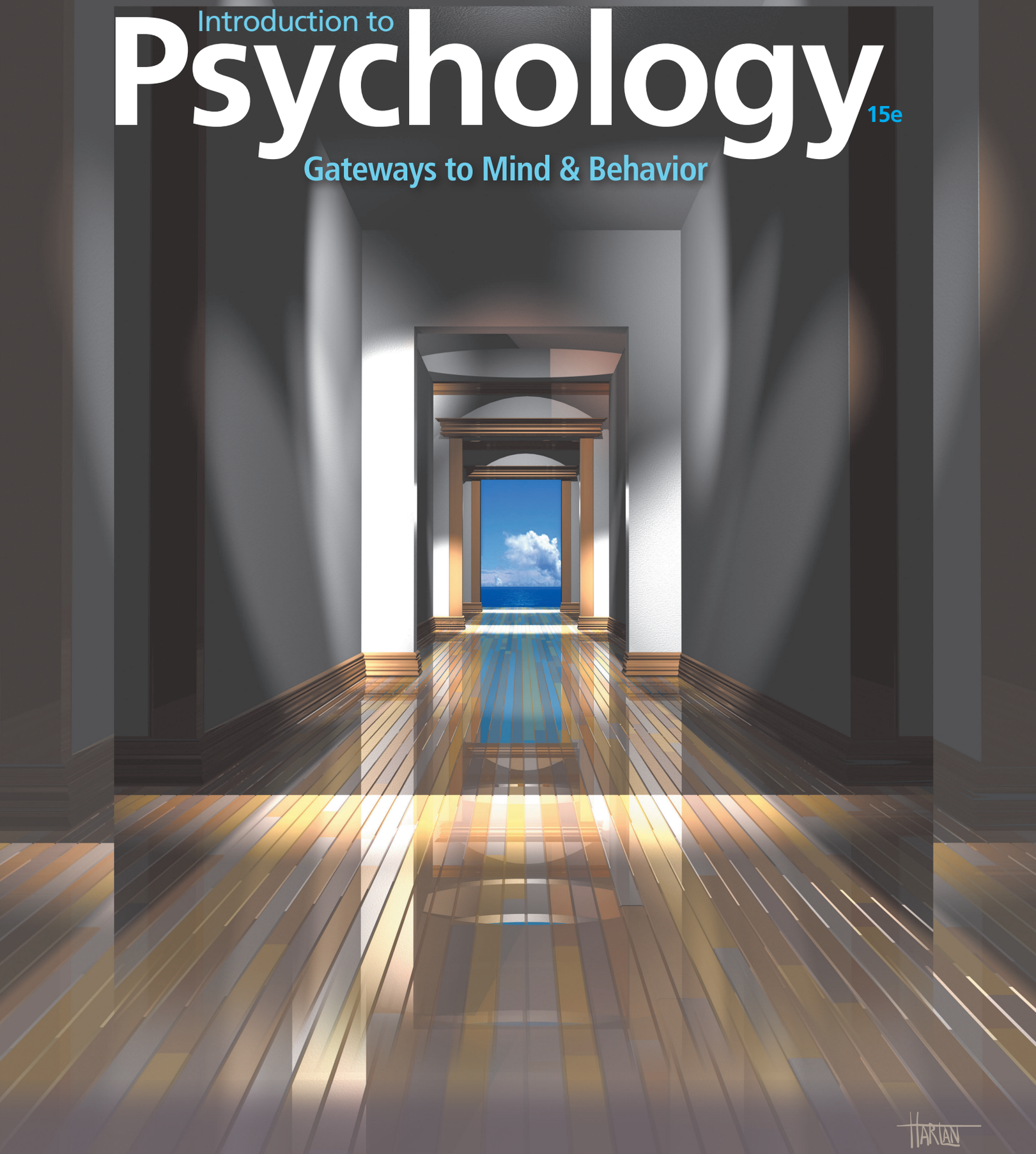
Coon / Mitterer / Martini

Introduction to Psychology 15e

Gateways to Mind & Behavior



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The Reflective **SQ4R** Method

Survey: Before reading, briefly overview the chapter. Read the headings, skim the captions, and get a sense of the landscape of the chapter.

Question: As you survey each major heading, generate some questions you expect the following text to answer.

Read: As you read, check in with yourself regularly. Do you understand what you just read? Does if fit with the impression you formed during your survey? Are your questions being answered?

Recite: Recite the main points as a way to check that you remember and understood what you read.

Reflect: Reflect on the reading. Relate what you've read to your life experience and compare it to theories and studies you have read about.

Review: At the end of the chapter, go over your notes to tie up any loose ends. Make sure you can correctly summarize what you have read.

See "The Psychology of Reflective Studying," pages 2-12.

Introduction to Psychology

Gateways to Mind and Behavior

15e

Dennis Coon

John Mitterer
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Tanya Martini
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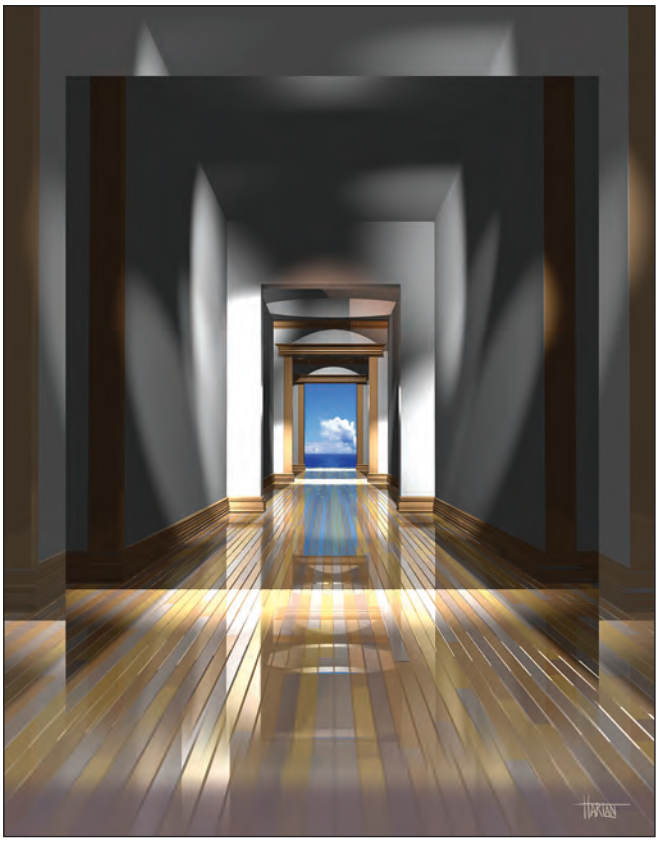

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***Introduction to Psychology: Gateways to Mind and Behavior*, Fifteenth Edition**
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Dedication

To David, Callum, and Ronan

About the Authors

Courtesy of Dennis Coon

Dennis Coon Dennis Coon is a publishing phenomenon and one of the best-selling authors in the field of psychology. His innovative instructional methods and student-focused style make his works perennial favorites among instructors and students alike. To date, more than two million students have learned psychology with a Coon text as their guide. Coon graduated with a B.A. in psychology from the University of California, Riverside, and earned his PhD in social psychology from the University of Arizona. He is also coauthor, with John Mitterer and Tanya Martini, of *Psychology: Modules for Active Learning, 14th Edition.*

Courtesy of John Mitterer

John Mitterer John Mitterer was awarded his PhD in cognitive psychology from McMaster University. He has taught psychology at Brock University to more than 30,000 introductory psychology students. He is an award-winning teacher whose several teaching awards include a National 3M Teaching Fellowship, the Canadian Psychological Association Award for Distinguished Contributions to Education and Training in Psychology, and the Brock University Don Ursino Award for Excellence in the Teaching of Large Classes. He has created textbooks and support materials for both students and instructors, and published and lectured on undergraduate instruction throughout Canada and the United States.

Courtesy of Tanya Martini

Tanya Martini Tanya Martini obtained her PhD in developmental psychology from the University of Toronto. In addition to introductory psychology, she also teaches research methods, human learning, and courses aimed at facilitating students' understanding of career-related skills. In 2015 she received the Brock University Distinguished Teaching Award, where she currently holds a Chancellor's Chair for Teaching Excellence. Dr. Martini's research examines how undergraduates think about the skills that are being fostered during university experiences, both inside and outside the classroom. She's also interested in how we can improve students' understanding of career-related skills so that they are in a better position to leverage them when they apply for jobs or post-graduate programs.

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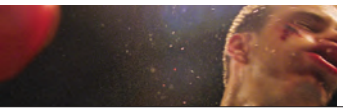

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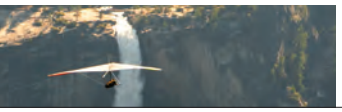

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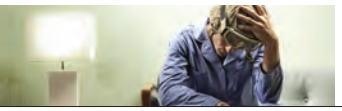

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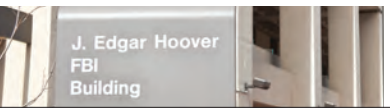

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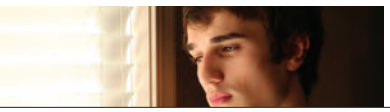

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Preface

To You, the Student—An Invitation to Learn Psychology

Greetings from your authors! We look forward to being your guides as you explore the exciting field of psychology and our ever-evolving understanding of human behavior. In a very real sense we wrote this book about you, for you, and to you. We sincerely hope you will find, as we do, that what you learn is at once familiar, exotic, surprising, and challenging.

Reading *Introduction to Psychology: Gateways to Mind and Behavior*

In *Gateways to Mind and Behavior*, we have done all we could imagine to make it enjoyable for you to read this book. We trust that you will find your first journey through psychology to be quite interesting and useful to you in your everyday life. Each chapter takes you into a different realm of psychology, such as personality, abnormal behavior, memory, consciousness, or human development. Each realm is complex and fascinating in its own right, with many pathways, landmarks, and interesting detours to discover. Like any journey of discovery, your exploration of psychology will help you better understand yourself, others, and the world around you. It's definitely a trip worth taking.

Studying *Introduction to Psychology: Gateways to Mind and Behavior*

Psychology is about each of us. It asks us to adopt a reflective attitude as we inquire, "How can we step outside ourselves to look objectively at how we live, think, feel, and act?" Psychologists believe that the answer comes through careful thought, observation, and inquiry. As simple as that may seem, thoughtful reflection takes practice to develop. It is the guiding light for all that follows.

Gateways to Mind and Behavior, then, is your gateway, or passport, to an adventure in active learning, not just passive reading. To help you get off to a good start, we strongly encourage you to read our short "manual," *A Psychologist's Skill Set—Reflective Studying*, which precedes Chapter 1. In it, we describe what you can learn by taking this course, including the skills you'll develop that can be helpful in both your personal and professional life. In *Reflective Studying*, you'll also read about a variety of study skills, including the *reflective SQ4R* method, which you can use to get the most out of your psychology course, and your other courses as well.

To You, the Instructor—An Invitation to Teach Psychology

Thank you for choosing *Introduction to Psychology: Gateways to Mind and Behavior* for your students and for your course. Marcel Proust wrote, "The real voyage of discovery consists not in seeing new landscapes but in having new eyes." It is in this spirit that we have written this book to promote not just an interest in human behavior but an appreciation for the perspective of the psychologist as well.

As we point out to your students in *A Psychologist's Skill Set—Reflective Studying*, which precedes Chapter 1, there is a big difference between experiencing and reflecting on experience (Norman, 1994). For John Dewey (1910), reflective thinking is the "active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusion to which it tends."

