to all science, including psychological science. By exercising critical thinking, you will be able to distinguish serious psychology from the psychobabble that clutters the internet, the media, and bookstores. (In the study of introductory students' misconceptions described earlier, students who did well on a critical-thinking test showed the greatest improvement over the semester.) Critical thinking requires logical skills, but other kinds of skills and dispositions are also important (Anderson, 2005; Halpern, 2002; Levy, 2010; Paul, 1984; Ruggiero, 2004; Stanovich, 2010). Here are eight essential critical-thinking guidelines that we will be emphasizing throughout this book. 👁

## Ask Questions; Be Willing to Wonder.

What is the one kind of question that most exasperates parents of young children? “Why is the sky blue, Mommy?” “Why doesn't the plane fall?” “Why don't pigs have wings?” Unfortunately, as children grow up, they tend to stop asking “why” questions. (Why do you think this is?)

**critical thinking** 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.

### 👁 Watch the Video

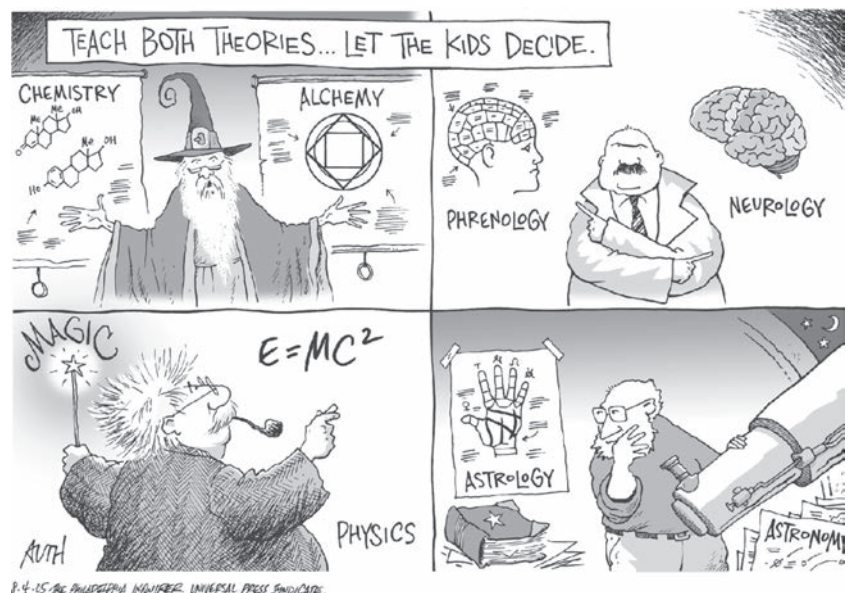
The Big Picture: Asking the Tough Questions in **MyPsychLab**

### 👁 Watch the Video

Thinking Like a Psychologist: Thinking Critically in **MyPsychLab**

We often hear that all viewpoints should be taught to students in the name of “fairness” and “open-mindedness,” but not all viewpoints, theories, and opinions are equally valid or supported by the evidence.

Universal Uclick





“The trigger mechanism for creative thinking is the disposition to be curious, to wonder, to inquire,” observed Vincent Ruggiero (1988). “Asking ‘What’s wrong here?’ and/or ‘Why is this the way it is, and how did it come to be that way?’ leads to the identification of problems and challenges.” We hope that you will not approach psychology as received wisdom but will ask many questions about the theories and findings presented in this book. Be on the lookout, too, for questions about human behaviour that have not yet been asked, or have been asked but not answered—the way a psychological scientist would. In 2005, the editors of *Science*, one of the world’s foremost science journals, celebrated the publication’s 125th anniversary by identifying 125 scientific puzzles that scientists hope to solve at least partially over the next few decades, and among them were several psychological ones (Kennedy & Norman, 2005). What is the biological basis of consciousness? How are memories stored and retrieved? Why do we sleep and dream? Why are there critical periods for language learning? What causes schizophrenia? What is the biological basis of addiction? Psychological scientists are not discouraged by the fact that questions like these have not yet been answered; they see them 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 midnight reveries, but it will not lead to answers until you have defined what

## THINKING CRITICALLY AND CREATIVELY ABOUT PSYCHOLOGICAL ISSUES

These eight critical-thinking guidelines will help you evaluate psychological findings, claims in the media, and problems that you encounter in your own life.

### ASK QUESTIONS; BE WILLING TO WONDER

When faced with a life-threatening disease like cancer, why do some people (like Terry Fox) risk their lives to help their fellow human beings, while others focus all their attention on their own well-being? Social psychologists explore these and many other questions, as we will see in Chapter 8.

The Canadian Press Images



Victoria Times-Colonist/The Canadian Press Images



### DEFINE YOUR TERMS

People refer to intelligence all the time, but what is it exactly? Does the artistic genius of Emily Carr count as intelligence? Is intelligence captured by an IQ score, or does it also include wisdom and practical “smarts”? We will consider some answers in Chapter 9.

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 can lead to misleading or incomplete answers. For example, have you ever wondered how common it is for schoolchildren to be bullied? The answer depends on how you define “bullying.” If you mean “ever mistreated in any way by another child,” then nearly every child has been bullied. If you mean “subjected to repeated verbal harassment and taunting,” the numbers are lower. And if you mean “physically attacked and threatened,” the numbers are lower still. The definition makes all the difference (Best, 2001).

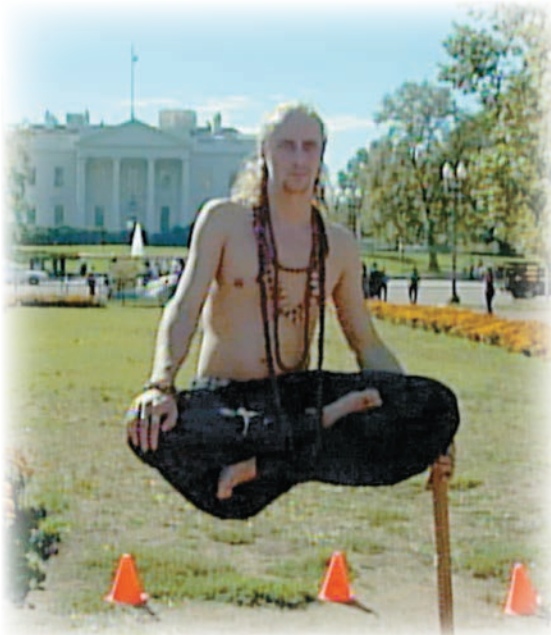


**Examine the Evidence.** Have you ever heard someone in the heat of an argument exclaim, “I just know it’s true, no matter what you say” or “That’s my opinion; nothing’s going to change it”? Have you ever made such statements yourself? Accepting a conclusion without evidence, or expecting others to do so, 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?”

Or have you ever received some dire warning or funny “true” story emailed by a friend, and then forwarded it on to your entire address book, 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 90 000 of my closest friends?”

## EXAMINE THE EVIDENCE

When demonstrating “levitation” and other supposedly magical phenomena, illusionists exploit people’s tendency to trust the evidence of their own eyes even when such evidence is misleading, as discussed in Chapter 6.



Landov

## ANALYZE ASSUMPTIONS AND BIASES

People often assume that drug effects are purely biological, and many Canadians and Americans also share a cultural bias that all psychoactive drugs are inevitably harmful. The Rastafarian church, however, regards marijuana as a “wisdom weed.” Will these young Jamaican members react to the drug in the same way as someone who buys it on the street and smokes it alone or at a party? We will find out in Chapters 5 and 15.



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