The psychologist's perspective, of course, involves reflecting on human behavior in a variety of ways. When it comes to studying psychology, reflective cognition requires actively thinking *about* what you have just read, which results in deeper understanding and memory. Please consider taking a looking at *A Psychologist's Skill Set—Reflective Studying* because it explains to your students in some detail how to become a more reflective student and outlines how they can get the most out of this book and your course. By the way, we encourage you to assign your students to read it as well, if at all possible.

Throughout this book, we have tried to select only the "best" material from the many topics that could be presented. Nevertheless, *Gateways to Mind and Behavior* covers not only the heart of psychology, but also many topics at the cutting edge of current knowledge, including a focus on the practical applications of psychology, the growing importance of neuroscience, and the richness of human diversity. New information, anecdotes, perspectives, and narratives appear throughout the fifteenth edition. The result is a concise book that is readable, manageable, informative, and motivating. At the same time, we have structured this book to help students consolidate the skills to learn efficiently and to

become better critical thinkers. Without such skills, students cannot easily go, as Jerome Bruner (1973) put it, "beyond the information given."

The Teaching Challenge

Wouldn't it be nice if all of our students came to our courses highly motivated to explore psychology and well prepared to cope with the learning challenges we create for them? As the authors of this textbook, we have together accumulated over 70 years of classroom experience, teaching tens of thousands of college and university students. Although we have found most students to be generally well intentioned, our modern world certainly does immerse them in their work, careers, families, intimate relationships, popular culture, and life in general. As we compete for ever-more-limited student attention, we must do more than just lecture in psychology. We also must motivate our students to read and learn as well as educate them about how to learn effectively (Matthew & Sternberg, 2009; Paternoster & Pogarsky, 2009).

We have explicitly designed and written the fifteenth edition of *Gateways to Mind and Behavior* to foster deeper student engagement with the field of psychology, better memory for what has been read and studied, and a deeper understanding of how to become more reflective learners and thinkers. To help you and your students reach these goals, we have organized our design philosophy around three core principles:

1: Readability and Narrative Emphasis

Many introductory psychology students are reluctant readers. Selecting a textbook is half the battle in teaching a successful course. A good textbook does much of the work of imparting information to your students. This frees class time for your discussion, extra topics, or media presentations. It also leaves students asking for more. When a book overwhelms students or cools their interest, teaching and learning suffer. If students won't read the textbook, they can't very well be reflective about what they have read.

That's why we've worked hard to make this a clear, readable, and engaging text. *Gateways to Mind and Behavior* is designed to give students a clear grasp of major concepts, without burying them in details. At the same time, it offers a broad overview that reflects psychology's rich heritage of ideas. We think that students will find this book informative and intellectually stimulating.

Because we want students to read this book with genuine interest and enthusiasm, not merely as an obligation, we have made a special effort to weave narrative threads through the book. Everyone loves a good story, and the story of psychology is compelling. Throughout *Gateways to Mind and Behavior,* we have used intriguing anecdotes and examples to propel reading and sustain interest.

Practical Applications

To make psychology even more inviting to students, we have emphasized the many ways that psychology relates to practical problems in daily life. For example, a major feature of this book is the *Psychologist's Skill Set* sections found at the end of each chapter. These high-interest discussions bridge the gap between theory and practical applications by exploring how psychology has contributed to our understanding of the skills that are valuable at work and in our relationships. We believe that it is fair for students to ask, "Does this mean anything to me? Can I use it? Why should I learn it if I can't?" The *Psychologist's Skill Set* sections allow them to see the benefits of adopting new ideas, and they breathe life into psychology's concepts. The skills in question also happen to help you and your students meet the American Psychological Association's (2013) Guidelines for the Undergraduate Major (see Table P.1).

2: Integrated Support for Active Learning

Studying (rather than reading) a textbook requires the active cognitive engagement that psychologist Donald Norman (1994) calls *reflective*. In his book, *Thinking, Fast and Slow*, Daniel Kahneman describes it as *System 2* thinking (Kahneman, 2011). Being reflective when you read a textbook involves asking yourself if you understand what you are reading, how it might relate to things you already know, what new questions your reading might trigger, and so on. The resulting elaboration of the just-read new information is, perhaps, the best way to foster understanding and form lasting memories (Gadzella, 1995; Goldstein, 2015; Sternberg, 2017).

Gateways to Mind and Behavior was the first college text with an SQ4R, active-learning format. Over the years, Dennis Coon's pioneering books have made learning psychology a rewarding experience for more than 2 million students. With their feedback, and generous help from many professors, we have continued to refine the unique features of *Gateways to Mind and Behavior*.

It is in this spirit that we have again improved the design of this edition of *Gateways to Mind and Behavior* to encourage students to become more reflective, active learners. To achieve this important pedagogical goal, the traditional use of SQ4R has again been tweaked to be more *reflective*. By using reflective SQ4R, an active-learning format, studying psychology becomes an even more rewarding experience. As students explore concepts, they are encouraged to think critically about ideas and relate them to their own experiences. Notice how the steps of the reflective SQ4R method—*survey, question, read, recite, reflect,* and *review*—are incorporated into the chapter design:

Survey

Features at the beginning of each chapter help students build cognitive maps of upcoming topics, thus serving as advance organizers (Ausubel, 1978; Gurlitt et al., 2012). A photograph and short preview arouses interest, gives an overview of the chapter, and focuses attention on the task at hand. A *Gateway Theme* and a list

▲ TABLE P.1 APA Skills Guidelines 2.0 Addressed by Reading
Introduction to Psychology: Gateways to Mind and Behavior, 15e

Chapter	Topic of Chapter	Skills in Action Topic	Chapter Addresses Material from APA Guidelines 2.0:
Introduction	How to Study	Reflective Studying	4.1, 5.2, 5.3, 5.5
1	Psychology, Critical Thinking, and Science	Information Literacy	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1
2	Brain and Behavior	Self-Regulation	1.1, 1.2, 5.2
3	Human Development	Ethical Behavior	1.1, 1.2, 2.5, 3.2, 5.1
4	Sensation and Perception	Effective Communication	1.1, 1.2, 4.1, 4.2, 4.3, 5.4
5	States of Consciousness	Metacognition	1.1, 1.2, 5.2, 5.3
6	Conditioning and Learning	Behavioral Self-Management	1.1, 1.2, 5.2
7	Memory	Giving Memorable Presentations	1.1, 1.2, 4.2, 5.3
8	Cognition, Language, and Creativity	Creativity and Innovation	1.1, 1.2, 1.3, 2.3, 2.5
9	Intelligence	Emotional Intelligence	1.1, 1.2, 3.2, 3.3, 4.3, 5.1, 5.4
10	Emotion and Motivation	Positivity and Optimism	1.1, 1.2, 1.3, 2.5, 4.3, 5.4
11	Sex, Gender, and Sexuality	Civic Engagement	1.3, 3.2, 3.3, 4.3, 5.2, 5.3, 5.4
12	Personality	Leadership	1.1, 1.2, 2.1, 3.3, 5.1, 5.2, 5.4
13	Health, Stress, and Coping	Stress Management	1.1, 1.2, 1.3, 3.3, 5.1
14	Psychological Disorders	Perseverance	5.2, 5.3, 5.5
15	Therapies	Managing *Mental Health*	1.1, 1.2, 1.3, 3.3
16	Social Thinking and Social Influence	Teamwork	1.1, 1.2, 3.2, 3.3, 4.3, 5.1, 5.4
17	Prosocial and Antisocial Behavior	Diversity and Inclusion	1.1, 1.2, 1.3, 2.5, 3.2, 3.3, 4.3, 5.1, 5.4
18	Applied Psychology	Career Preparation	1.1, 1.2, 1.3, 2.3, 5.1, 5.5
Appendix	Statistics	Statistical Literacy	1.1, 2.1, 2.2, 2.4, 4.1

of detailed *Gateway Questions* also are given to guide active reading. These questions are now numbered, making it easier for students and instructors to relate the Gateway Questions to a matched set of learning objectives that appear throughout the materials that accompany this textbook.

The answers to Gateway Questions are what we think of as *Gateway Concepts*. In other words, they open intellectual pathways and summarize psychology's "big ideas." Ultimately, the Gateway Concepts provide a good summary of what students have learned. With these chapter-opening features, we invite students to read with a purpose and actively process information.

Question

How can questioning be built into a textbook? Italicized *Dialogue Questions*, such as the previous sentence, are the sorts of questions that students might find themselves thinking as they begin reading a section of text. As such, they model a dialogue in which the questions and the reactions of students are anticipated—that is, *Dialogue Questions* prompt students to look for important ideas as they read, thus promoting active learning while serving as advance organizers. They also clarify difficult points in a lively give-and-take between questions and responses.

Further, each major chapter section begins with one of the chapter *Gateway Questions*. As students read a section, they can try to discover the answers to these questions. They can then compare their answers with the ones listed in the *Gateways* chapter summary.

Read

We've made every effort to make this a clear, readable text. To further aid comprehension, we've used a full array of traditional learning aids. These include boldface terms, bulleted and numbered summaries, robust illustrations, summary tables, a name index, and an integrated subject index and glossary. As an additional aid, figure and table references in the text are set apart by different colored text and small geometric shapes. These "placeholders" make it easier for students to return to the section that they were reading after they have paused to view a table or figure.

We have made the glossary function in this edition as powerful as possible. The *Main Glossary*, at the end of the book, is integrated with the *Subject Index*, making it easy to link important definitions to where they are discussed in the text. As in earlier editions, all glossary items are bold and defined in-text when the term is first encountered. This aids reading comprehension because students get clear definitions when and where they need them—in the general text itself. In addition, the parallel *Running Glossary* defines key terms in the margins of the relevant pages, making it easy for students to find, study, and review important terms.

Recite

Throughout each chapter, strategically placed built-in study guides called *Knowledge Builders* give students a chance to test their recall and further develop their understanding of preceding topics. Each Knowledge Builder includes a *Recite* section, a short, noncomprehensive quiz, to help students actively process information and assess their progress. Recite questions, which are not as difficult as in-class tests, are meant to offer a sample of what students could be asked about various topics. Students who miss any items are encouraged to backtrack and clarify their understanding before reading more. In other words, completing Recite questions serves as a form of recitation to enhance learning.

Reflect

Simple recitation is usually not enough to foster deeper understanding, so in each chapter, we invite students to engage in two distinct types of reflection, self-reflection and critical thinking:

- **Self-Reflection** New information can be made more meaningful through self-reflection (or self-reference)—relating new information to what is already known (Klein & Kihlstrom, 1986). We provide many opportunities for self-reflection throughout *Gateways to Mind and Behavior*. The text is written with many contemporary references, examples, and stories to make it easier for students to relate what they are reading to their own life experience. Similarly, to help students further elaborate their new understanding, each Knowledge Builder includes a series of *Self-Reflect* questions that encourage students to connect new concepts with personal experiences and prior knowledge. Finally, as we mentioned previously, the *Psychologist's Skill Set* sections invite students to relate psychology to the development of many skills helpful in their daily lives.
- **Critical Thinking** Being reflective about psychology involves more than self-reflectively asking "What does this have to do with me and what I already know?" It also involves reflecting more deeply about the field. Our book also invites students to think critically about psychology.

  The active, questioning nature of the reflective SQ4R method is, in itself, an inducement to critical thinking. In addition, every Knowledge Builder includes *Think Critically* questions. These stimulating questions challenge students to think critically and analytically about psychology. Each is followed by a brief answer with which students can compare their own thoughts. Many of these answers are based on research and are informative in their own right. Many of the Dialogue Questions that introduce topics in the text also act as models of critical thinking.

  Further, Chapter 1 explicitly discusses critical thinking skills and offers a rational appraisal of pseudopsychologies. In addition, the discussion of research methods in Chapter 1 is actually a short course on how to think clearly about behavior. Chapter 1 closes with a *Psychologist's Skill Set* section that offers suggestions about how to critically evaluate claims in the popular media. Subsequent chapters include many topics related to critical thinking.

  Taken together, these features will help students think more reflectively about your course and the field of psychology, while they also gain thinking skills of lasting value.

Review

As we noted previously, all important terms appear in a *Running Glossary* throughout the book, which aids review. In addition, the *Main Glossary* is integrated with the *Subject Index*. When reviewing, students can easily link definitions of concepts with the appropriate section of the book where those concepts are introduced and discussed.

As also noted, the *Psychologist's Skill Set* sections ending each chapter show students how psychological concepts relate to their daily lives. The information found here helps reinforce learning by inviting self-reference while illustrating psychology's practicality.

To help students further consolidate their learning, the *Gateways Summary* at the end of each chapter restates all of the major ideas presented earlier in the chapter. Summaries are organized around the same Gateway Questions found at the beginning of, and throughout, the chapter. In this way we bring the reflective SQ4R process full-circle and reinforce each chapter's learning objectives from beginning to end.

3: Integrative Themes: *The Whole Person*

No one linear chapter organization can fully capture the interconnectedness of our field. This edition of *Gateways to Mind and Behavior* now offers streamlined *Bridges*, clearly marked in-text links to other material relevant to the reading at hand. For example, a student reading about the Freudian theory of dreams will encounter a Bridge to a relevant discussion of psychoanalysis in a later chapter.

In addition, to convey some of this richness, we have woven a number of broad themes throughout the chapters of this book. Starting in Chapter 1, we explore the idea that human behavior is better understood when examined from three complementary perspectives, the biological perspective, the psychological perspective, and the sociocultural perspective. We express the idea that insights from one perspective can often be combined with insights from another throughout the book, in periodic, short integrative sections entitled *The Whole Person*. Furthermore, we explore this natural complexity throughout chapters in a variety of more detailed themes. Our hope is that students who read this book will gain an appreciation for the potential we all have for optimal functioning. Also, of course, we hope that they will leave

Gateways to Mind and Behavior with emotional and intellectual tools they can use to enhance their lives. You may choose to explicitly present these perspectives to your students. Alternatively, you might leave these for your students to explore and unconsciously absorb.

The Biological Perspective: The Growing Importance of Neuroscience

Our students, partly because of the popular media, are increasingly aware that the brain and the nervous system play a role in shaping human behavior. While the chapter on *Brain and Behavior* deals with the usual topics—such as methods of studying the brain, neural functioning, synaptic transmission, the structure of the nervous system and brain, and the endocrine system—we deliberately include a biological perspective as a part of our discussions in most of the other chapters comprising this book.

The Psychological Perspective: The Centrality of Self-Knowledge

We have threaded the psychological perspective throughout this book in many ways. It is, of course, central to psychology. In this edition of *Gateways to Mind and Behavior*, we continue to place special thematic emphasis on the self. In doing so, we respond to Timothy Wilson's (2009) criticism that introductory psychology courses do not spend enough time exploring the issue of self-knowledge, despite the fact that students are terribly interested in learning more about themselves.

All of the new *Psychologist's Skills Set* sections encourage the development of self-knowledge, including such topics as self-regulation (■ Chapter 2.9), metacognition (■ Chapter 5.12), and emotional intelligence (■ Chapter 9.8). Our focus on active, reflective learning is also designed to improve students' self-awareness, as you may have already noted. Throughout the book, we follow the development of the self from the beginnings of self-recognition in infancy to the development of wisdom in old age.

The Sociocultural Perspective: Human Diversity, Culture, and Gender

Of course, no introductory psychology textbook would be complete without a discussion of human diversity and the multicultural, multifaceted nature of contemporary society. In *Gateways to Mind and Behavior,* students will find numerous discussions of human diversity, including differences in race, ethnicity, culture, gender, abilities, sexual orientation, and age. Too often, such differences needlessly divide people into opposing groups. Our aim throughout this book is to discourage stereotyping, prejudice, discrimination, and intolerance. We've tried to make the book gender neutral and sensitive to diversity issues. All pronouns and examples involving females and males are equally divided by gender.

In artwork, photographs, and examples, we have also set out to portray the rich diversity of humanity. In addition, a new *Psychologist's Skill Set* section (■ see Chapter 17.8) tackles the importance of diversity and provides suggestions about how students can work toward building effective relationships with a wide variety of people. In short, many topics and examples in this book encourage students to appreciate social, physical, and cultural differences and to accept them as a natural part of being human.

Introduction to Psychology: Gateways to Mind and Behavior—What's New in the 15th Edition?

Thanks to psychology's ongoing vitality and suggestions from thoughtful professors, we have again been able to improve this book in many ways.

Most importantly, we have a new author joining the writing team. Dr. Tanya Martini has contributed our new *Psychologist's Skill Set* sections, which introduce students to the idea that learning psychology is about more than learning content. They also help you address the American Psychological Association's (2013) Guidelines for the Undergraduate Major (see Table P.1 earlier in this preface).

The other major change throughout this edition has been the absorption of several special features into the main text. While boxes from previous editions, such as the *Brainwaves* boxes, dangle high-interest content in front of students, they do so at a cost to the overall organization of the text that surrounds them. By absorbing this material, we are better able to contextualize it, improving the overall readability of the book.

On the pedagogy side, we have again enhanced our focus on active processing, reflection, and critical thinking. The learning system embedded in this book, reflective SQ4R, cues students more than ever to the role of thoughtfulness while reading and studying. From a revised explanation of the power of elaborative encoding in the chapter on memory and an expanded discussion of the distinction between experiential and reflective cognition in the chapter on cognition, to repeated invitations (in context throughout the book) to process more deeply, we have done everything possible to invite your students to become even more mindful.

On the content side, the 15th edition of *Introduction to Psychology: Gateways to Mind and Behavior* has been extensively updated and features some of the most recent and interesting information in psychology, plus fully updated statistics and extensively expanded and updated references. The following text gives some highlights of the new topics and features that appear in this edition.

A Psychologist's Skill Set—Reflective Studying

- This Introduction now begins with a section on the valuable skill set the attentive student can strengthen while studying psychology, a theme continued throughout the book.
- The remainder of the Introduction has been reorganized while continuing to outline a proven set of reflective study skills.

Chapter 1: Introduction to Psychology and Research Methods

- The need for scientific methods in psychology is more fully articulated by rewriting and repositioning material on the shortcomings of common sense.
- The history of psychology presented in this chapter is now reorganized around a more robust critique of introspection.

- The links between the goals of psychology, different types of research (including the issue of self-report or introspection), and different types of data are more clearly outlined.
- The growing importance of physiological measures in contemporary psychology is now more clearly explained.
- Quasi-experimental designs are now clearly differentiated from experimental designs.

Chapter 2: Brain and Behavior

- The chapter-opening sections on the microstructure and overall organization of the nervous system have been fine-tuned for greater clarity; the Mike & Molly example has been, accordingly, extended.
- The account of Delagdo's work with neural implants and bulls is now better contextualized.
- Glial cells are given greater prominence.
- The material on neuroplasticity and neurogenesis has been rewritten and reorganized.
- The hemispheres and lobes of cortex are now discussed in separate major sections of the chapter.
- Material on handedness can now be found in a reworked section on the cerebral hemispheres, integrating coverage of dominance and laterality.
- Material on the subcortex now clarifies the distinction between the hindbrain and the brain stem.
- A new *Psychologist's Skill Set* section explores self-regulation.
- Prefrontal cortex is now more clearly linked to executive functions, metacognition and self-control.

Chapter 3: Human Development

- The opening section of this chapter has been lengthened and now presents a chronological overview of human development, focusing on the roles played by heredity and environment. Subsequent sections take a topical approach to physical, emotional, psychosocial, moral, language, and cognitive development.
- Material on infant and early child development has been reorganized and streamlined.
- The discussion of emotional development in infants has been rewritten and more explicitly linked to the concept of basic emotion developed in Chapter 10, Motivation and Emotion.
- American Indian parenting styles are now discussed in the section on parenting styles.
- Material on adolescence and adulthood has been reorganized and streamlined.
- A new *Psychologist's Skill Set* section now extends the earlier discussion of moral development to a consideration of ethical behavior in adulthood.

Chapter 4: Sensation and Perception

- The opening section on basic sensory processes has been reorganized and rewritten to simplify discussion of general sensory processes, including truncated coverage of extrasensory perception.
- Psychophysics and Gestalt principles are more clearly linked to the history of psychology.
- Material on perceptual learning has been reorganized to clarify the distinction between perceptual sets and perceptual learning.
- Material on the perception of pain has been streamlined and reorganized
- A new *Psychologist's Skill Set* section discusses effective communication.

Chapter 5: States of Consciousness

- The section on consciousness and culture has been rewritten.
- Definitions of hypnosis and hypnotizability have been updated.
- Material on sleep has been streamlined and reorganized.
- Material on the meaning of dreams has been collected together, streamlined and integrated into a more concise section of the chapter.
- Hypnopompic hallucinations are now more explicitly discussed in the context of sleep paralysis.
- Material on mind-altering drugs has been refined in several ways: Some material has been revised, usage statistics have been updated, coverage of opioids, including fentanyl, has been clarified, and cannabis (as opposed to marijuana) is now the preferred reference term.
- A new *Psychologist's Skill Set* section discusses metacognition.

Chapter 6: Conditioning and Learning

- Elaborates on discrimination learning, beginning with a chapter-opening vignette on police "sniffer" dogs.
- The distinction between reinforcement and feedback has been refined to better reflect the distinction between experiential and reflective cognition (System 1 versus System 2).
- A new *Psychologist's Skill Set* section draws together previously disparate material into a streamlined discussion about behavioral self-management.

Chapter 7: Memory

- The chapter now more clearly illustrates the idea that STM is a "working" memory.
- Expanded coverage of working memory now incorporates mental imagery material previously covered in a different section.
- The multimedia principle, the idea that mixing visual and auditory information reduces interference, is now discussed.
- The section on exceptional memory has been reworked, including drawing a distinction between two types of exceptional memory.
- Material on mnemonics has been reworked
- A new *Psychologist's Skill Set* section discusses giving memorable presentations.

Chapter 8: Cognition, Language, and Creativity

- The section on mental imagery has been reorganized and also is now more clearly linked back to the concept of working memory, first presented in the chapter on memory.

- The distinction between denotative and connotative meaning is now presented in the section on language, where the role of context in determining meaning has been clarified.
- The term "mechanical" has been replaced by the term "algorithmic." With this in mind, the material on algorithmic problem solving has been clarified.
- Material on creativity has been reorganized for greater clarity, including an updated *Psychologist's Skill Set* section on creativity and innovation.
- Material on intuition has been reorganized and now more clearly discussed in the context of the distinction between experiential and reflective cognition.
- Choice overload is now referred to as such.

Chapter 9: Intelligence

- While not identified by name, the Cattell–Horn–Carroll theory is now used to clarify the definition and structure of intelligence.
- Material on race and IQ has been rewritten and now appears in the section on heredity and environment.
- The section on reaction time includes a new figure.
- Material on intelligence and the brain now refers to executive functions and better explains the interconnectivity of prefrontal area and the rest of the brain.
- The section on AI has been rewritten to feature ideas about machine learning.
- A refined *Psychologist's Skill Set* section tackles emotional intelligence, previously covered in another chapter.

Chapter 10: Motivation and Emotion

- Maslow's hierarchy of needs and the distinction between intrinsic and extrinsic motivation is now discussed early on in the chapter.
- Self-determination theory is introduced and used to frame discussion of the distinction between intrinsic and extrinsic motivation.
- Plutchik's account of emotion has been supplanted by Carroll Izard's differential emotions theory, including the concept of an emotion schema.
- A new *Psychologist's Skill Set* section explores positivity and optimism.

Chapter 11: Gender and Sexuality

- This chapter has been extensively reorganized.
- Traditional male and female gender role stereotypes are more clearly delineated.
- A new major section notes apparent contradictions in sexual behavior and attitudes of today's youth.
- A new *Psychologist's Skill Set* section explores civic engagement.

Chapter 12: Personality

- In light of recent disconfirming research, the Type A personality is no longer used as an example of a personality type.
- We now note that some dark triad personalities are women.
- Coverage of Freud has clarified. For example, latency is now treated as another psychosexual stage.
- A new *Psychologist's Skill Set* section discusses leadership.

Chapter 13: Health, Stress, and Coping

- The introductory section of this chapter has been reworked for greater clarity.
- The role of social dimensions of health, such as the growing impact of social media, are now better highlighted.
- The second section of this chapter has also been rewritten and reorganized to better describe the concept of a stressor.
- The section on psychosomatic disorders has been refined for greater clarity. In particular, and in light of recent disconfirming research, the idea of the Type A personality has been refined and the idea of a Type D personality has been added.
- A reworked *Psychologist's Skill Set* section tackles stress management.

Chapter 14: Psychological Disorders

- The chapter-opening section on defining and classifying mental disorders has been simplified and reorganized.
- A new section has been added on the diagnosis of mental illness.
- The causes of mental illness are now discussed in a more general way.
- The section on the psychoses has been simplified.
- The coverage of suicide has been condensed and can now be found after the section on mood disorders.
- The discussion of the anxiety disorders and their causes is more clearly distinguished from the discussion of anxiety-related disorders.
- A creative new theory of obsessive-compulsive disorder is now covered.
- A new *Psychologist's Skill Set* section on the value of perseverance includes some material previously covered in another chapter.

Chapter 15: Therapies

- The material on behavior therapy in general and systematic desensitization in particular has been clarified.
- Thought stopping as a CBT technique is now more broadly discussed.
- The discussion of pharmacotherapy has expanded.
- A reworked *Psychologist's Skill Set* section discusses managing mental health.

Chapter 16: Social Thinking and Social Influence

- The discussion of the Stanford prison experiment is now more reflective.
- Coverage of solitude has been compressed.
- The discussion of attribution theory has been rewritten and reorganized.

- The section on mere presence has been refined.
- The discussion of the infamous Milgram experiment is now more reflective.
- Coverage of coercion and cults has been rewritten.
- Material on assertiveness has been rewritten to be more concise.
- A new *Psychologist's Skill Set* section highlights the importance of teamwork.

Chapter 17: Prosocial and Antisocial Behavior

- The Kitty Genovese case is more critically discussed in the context of the bystander effect.
- The section on media violence has been condensed.
- The section on prejudice has been clarified.
- A new *Psychologist's Skill Set* section diversity incorporates some previous material into a discussion of the value of diversity and inclusion.

Chapter 18: Applied Psychology

- A new opening vignette highlights the notion of environmental melancholia.
- A new section on performance appraisal has been added, featuring the concept of 360° feedback.
- The material on environmental psychology has been reorganized and rewritten. For example, the value of social norms marketing and personalized normative feedback as ways to improve conservation are discussed.
- Recent criticisms of the concept of learning styles are now incorporated into the section on educational psychology.
- A new *Psychologist's Skill Set* section alerts students to the importance of career preparation.

Appendix: Statistical Literacy

- A new opening vignette, woven throughout the appendix, follows a student grappling with statistics.
- Statistical literacy is now treated as one of a *Psychologist's Skill Set*.

A Complete Course—Teaching and Learning Supplements

A rich array of supplements accompanies *Introduction to Psychology: Gateways to Mind and Behavior,* including several that make use of the latest technologies. These supplements are designed to make teaching and learning more effective. Many are available free to professors or students. Others can be packaged with this textbook at a discount. Contact your local sales representative for more information on any of the listed resources.

Student Support Materials

Introductory students must learn a multitude of abstract concepts, which can make a first course in psychology difficult. The materials listed here will greatly improve students' chances for success.

MindTap

MindTap® Psychology for Coon/Mitterer/Martini's Introduction to Psychology: Gateways to Mind and Behavior, 15th Edition helps you learn on your terms. Begin studying early with Mastery Training, interact with the eBook, and reinforce your learning with assignments that revisit the topics you've learned about and help you prepare for the test.

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Make your textbook yours. No one knows what works for you better than you. Highlight key text, add notes, and create custom flashcards. When it's time to study, everything you've flagged or noted can be gathered into a guide you can organize.

Instructor Resources

Teaching an introductory psychology course is a tremendous amount of work, and the supplements listed here should help make it possible for you to concentrate on the more creative and rewarding facets of teaching. All of these supplements are available online for download. Go to login.cengage.com to create an account and log in.

MindTap

MindTap® Psychology for Coon/Mitterer/Martini's Introduction to Psychology: Gateways to Mind and Behavior, 15th Edition is the digital learning solution that powers students from memorization to mastery. It gives you complete control of your course—to provide engaging content, to challenge every single student, and to build his or her confidence. Empower students to accelerate their progress with MindTap. MindTap: Powered by You.

MindTap gives you complete ownership of your content and learning experience. Customize the interactive syllabi, emphasize the most important topics, and add your own material or notes in the eBook. Assign Mastery Training to encourage students to begin studying early, and reinforce all that they have learned from the eBook with virtual labs, auto-graded writing assignments, and more.

The Instructor Companion Site

The Instructor Companion Site for this title includes an *Instructor's Resource Manual,* which provides a wealth of teaching tips and classroom resources; *Cengage Learning Testing Powered by Cognero* featuring questions correlated to learning objectives,

Bloom's taxonomy level, and difficulty; and *PowerPoint slides* providing concept coverage with dynamic animations, photographs, and video.

Summary

We sincerely hope that both teachers and students will consider this book and its supporting materials a refreshing change from the ordinary. Creating it has been quite an adventure. In the pages that follow, we believe students will find an attractive blend of the theoretical and the practical, plus many of the most exciting ideas in psychology. Most of all, we hope that students using this book will discover that reading a college textbook can be entertaining and enjoyable.

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Introduction

A Psychologist's Skill Set—Reflective Studying

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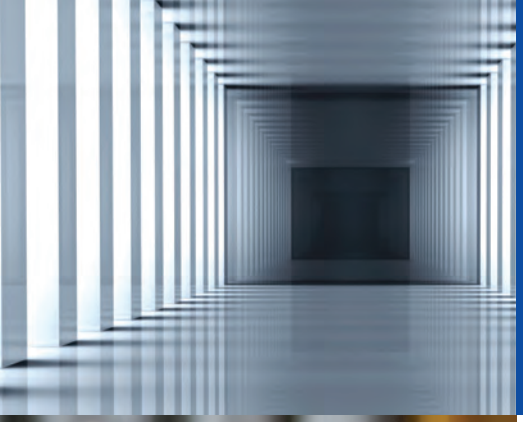

Gateway Theme It is possible to study more efficiently and effectively by being a reflective learner who deliberately engages in active processing.

Gateway Questions

I.1 How can studying psychology help me in my personal and professional life?

I.2 How can I get the most out of this textbook?

I.3 How can I get the most out of class time?

I.4 How can I best prepare for tests?

Well Hello There!

As your authors, we are delighted to welcome you to the "manual" for this textbook. No! Don't skip this, please. Read on. Few of us prefer to start a new adventure by reading a manual. We just want to step off the airplane and begin our vacation, get right into that new computer game, or start using our new camera or smartphone. Please be patient. Successfully learning psychology depends on how *reflective* you are as you read your textbook, listen during your classes, study for exams, and then write them.

Students who get good grades tend to work more reflectively, not just longer or harder. They also tend to understand and remember more of what they've learned long after their exams are over. Psychology is for their lives, not just for their exams. In this introduction, we share a variety of ways to become more reflective learners.

Gateway Questions Revisited

I.1 What's in It for You?—More Than You Might Think

GATEWAY QUESTION I.1:
How can studying psychology help me in my personal and professional life?

As you begin exploring the field of psychology, you may well be asking yourself what you'll get out of it. In general, most of your courses will offer you opportunities to learn in two important ways. The first has to do with course *content*—in this introductory psychology course, the content is what you'll learn about the field of psychology. This includes what psychological research tells us about memory, social relationships, brain functioning, children's development, and psychopathology (to name just few topics). But taking a psychology course will also promote your learning in a second way—specifically, it will teach you about *skills* that you'll need to be successful in your personal and professional life.

What do you mean by "skills"? When we talk about skills, we're often talking about things that you can do, such as communicate clearly or work well with others. But in some cases, the term *skills* can also refer to personal characteristics; for example, independence, tolerance, and adaptability are often considered to be important skills.

These two broad categories of learning—content and skills—are outlined in the American Psychological Association's (APA) *Guidelines for the Undergraduate Psychology Major* (*version 2.0*) (American Psychological Association, 2013). It is well worth having a look at the full document (which is available online), but you can start by having a look at (▲ Table I.1).

Do you assume that your only goal is to memorize "the facts," or knowledge base, of psychology? If so, as you can see in Table I.1, you are thinking in terms of Goal 1. But what about the other goals listed there? Suppose you are given an assignment that involves working in small groups to evaluate some published research articles. Would you wonder why you have to work with other students? Or wish your professor would just get to the point and tell you what the articles are about? Understanding that your education is also about acquiring skills—like being able to think critically (Goal 2), communicate clearly (Goal 4), and work as part of a team (Goal 5)—makes it easier for you to appreciate that professors set up assignments like this to build skills, as well as furthering what you know about psychology.

▲ Table I.1 APA Guidelines for the Undergraduate Psychology Major

Goal 1: Knowledge Base of Psychology
Goal 2: Scientific Inquiry and Critical Thinking
Goal 3: Ethical and Social Responsibility in a Diverse World
Goal 4: Communication
Goal 5: Professional Development

(Adapted from American Psychological Association, 2013. For complete details, go to: www.apa.org/ed/precollege/about/learning-goals.pdf.)

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Work on developing your skills may seem like a waste of your time compared with putting that time into learning course content. But don't sell it short; your skill set will be just as important as your content expertise whether you go on to post-graduate education or a career.

One of the things that you might notice as you look through Table I.1 is that many of the skills listed aren't really specific to psychology—they're likely to be just as relevant to someone majoring in history or business or biology. After all, people in all disciplines need to understand how to communicate well, work well with others, and behave ethically.

Some of the most important advice we can give you, then, is to remember to focus on the skills that you are learning throughout your studies at university, whether in psychology or other subjects. They may not always seem obvious when you're reading a textbook or when you're completing your assignments, but when it comes time for you to hit the job market, you'll be happy that you did.

A Psychologist's Skill Set

To understand why your skill set is important, have a look at ▲ Table I.2, which lists a few of the career opportunities open to psychology majors.

Travel agent? Think about it for a moment. A travel agent may not need psychology content expertise, such as being able to list Freud's stages of psychosexual development or explain what psychological functions are controlled by the different parts of the brain. But it *would* help to be able to work independently, do your own research, be able to make presentations to individuals or groups, have some sensitivity to cross-cultural issues, write well, and, in general, work well with people. While these sorts of skills also can be learned in other ways, study in psychology provides a "golden opportunity" for you to develop an impressive set of skills that are valued by many employers.

▲ Table I.2 A Skills-Based List of Some Potential Careers for Psychology Majors

Addictions counselor	Manager
Administration	Market research analyst
Advertising	Marketing
Career/employment counselor	Mental health worker
Case worker	Motivational researcher
Child care worker	Personnel
Child welfare worker	Population studies researcher
Community worker	Probation or parole officer
Correctional officer	Professional consultant
Counselor	Program coordinator
Cultural diversity consultant	Psychiatric assistant or aide
Customs or immigration agent	Public health statistician
Day care worker, supervisor	Public opinion interviewer
Educational counselor	Public relations
Entrepreneur	Psychology professor
Fundraiser or development officer	Recreation specialist
Gerontology	Research assistant
Government researcher	Sales representative
Health services	Social services/social worker
Hospice coordinator	Teaching
Human resources	Technical writer
Immigration officer	Travel agent
Labor relations specialist	Youth worker

Adapted from Canadian Psychological Association (2017)

How This Book Will Help You with Skill Development

You probably won't be surprised to learn that *Introduction to Psychology: Gateways to Mind and Behavior* has been written with the APA *Guidelines* in mind, in an effort to help you further develop your career-related skill set. Here are some skills highlights:

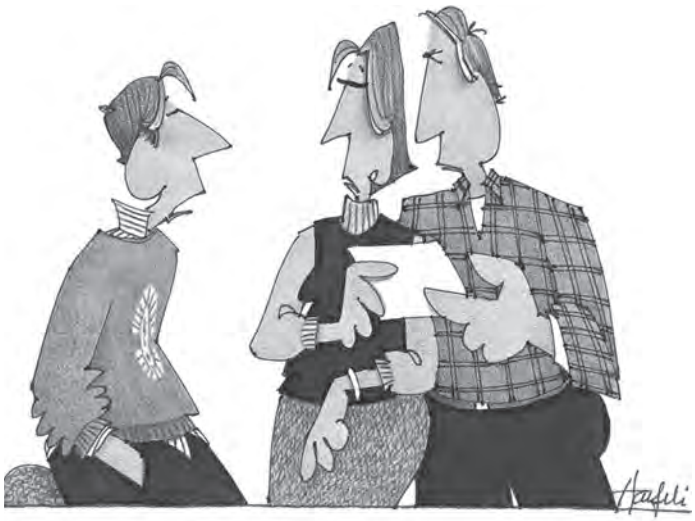
- **Study Skills:** In the remainder of this Introduction we discuss a full set of study skills, from how to read and listen for understanding to how to take tests and overcome procrastination. We also introduce the importance of reflective processing, and we carry this idea throughout the book. All of those skills are very helpful in many different jobs.
- **Research skills:** We will introduce you to science and psychological research, from the research methods in Chapter 1 to the Statistical Literacy Appendix. This will help you be a more educated consumer of research in your chosen career, especially if it involves applying psychological research in any way.
- **Critical thinking skills:** From the discussion of critical thinking in Chapter 1 to the *Think Critically* questions you will encounter throughout this book, we stress critical thinking skills. The term *critical thinking* actually encompasses a wide array of related skills, including defining problems, searching for and evaluating information to address those problems, and synthesizing and applying information that you gather. You can see why such skills are in high demand among employers.
- **Cultural awareness skills:** OK, so we can't take you on a field trip to Japan, but throughout this book, we invite you to reflect on the differences among people of different ethnicities, sexual orientations, ages, and genders. Developing these skills will be particularly important when you find yourself having to work with others whose background or belief system is not the same as your own.
- **A Psychologist's Skill Set:** At the end of each chapter you will also encounter a *Psychologist's Skill Set* section. Each of these sections connects the field of psychology to a skill that is likely to be useful across a broad range of career paths. These sections, combined with the digital resources for this book, will allow you to measure your skill level and give you practical ideas you can use to improve your skill set.

Not to put too fine a point on it, but that's a lot of career-relevant skills, no? Of course, we understand that the classroom isn't the only place to learn skills that can help you in your personal life and career. Many college and university students will also have part-time jobs, or will participate in other learning experiences such as community-based volunteering; or campus activities such as student government or clubs; or study abroad. Often, the skills that you develop through these extra-curricular experiences will support or complement the skills that you can learn through the assignments that you'll complete for your courses.

For example, common part-time student jobs involving interaction with the public (e.g., waiting tables, customer service, or retail jobs) often help to build *verbal* communication skills such as the ability to speak to others, and to listen effectively to what others are saying. In contrast, class assignments often build *writing* skills and the ability to *read and understand* complex material. When you are attempting to persuade an employer that you have a broad range of communication skills, then, you should make sure that you discuss what you have learned from a variety of experiences both inside and outside of the classroom to demonstrate the full range of your abilities.

Reflective Learning: The Most Important Ingredient

Simply deciding that you want to learn some content or skills isn't going to actually make it happen. To understand why, think about the last time you spent the evening relaxing in front of the



"I'm too busy going to college to study."

television. It probably was fun, but you may have noticed that you didn't think too much about what you were watching and that your subsequent memories are not detailed. You were engaging in **experiential processing**, more or less passively soaking up the experience (Kahneman, 2011; Norman, 1994).

Now contrast that with your experience in a recent job interview. It is highly unlikely that you got through the interview by relying on experiential processing alone (and even less likely that you landed the job if you did). Instead, you actively and carefully listened to the questions and put some serious effort into thinking through the implications of answering in different ways before responding. No drifting off here; you were focused and controlled until you left the interview, when you likely breathed a much-deserved sigh of relief. By reacting mindfully (Siegel, 2007), you engaged in **reflective processing** (Kahneman, 2011; Norman, 1994). Rather than just having an experience, you *actively thought* about it. Similarly, **reflective learning** occurs when you engage in deliberately reflective and active self-regulated study (Anthony, Clayton, & Zusho, 2013; Mega, Ronconi, & De Beni, 2014). Here, in general, is how you can promote reflective learning of both content and skills:

1. **Set specific, objective learning goals.** Begin each learning session with specific goals in mind. What knowledge or skills are you trying to master? What do you hope to accomplish (Pychyl, 2013)?
2. **Plan a learning strategy.** How will you accomplish your goals? Make daily, weekly, and monthly plans for learning. Then put them into action.
3. **Be your own teacher.** Effective learners silently give themselves guidance and ask themselves questions. For example, as you are learning, you might ask yourself, "What are the important ideas here? What do I remember? What don't I understand? What do I need to review? What should I do next?"
4. **Monitor your progress and correct when necessary.** Reflective learning depends on self-monitoring. Exceptional learners keep records of their progress toward learning goals (pages read, hours of studying, assignments completed, and so forth). They quiz themselves, use study guides, and find other ways to check their understanding while learning. Consider asking yourself these questions regularly as you work toward mastering both course content and skills: Do any specific areas of your work need improvement? If you are not making good progress toward long-range goals, do you need to revise your short-term targets? If you fall short of your goals, you may need to adjust how you budget your time. You may also need to change your learning environment to deal with distractions such as browsing the web, daydreaming, talking to friends, or testing the limits of your hearing with your new ear buds.
5. **Reward yourself.** When you meet your daily, weekly, or monthly goals, reward your efforts in some way, such as going to a movie or downloading some new music. Be aware that self-praise also rewards learning. Being able to say "Hey, I did it!" can be rewarding. In the long run, success, self-improvement, and personal satisfaction are the real payoffs for learning.

If you discover that you lack certain knowledge or skills, ask for help, take advantage of tutoring programs, or look for information beyond your courses and textbooks. Knowing how to reflectively enhance learning can be a key to lifelong enrichment and personal empowerment (Van Blerkom, 2012).

I.2 Reflective Reading—How to Tame a Textbook

GATEWAY QUESTION I.2:
How can I get the most out of this textbook?

One powerful way to get the most out of this textbook is to be more reflective through **self-reference**. As you read, relate new facts, terms, and concepts to your own experiences and information that you already know well. Doing this will make new ideas more personally meaningful and easier to remember. **Critical thinking** is another powerful way to be more reflective. Critical thinkers pause to evaluate, compare, analyze, critique, and synthesize what they are reading (Chaffee, 2015). You should, too. In Chapter 1, we will learn how to think critically about psychology.

These ways to improve learning can be combined into the **reflective SQ4R method**. SQ4R stands for *survey, question, read, recite, reflect,* and *review,* which are six steps that can help you get more out of your reading:

S = ***Survey.*** Skim through a chapter before you begin reading it. Start by looking at topic headings, figure captions, and summaries. Try to get an overall picture of what lies ahead. Because the chapters in this book are organized into shorter sections, you can survey just one section at a time if you prefer.

Q = ***Question.*** As you read, reword each major topic heading into one or more questions. For example, when you read

the heading *Sleep Stages*, you might ask: "Is there more than one stage of sleep?" "What are the stages of sleep?" "How do the sleep stages differ?" Asking questions prepares you to read with a purpose.

R1 = *Read.* The first *R* in *SQ4R* stands for *read.* As you read, look for answers to the questions you asked. Read in short bites, from one topic heading to the next, and then stop. For difficult material, you may want to read only a paragraph or two at a time.

R2 = *Recite.* After reading a small amount, you should pause to recite or rehearse. Try to mentally answer your questions. Also, make brief notes to summarize what you just read. Making notes will reveal what you do and don't know so you can fill in gaps in your knowledge (Peverly et al., 2003).

If you can't summarize the main ideas, skim over each section again. Until you can understand and remember what you just read, there's little point to reading more. After you've studied a short "bite" of text, turn the next topic heading into questions. Then read to the following heading. Remember to look for answers as you read and to recite or take notes before moving on. Ask yourself repeatedly, "What is the main idea here?" Repeat the question–read–recite cycle until you've finished an entire chapter (or just from one Knowledge Builder to the next, if you want to read shorter units).

R3 = *Reflect.* As you read, reflect on what you are reading. As stated earlier, two powerful ways to do this are self-reference and critical thinking. This is the most important step in the reflective SQ4R method. The more mindfulness and genuine interest that you can bring to your reading, the more you will learn (Hartlep & Forsyth, 2000; Wong, 2015).

R4 = *Review.* When you're done reading, skim back over a section or the entire chapter, or read your notes. Then check your memory by reciting and quizzing yourself again. Try to make frequent, active review a standard part of your study habits (see Figure I.1).

Does this really work? You bet! Using a reflective reading strategy improves learning and course grades (Taraban, Rynearson, & Kerr, 2000). It also results in enhanced long-term understanding. Simply reading straight through a textbook chapter can give you intellectual indigestion. That's why it's better to stop often to survey, question, recite, reflect, and review, and digest information as you read.

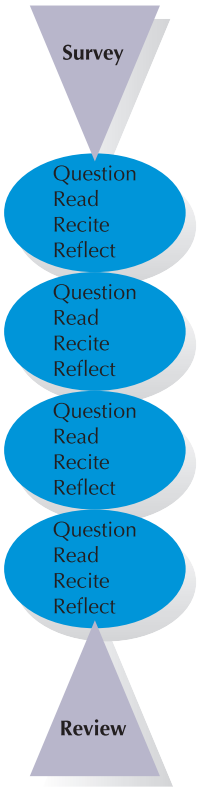


Figure I.1 The reflective SQ4R method. Active learning and information processing are promoted by the reflective SQ4R method. You begin with a survey of the chapter, or chapter section, depending on how much you plan to read. You then proceed through cycles of questioning, reading, reciting, and reflecting and conclude with a review of the section or the entire chapter.

How to Use *Introduction to Psychology: Gateways to Mind and Behavior*

You can apply the reflective SQ4R method to any course of study. However, we have specifically designed this textbook and the associated digital media to help you *reflectively* learn psychology. Please consider trying out the following suggestions as you work through this section:

Survey

Each chapter opens with a chapter survey that includes a *Gateway Theme*, a short opening story introducing what will be covered, as well as a list of *Gateway Questions*. You can use these features to identify important ideas as you begin reading. The short opening story should help interest you in the topics that you will be reading about. The *Gateway Theme* and *Gateway Questions* are good guides to the kinds of information that you should look for as you read. In fact, answers to the *Gateway Questions* are a good summary of the core concepts in each chapter. If, years from now, you still remember those *Gateway* concepts, your authors will be happy indeed.

After you've studied these features, take a few minutes to do your own survey of the chapter, including the figure captions and chapter-ending material. You should also notice that each major chapter heading is accompanied by one of the Gateway Questions. Doing so will help you build a mental map of upcoming topics.

Question

How can I use the reflective SQ4R method to make reading more interesting and effective? Try to interact with your textbooks as you read. Perhaps the most effective way to do this is to ask yourself lots of questions as you read. For example, as noted

Experiential processing Thought that is passive, effortless, and automatic.

Reflective processing Thought that is active, effortful, and controlled.

Reflective learning Deliberately reflective and active self-guided study.

Self-reference The practice of relating new information to prior life experience.

Critical thinking An ability to evaluate, compare, analyze, critique, and synthesize information.

Reflective SQ4R method An active study-reading technique based on these steps: survey, question, read, recite, reflect, and review.

earlier, major chapter sections begin with headings; try turning them into questions. One Chapter 1 heading is "Commonsense Psychology—Isn't It All Common Sense?" Turn this into a question that occurs to you, such as "What is meant by the phrase *commonsense psychology*?" If you read with an aim toward answering your questions, you will be much more likely to get the key points in what you are reading.

Dialogue Questions like the one that began this section will also help you focus on seeking information as you read. These questions are much like those running through the minds of students like you as they read this book. Similarly, the Gateway Questions are repeated throughout each chapter to help you recognize key topics. Try to anticipate these questions. Even better, be sure to ask your own questions.

Read

As an aid to reading, important terms are printed in **boldface type** and defined when they first appear. (Some are followed by pronunciations—capital letters show which syllables are accented.) You'll also find a *running glossary* in the lower righthand corner of pages that you are reading, so you never have to guess about the meaning of technical terms. If you want to look up a term from a lecture or another chapter, check the main *Subject Index/Glossary.* This mini-dictionary is located near the end of the book. In addition, figures and tables will help you quickly grasp important concepts.

Recite

To help you study in smaller "bites," each chapter in this textbook includes periodic, brief study guides called *Knowledge Builders*. After reaching a Knowledge Builder, it is worthwhile to stop reading to recite or rehearse what you just read. Make summary notes and try mentally answer your questions. Recitation will tell you what you do and don't understand. Answering the "Recite" questions in the Knowledge Builders gives you another way to check on how well you understand and remember what you just read.

Reflect

Every Knowledge Builder also includes opportunities to reflect on what you have just read. *Think Critically* questions invite you to reflect more deeply about the how and why of what you have just read, and *Self-Reflect* questions help you connect new ideas to your own life. (Don't forget to take notes and recite and reflect on your own.)

Review

Each chapter concludes with "Gateways to Psychology," a detailed chapter review. There you will find the Gateway Questions restated, along with a point-by-point Summary to help you identify psychology's "big ideas" and enduring principles. Ultimately, they will provide a good high-level summary of what you learned in this course. By making these ideas your own, you will gain something of lasting value: You will learn to see human behavior as psychologists do.

For further review, you can use the running glossary in the margin, as well as boldface terms, figures, and tables. ▲ Table I.3 summarizes how this text helps you apply the reflective SQ4R method. Even with all this help, there is still much more that you can do on your own.

▲ Table I.3 Using the Reflective SQ4R Method

Survey
• Gateway Theme • Opening Story • Survey Questions • Topic Headings • Figure Captions
Question
• Topic Headings • Gateway Questions • In-Text Dialogue Questions
Read
• Boldface Terms • Running Glossary (in margin) • Figures and Tables
Recite
• Recite Questions (in Knowledge Builders) • Practice Quizzes (online) • Notes (make them while reading)
Reflect
• Reflect Questions, including Think Critically and Self-Reflect questions (in Knowledge Builders) • A Psychologist's Skill Set Sections (throughout the text)
Review
• Chapter in Review • Boldface Terms • Running Glossary (in margin) • Figures and Tables • Practice Quizzes (online)

Going Digital

Digital media can also offer several ways to learn more reflectively from this textbook. You can get a good start by exploring MindTap.

MindTap

MindTap is a highly personalized, fully online learning platform that integrates in one site all of the authoritative content, assignments, and services that accompany your textbook, *Introduction to Psychology: Gateways to Mind and Behavior*.

What can I expect to get out of MindTap? Many of the more active elements of reflective learning are better presented digitally. There is room, for example, to include only a few practice quizzes in a print textbook (and you, the reader has to self-score them). In contrast, digital media make it feasible to present more extensive practice materials, as well as to provide immediate feedback.

MindTap has been designed to make it easier for you to engage in reflective learning by presenting the entire course (yup, the textbook, too) through the reflective SQ4R learning path, which

includes video and other interactive activities. You will be able to complete reading assignments, annotate your readings, complete homework, get detailed instant feedback on Guided Practice Activities, and interact with quizzes and assessments. MindTap includes a variety of apps known as "MindApps," allowing functionality such as having the text read aloud to you, as well as synchronizing your notes with your personal Evernote account. MindApps are woven into the MindTap platform and enhance your learning experience with this textbook.

Psychology Websites

As you read (reflectively, of course) through this textbook, you may, from time to time, find yourself wanting to read more about a particular topic. Consider following up by looking up some of the references included in this text. Suppose that you were just reading about procrastination and wanted to learn more about the reference *Pychyl* (*2013*). You can look up all in-chapter references in the "References" section at the back of this text. There, you will find that Pychyl (2013) is a book about overcoming procrastination).

Sometimes, though, the reference that you are interested in will be a psychology journal article. To locate journal articles, you can use *PsycINFO,* a specialized online database offered by the American Psychological Association (APA). **PsycINFO** provides summaries of the scientific and scholarly literature in psychology. Each record in PsycINFO consists of an abstract (short summary), plus notes about the author, title, source, and other details. Entering the author's or authors' name(s) and article title will bring you to the article in question. Also, all PsycINFO entries are indexed using key terms. Thus, you can search for various topics by entering words such as *procrastination, postpartum depression,* or *creativity* and find research papers on any topic in psychology that might interest you.

Most colleges and universities subscribe to PsycINFO. You can usually search PsycINFO from a terminal in your college library or computer center—for free. PsycINFO can also be directly accessed (for a fee) through the Internet via APA's PsycINFO Direct service. For more information on how to gain access to PsycINFO, check out www.apa.org/pubs/databases/psycinfo/index.aspx. Beware, though: Many of the primary research papers available through PsycINFO are highly technical. Don't be put off by this; read and digest what you can. You'll pick up some interesting information and become a better psychology student in the process.

Aside from PsycINFO, there are a number of good websites that you can consult for reliable information about psychology. For example, the American Psychological Association (APA) and the Association for Psychological Science (APS) maintain online libraries of general-interest articles on many topics. They are well worth consulting when you have questions about psychological issues. You'll find them at www.apa.org and www.psychologicalscience.org. For links to recent articles in newspapers and magazines, check the APA's PsycPORT page at www.apa.org/news/psycport/index.aspx. Other high-quality websites include those maintained by other professional organizations, such as the Alzheimer's Association (www.alz.org), and government agencies, such as the National Institute of Mental Health (www.nimh.nih.gov). (■ See the last section of Chapter 1 for more on the important skill of information literacy.)

I.3 Reflective Note Taking—LISAN Up!

GATEWAY QUESTION I.3:
How can I get the most out of class time?

Just as studying a textbook is best done reflectively, so, too, is learning in class (Norman, 1994). Like effective reading, good notes come from actively seeking information. A **reflective listener** avoids distractions and skillfully gathers ideas. Here's a listening/note-taking plan that works for many students. The letters LISAN, pronounced like the word *listen,* will help you remember the steps:

L = *Lead. Don't follow.* Read assigned materials before coming to class. Try to anticipate what your teacher will say by asking yourself questions. If your teacher provides course notes or Microsoft PowerPoint® overheads before lectures, survey them before coming to class. Reflective questions can come from those materials or from study guides, reading assignments, or your own curiosity.

I = *Ideas.* Every lecture is based on a core of ideas. Usually, an idea is followed by examples or explanations. Ask yourself often, "What is the main idea now? What ideas support it?"

S = *Signal words.* Listen for words that tell you what direction the instructor is taking. For instance, here are some signal words:

There are three reasons . . .	Here come ideas
Most important is . . .	Main idea
On the contrary . . .	Opposite idea
As an example . . .	Support for main idea
Therefore . . .	Conclusion

A = *Actively listen.* Sit where you can get involved and ask questions. Bring questions that you want answered from the last lecture or from your text. Raise your hand at the beginning of class or approach your professor before the lecture. Do anything that helps you stay active, alert, and engaged.

N = *Note taking.* Students who take accurate lecture notes tend to do well on tests (Williams & Eggert, 2002). However, don't try to be a tape recorder. Listen to everything, but be

PsycINFO A searchable online database that provides brief summaries of the scientific and scholarly literature in psychology.

Reflective listener A person who knows how to maintain attention, avoid distractions, and actively gather information from lectures.

selective and write down only key points. If you are too busy writing, you may not grasp what your professor is saying. When you're taking notes, it might help to think of yourself as a reporter who is trying to get a good story (Ryan, 2001; Wong, 2015).

Most students take reasonably good notes—and then don't use them! Many students wait until just before exams to review. By then, their notes have lost much of their meaning. If you don't want your notes to seem like chicken scratches, it pays to review them periodically (Ellis, 2016).

Using and Reviewing Your Notes

When you review, you will learn more if you take these extra steps (Ellis, 2015; Pychyl, 2013; Santrock & Halonen, 2013):

- As soon as you can, reflect on your notes to fill in gaps, complete thoughts, and look for connections among ideas.
- Remember to link new ideas to what you already know.
- Summarize your notes. Boil them down and organize them.
- After each class session, write down several major ideas, definitions, or details that are likely to become test questions. Then, make up questions from your notes and be sure that you can answer them.

Summary

The letters *LISAN* are a guide to active listening, but listening and good note taking are not enough. You must also review, organize, reflect, extend, and think about new ideas. Use active listening to get involved in your classes, and you will undoubtedly learn more (Van Blerkom, 2012).

I.4 Reflective Study Strategies—Making a Habit of Success

GATEWAY QUESTION I.4:
How can I best prepare for tests?

Grades depend as much on effort as they do on intelligence. But good students work more efficiently, not just harder, and that's true when they study as well as when they write exams. In this section we provide some tips for improving your studying and test-taking skills.

Strategies for Studying

Recently, researchers reviewed more than 700 articles on 10 of the most commonly used learning strategies to determine which ones were the most effective (Dunlosky et al., 2013). One of the study strategies most commonly used by students—highlighting or underlining material in the text or lecture notes—was found to be a particularly *ineffective* way to master the material, largely because it doesn't usually promote active or reflective learning. If you cannot imagine your textbook without the pretty neon colors, make sure that you combine your highlighting with one (or more!) of the effective strategies that we discuss below.

Test Yourself

A great way to improve grades is to take practice tests before the real one (Karpicke & Blunt, 2011; Sutterer & Awh, 2016), and this strategy came out as a clear winner in the review of learning strategies. In other words, reflective studying should include **self-testing**, in which you pose questions to yourself. You can use flashcards; Knowledge Builder Recite, Think Critically, and Self-Reflect questions; online quizzes; a study guide; or other means. As you study, ask yourself several questions and be sure you can answer them. Studying without self-testing is like practicing for a basketball game without shooting any baskets.

Use Spaced Study Sessions

Another clear winner in the review of learning strategies was the use of spaced study sessions. It is reasonable to review intensely before an exam. However, you're taking a big risk if you are only cramming (learning new information at the last minute). Spaced practice is much more efficient (Dunlosky et al., 2013; Sternberg, 2017). **Spaced practice** consists of a large number of relatively short study sessions. Long, uninterrupted study sessions are called **massed practice**. (If you "massed up" your studying, you probably messed it up, too.) Cramming places a big burden on memory. Generally, you shouldn't try to learn anything new about a subject during the last day before a test. It is far better to learn small amounts every day and review frequently.

Other Suggestions for Studying

Ideally, you should study in a quiet, well-lit area free of distractions. If possible, you should also have one place only for studying. Do nothing else there: keep magazines, MP3 players, friends, cell phones, pets, Twitter®, video games, puzzles, food, lovers, sports cars, elephants, pianos, televisions, Facebook®, and other distractions out of the area (Przepiorka, Błachnio, & Díaz-Morales, 2016). In this way, the habit of studying will become strongly linked with one specific place.

Also, many students *underprepare* for exams, and most *overestimate* how well they will do. A solution to both problems is **overlearning**, in which you continue studying beyond your initial mastery of a topic. In other words, plan to do extra study and review *after* you think you are prepared for a test. One way to overlearn is to approach all tests as if they will be essays. That way, you will learn more completely, so you really "know your stuff."

Strategies for Taking Tests

OK, but what about actually taking the tests? Are there any strategies for that? You bet! You'll do better on all types of tests if you observe the following guidelines (Van Blerkom, 2012; Wong, 2015):

1. Read all directions and questions carefully. They may give you good advice or clues about what to include in your answer and how to format it.

2. Survey the test quickly before you begin.
3. Answer easy questions before spending time on more difficult ones.
4. Be sure to answer all questions.
5. Use your time wisely.
6. Ask for clarification when necessary.

Objective Tests

Several additional strategies can help you do better on objective tests. Such tests (multiple-choice and true-false items) require you to recognize a correct answer among wrong ones or a true statement versus a false one. Here are some strategies for taking objective tests:

1. Relate the question to what you know about the topic. Then read the alternatives. Does one match the answer that you expected to find? If none match, reexamine the choices and look for a partial match.
2. Read all the choices for each question before you make a decision. Here's why: if you immediately think that *a* is correct and stop reading, you might miss seeing a better answer like both *a* and *d*.
3. Read rapidly and skip items that you are unsure about. You may find free information in later questions that will help you answer difficult items.
4. Eliminate certain alternatives. With a four-choice multiple-choice test, you have one chance in four of guessing right. If you can eliminate two alternatives, your guessing odds improve to 50-50.
5. Be sure to answer any skipped items, unless there is a penalty for guessing. Even if you are not sure of the answer, you may be right. If you leave a question blank, it is automatically wrong. When you are forced to guess, don't choose the longest answer or the letter that you've used the least. Both strategies lower scores more than random guessing does.
6. Following this bit of folk wisdom is a mistake: "Don't change your answers on a multiple-choice test. Your first choice is usually right." This is wrong. If you change answers, you are more likely to *gain* points than to lose them. This is especially true if you are uncertain of your first choice, or it was a hunch and your second choice is more reflective (Higham & Gerrard, 2005).
7. Search for the one best answer to each question. Some answers may be partly true, yet flawed in some way. If you are uncertain, try rating each multiple-choice alternative on a 1 to 10 scale. The answer with the highest rating is the one you are looking for.
8. Remember that few circumstances are always or never present. Answers that include superlatives such as *most, least, best, worst, largest,* or *smallest* are often false.

Study Skills Checklist

Time Management
- ☐ Make formal schedule
- ☐ Set specific goals

Study Habits
- ☐ Study in specific area
- ☐ Pace study and review
- ☐ Create memory aids
- ☐ Test yourself
- ☐ Overlearn

Reading
- ☐ Use reflective SQ4R method
- ☐ Study while reading
- ☐ Review frequently

Note Taking
- ☐ Listen actively
- ☐ Use LISAN method
- ☐ Review notes frequently

Figure I.2 Study skills checklist.

Essay Tests

Essay questions are a weak spot for students who lack organization, don't support their ideas, or don't directly answer the question (Van Blerkom, 2012). When you take an essay exam, try the following:

1. Read the question carefully. Be sure to note key words, such as *compare, contrast, discuss, evaluate, analyze,* and *describe*. These words all demand a certain emphasis in your answer.
2. Answer the question. If the question asks for a definition and an example, make sure that you provide both. Providing just a definition or just an example will get you half marks.
3. Reflect on your answer for a few minutes and list the main points that you want to make. Just write them as they come to mind. Then rearrange the ideas in a logical order and begin writing. Elaborate plans or outlines are not necessary.
4. Don't beat around the bush or pad your answer. Be direct. Make a point and support it. Get your list of ideas into words.
5. Look over your essay for errors in spelling and grammar. Save this for last. Your ideas are more important. You can work on spelling and grammar separately if they affect your grade.

Short-Answer Tests

Tests that ask you to fill in a blank, define a term, or list specific items can be difficult. Usually, the questions themselves contain little information. If you don't know the answer, you won't get much help from the questions.

The best way to prepare for short-answer tests is to overlearn the details of the course. As you study, pay special attention to lists of related terms.

Again, it is best to start with the questions whose answers you're sure you know. Follow that by completing the questions whose answers you think you probably know. Questions whose answers you have no idea about can be left blank.

See Figure I.2 for a summary of study skills.

Self-testing Evaluating learning by posing questions to yourself.

Spaced practice Practice spread over many relatively short study sessions.

Massed practice Practice done in a long, uninterrupted study session.

Overlearning Continuing to study and learn after you think that you've mastered a topic.

Procrastination The tendency to put off working on unpleasant tasks.

Procrastination: Don't Be Late!

All these techniques are fine. But what can I do about procrastination? **Procrastination**, the tendency to put off working on unpleasant tasks, is almost universal. (When campus workshops on procrastination are offered, many students never get around to signing up!) Even when procrastination doesn't lead to failure, it can cause much suffering (Hensley, 2016; Sirois & Tosti, 2012; Wohl, Pychyl, & Bennett, 2010). Procrastinators work only under pressure, skip classes, give false reasons for late work, and feel ashamed of their last-minute efforts. They also tend to feel frustrated, bored, and guilty (Pychyl, 2013).

Why do so many students procrastinate? Many students equate grades with their personal worth—that is, they act as if grades tell whether they are good, smart people who will succeed in life. By procrastinating, they can blame their poor work on a late start rather than a lack of ability (Haghbin, McCaffrey, & Pychyl, 2012). After all, it wasn't their best effort, was it? Perfectionism is a related problem. If you expect the impossible, it's hard to start an assignment. Students with high standards often end up with all-or-nothing work habits (Rice, Richardson, & Clark, 2012).

While procrastination can be a real problem for students, most can improve by learning to manage time effectively, setting realistic goals, and considering their attitude toward learning. We have already discussed general study skills, so let's consider these other strategies in a little more detail.

Time Management

A **weekly time schedule** is a written plan that allocates time for study, work, and leisure activities. To prepare your schedule, make a chart showing all the hours in each day of the week. Then fill in times that are already committed: sleep, meals, classes, work, team practices, lessons, appointments, and so forth. Next, fill in times when you will study for various classes. Finally, label the remaining hours as open or free times. Each day, you can use your schedule as a checklist. That way, you'll know at a glance which tasks are done and which still need attention (Pychyl, 2013).

You may also find it valuable to make a **term schedule** that lists the dates of all quizzes, tests, reports, papers, and other major assignments for each class. The beauty of sticking to a schedule is that you know you are making an honest effort. It will also help you avoid feeling bored while you are working or guilty when you play.

Be sure to treat your study times as serious commitments, but respect your free time, too. And remember, students who study hard and practice time management *do* get better grades (Nandagopal & Ericsson, 2011).

Goal Setting

As mentioned earlier, students who are reflective, active learners set **specific goals** for studying. Such goals should be clear-cut and measurable (Pychyl, 2013). If you find it hard to stay motivated, try setting goals for the semester, the week, the day, and even for single study sessions. Also, be aware that more effort early in a course can greatly reduce the stress that you might experience later. If your professors don't give frequent assignments, set your own day-by-day goals. That way, you can turn big assignments into a series of smaller tasks that you can complete. An example would be reading, studying, and reviewing eight pages a day to complete a forty-page chapter in five days. For this textbook, reading one from one Knowledge Builder to another every day or two might be a good pace. Remember, many small steps can add up to an impressive journey.

Developing a Positive Attitude

A final point to remember is that you are most likely to procrastinate if you think that a task will be unpleasant. Learning can be hard work. Nevertheless, reflective students find ways to make schoolwork interesting and enjoyable (Mega, Ronconi, & De Beni, 2014). Try to approach your schoolwork as if it were a game, a sport, an adventure, or simply a way to become a better person. The best educational experiences are challenging, yet fun (Santrock & Halonen, 2013).

Virtually every topic is interesting to someone, somewhere. You may not be particularly interested in the sex life of South American tree frogs. However, a biologist might be fascinated. (Another tree frog might be, too.) If you wait for teachers to make their courses interesting, you are missing the point. Interest is a matter of *your attitude* (Sirois & Tosti, 2012).

The Whole Human: Psychology and You

There is a distinction in Zen between *live* words and *dead* words. Live words come from personal experience; dead words are about a subject. This book will be only a collection of dead words unless you accept the challenge of taking an intellectual journey. You will find many helpful, useful, and exciting ideas in the pages that follow. To make them yours, you must set out to actively and reflectively learn as much as you can. The ideas presented here should get you off to a good start. Good luck!

For more information, consult any of the following books:

Chaffee, J. (2015). *Thinking critically* (11th ed.). Belmont, CA: Cengage Learning/Wadsworth.

Ellis, D. (2016). *The essential guide to becoming a master student* (4th ed.). Boston, MA: Cengage Learning.

Pychyl, T. A. (2013). *Solving the procrastination puzzle: A concise guide to strategies for change*. New York: Tarcher/Penguin.

Santrock, J. W., & Halonen, J. S. (2013). *Your guide to college success: Strategies for achieving your goals* (7th ed.). Belmont, CA: Cengage Learning/Wadsworth.

Van Blerkom, D. L. (2012). *College study skills: Becoming a strategic learner* (7th ed.). Belmont, CA: Cengage Learning/Wadsworth.

Wong, W. (2015). *Essential study skills* (8th ed.). Belmont, CA: Cengage Learning/Wadsworth.

Knowledge Builder

A Psychologist's Skill Set: Reflective Studying

RECITE

1. The facts you pick up during your academic studies are the most important aspect of your education. T or F?
2. Setting learning goals and monitoring your progress are important parts of _____ learning.
3. The four *Rs* in *reflective SQ4R* stand for *read, recite, reflect*, and *review*. T or F?
4. When using the LISAN method, students try to write down as much of a lecture as possible so that their notes are complete. T or F?
5. Spaced study sessions are usually superior to massed practice. T or F?
6. According to research, you should almost always stick with your first answer on multiple-choice tests. T or F?
7. To use the technique known as *overlearning*, you should continue to study after you feel you have mastered a topic. T or F?
8. Procrastination is related to seeking perfection and equating self-worth with grades. T or F?

REFLECT

Think Critically

9. How are the reflective SQ4R and the LISAN methods related?

Self-Reflect

- What career paths are you considering? What skills do you think would be valuable in a job like that? Do you already possess these skills? If so, how might you strengthen them? If not, what kinds of experiences can you undertake during your degree to develop these skills? One of the best ways to begin answering these questions is to sit down and undertake an inventory of the skills you have learned from your psychology studies and elsewhere.
- Do you already use any of the reflective learning techniques discussed in this Introduction?

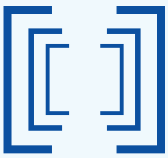
Answers: 1. F. 2. reflective 3. T 4. F 5. T 6. F 7. T 8. T 9. Both encourage people to be reflective and to actively seek information as a way of learning more effectively.

Weekly time schedule A written plan that allocates time for study, work, and leisure activities during a one-week period.

Term schedule A written plan that lists the dates of all major assignments for each of your classes for an entire term.

Specific goals Goals with clearly defined and measurable outcomes.

CHAPTER IN REVIEW



Gateways to Psychology

Gateway Questions Revisited

I.1 How can studying psychology help me in my personal and professional life?

I.1.1 Two broad categories of learning are learning content and learning skills.

I.1.2 Psychology students learn a variety of study skills, research skills, critical thinking skills, cultural awareness skills, and personal skills during their studies.

I.1.3 The study of psychology will prepare you for many potentially rewarding careers. Some of those exist within the field of psychology, but the skills learned in a psychology degree can also be applied to a wide range of other career paths.

I.1.4 Reflective learning is deliberately active self-guided study.

I.2 How can I get the most out of this textbook?

I.2.1 Reflective reading, which involves actively thinking about what is being read, is better than passive reading.

I.2.2 One way to be a more active reader is to follow the six steps of the reflective SQ4R method: survey, question, read, recite, reflect, and review.

I.2.3 Digital media offer another way to be more reflective.

I.3 How can I get the most out of class time?

I.3.1 Reflective learning in class involves active listening.

I.3.2 One way to be a more active listener in class is to follow the five steps of the LISAN method: Lead, don't follow; ideas; signal words; actively listen; note taking.

I.4 How can I best prepare for tests?

I.4.1 More reflective studying involves testing yourself, using spaced study sessions, studying in a specific place, and overlearning.

I.4.2 A variety of guidelines are available for improving general test-taking skills.

I.4.3 More specialized strategies are available for objective tests, essay tests, and short-answer tests.

I.4.4 Procrastination can be overcome through time management, setting goals, and making learning an adventure.

1 Psychology, Critical Thinking, and Science

Bruno Ismael Silva Alves/Shutterstock.com

Gateway Theme Psychology is a profession and a science. Psychologists rely on scientific observation to critically answer questions about behavior.

Gateway Questions

1.1 Why is common sense not enough?

1.2 Why is introspection unreliable?

1.3 How did psychology deal with the limitations of introspection?

1.4 How do cognitive psychologists objectively study subjective mental processes?

1.5 What is the biopsychosocial model?

1.6 What are the major specialties in psychology?

1.7 How are critical thinking and the scientific method used to achieve the goals of contemporary psychology?

1.8 How is an experiment performed?

1.9 What is a double-blind study?

1.10 What descriptive research methods do psychologists use?

1.11 How reliable is information found in the popular media?

The Triple Seven Quest

Only poor weather could have prevented Fiona Oakes from completing her own Triple Seven Quest: seven marathons on seven continents within seven days. Although the storm wouldn't have stopped her from running, it did prevent her from flying from Chile to Antarctica in time to complete her seventh run.

"*What* did Fiona try to do?", or "What could Fiona possibly have been *thinking*?", you might wonder. But you might equally wonder why people get married, grow roses, become suicide bombers, go to college, or live out their lives in monasteries. You might even wonder, at least sometimes, why *you* do some of the things you do. In other words, the odds are that you are curious about human behavior (just like your authors, we should point out). That may even be a part of the reason that you are taking a course in psychology and reading this book.

The contemporary field of psychology is an ever-changing vista of people and ideas that can help you better understand yourself and others. Psychology is about love, stress, therapy, persuasion, hypnosis, perception, memory, death, conformity, creativity, learning, personality, aging, intelligence, sexuality, emotion, happiness, wisdom, and much more. Although we might envy those who run around the world or explore the ocean's depths, the true frontier lies much closer to home. Every life is a journey, and every day is its own adventure. This book is a guided tour of human behavior. We hope you enjoy the voyage.

1.1 Commonsense Psychology—Isn't It All Common Sense?

GATEWAY QUESTION 1.1:
Why is common sense not enough?

Today, psychology is both a science and a profession. As scientists, some psychologists do research to discover new knowledge. Others apply psychology to solve problems in fields such as mental health, business, education, sports, law, medicine, and the design of machines (Bayne & Jinks, 2013). Still others are teachers who share their knowledge with students. Later, we will return to contemporary psychology. For now, let's begin with a look at commonsense psychology.

Commonsense Psychology

We humans have always been curious about humankind. Even the word *psychology* is thousands of years old, coming from the ancient Greek roots *psyche*, meaning mind, and *logos*, meaning knowledge or study. Psychology, then, started out as the study of mind.

If psychology has been around for centuries isn't it by now mostly common sense? There is no doubt that some very thoughtful people have offered keen insights into the human condition throughout history. Because of this, and because we all deal with ourselves and others every day, it is tempting to we think that we already know what is true in psychology.

Actually, you may be surprised to learn how many commonsense beliefs about human behavior are false. For example, have you ever heard that some people are left-brained and some are right-brained? Or that subliminal advertising really works? Or that people prefer to receive thoughtful gifts rather than an impersonal gift, like money? It turns out that these widely held beliefs, and many others, are simply wrong (Lilienfeld et al., 2010).

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Psychologists are highly trained professionals who have specialized skills in counseling and therapy, measurement and testing, research and experimentation, statistics, diagnosis, treatment, and many other areas. Here, a psychologist tests the sensitivity of a worker's hands as part of a series of tests to determine if he has recovered from a hand injury enough to return to work.

How could that be? From the perspective of contemporary psychology, commonsense is frequently wrong because we humans are vulnerable to **uncritical acceptance**—a failure to evaluate claims with sufficient logical rigor. Instead, we have a tendency to accept beliefs as true for illogical reasons, such as:

- having someone we respect or trust assure us that the claims are true
- believing the claims despite having weak or nonexistent evidence
- frequently encountering repetitions of claims, especially from multiple sources or the media
- wanting the claims to be true

As a consequence, we all too often are tempted to accept commonsense beliefs, false news, urban legends, and even outrageous claims about the powers of healing crystals, miraculous herbal remedies, psychics predicting their future, and so forth. Consider astrology horoscopes, which generally contain mostly flattering traits. Naturally, when your personality and your future are described in *desirable* terms, it is hard to deny that the description has the ring of truth (Rogers & Soule, 2009). On the other hand, how much acceptance would astrology receive if all horoscopes read like this:

> **Virgo:** Your nitpicking is unbearable to your friends. You are cold, unemotional, and usually fall asleep while making love. You have no chance of ever finding a person who will love you. Virgos make good doorstops.

Even when a horoscope contains a mixture of good and bad traits, it may seem accurate because we humans are also vulnerable to **confirmation bias**, the tendency to remember or notice things that confirm our expectations and ignore the rest (Lilienfeld, Ammirati, & Landfield, 2009). For example, how well does the following astrological description describe your personality?

> **Your Personality Profile**
>
> You have many personality strengths, with some weaknesses to which you can usually adjust. You tend to be accepting of yourself. You are comfortable with some structure in your life but do enjoy diverse experiences from time to time. Although on the inside you might be a bit unsure of yourself, you appear under control to others. You are sexually well adjusted, although you do have some questions. Your life goals are more or less realistic. Occasionally, you question your decisions and actions because you're unsure that they are correct. You want to be liked and admired by other people. You are not using your potential to its full extent. You like to think for yourself and don't always take other people's word without thinking it through. You are not generally willing to disclose to others because it might lead to problems. You are a natural introvert, cautious, and careful around others, although there are times when you can be an extrovert who is the life of the party.

A psychologist read a similar summary to college students who thought they were taking a personality test. Only a few students felt that the description was inaccurate. Reread the description

and you will see that it contains both sides of several personality dimensions ("You are a natural introvert . . . although there are times when you can be an extrovert . . . "). Its apparent accuracy is an illusion based on confirmation bias.

To explore confirmation bias, take this week's newspaper, show some friends their actual horoscopes, and ask them if it applies to them. The odds are they will think it does; you can always find Aquarius characteristics in an Aquarius. Now show other friends the wrong horoscope—say, a Pisces horoscope to a friend who is a Taurus. The odds are that they will be equally likely to say it applies.

Confirmation bias, which can occur unconsciously, is similar to *cherry picking*, the deliberate picking of evidence and arguments to support one's own beliefs while ignoring contradictory evidence or arguments (Boudry, Blancke, & Pigliucci, 2015). Conscious or not, this is a surefire way to protect yourself from confronting your mistaken beliefs. It is also a surefire way to remain mistaken (Schick & Vaughn, 2014).

Superstition and Pseudoscience

Before leaving this topic, we should note that the entire belief system of astrology is based on the types of flawed observations and flawed reasoning characteristic of uncritical acceptance. As such, it can be considered a type of **superstition**, an unfounded belief held without objective evidence or in the face of falsifying evidence. (If the unfounded belief system seems scientific, it is sometimes called a *pseudoscience* or "false science.")

Astrology is based on a zodiac map invented several thousand years ago in the ancient civilization of Babylon. Unlike scientific theories, which are regularly falsified and rejected or revised accordingly, the basic underpinnings of astrology have remained relatively unchanged. Nevertheless, to date, no astrologer has offered a convincing theory of *how* the positions of the planets at a person's birth affect his or her future.

Empirical studies of astrology have also failed to uncover supporting evidence. One classic study of more than 3,000 predictions by famous astrologers found that only a small percentage of them were accurate. These successful predictions tended to be vague ("There will be a tragedy somewhere in the east in the spring") or easily guessed from current events (Culver & Ianna, 1988). Similarly, no connection exists between people's astrological signs and their intelligence or personality traits (Hartmann, Reuter, & Nyborg, 2006). There also is no connection between the compatibility of couples' astrological signs and their marriage and divorce rates or between astrological signs and leadership, physical characteristics, or career choices (Martens & Trachet, 1998).

Many beliefs, such as astrology, can seem plausible at first. For example, *phrenology* was popularized in the early 1800s by Franz Gall, a German anatomy teacher. Phrenology claimed that the shape of the skull reveals personality traits. However, phrenology was revealed to be a pseudoscience since psychological research demonstrated that bumps on the head have nothing to do with talent or ability. The phrenologists were so far off that they listed the part of the brain that controls hearing as a center for combativeness!

Graphology, the study of handwriting, is a more recent example. Since graphology is useful for detecting forgeries, isn't it possible that personality traits are also revealed by handwriting? On further examination, though, this also turns out to be pseudoscience.

Universal History Archive/Getty Images

Phrenology was an attempt to assess personality characteristics by examining various areas of the skull. Phrenologists used charts such as the one shown here as guides. Like other pseudopsychologists, phrenologists resisted attempts to empirically verify their concepts.

Graphologists score no better than average on tests of accuracy in rating personality (Dazzi & Pedrabissi, 2009; Furnham, Chamorro-Premuzic, & Callahan, 2003).

How is scientific psychology any better? Let's find out.

1.2 Introspection and the First Scientific Psychologists—Inward Ho!

GATEWAY QUESTION 1.2:
Why is introspection unreliable?

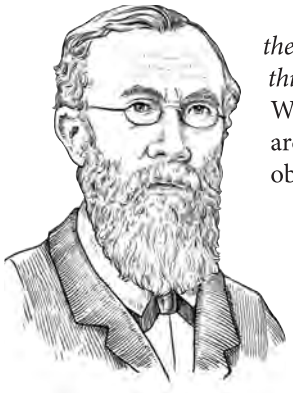
As we noted previously, people have been observing human behavior and philosophizing about it informally for thousands of years. By the early 1800s, the many successes of the scientific method in the study of the natural world encouraged scholars to apply it to the study of humans.

Most historians now agree that scientific psychology truly took hold in the late 1800s in Leipzig, Germany (Kardas, 2014). There, in 1879, Wilhelm Wundt (VILL-helm Voont), the father of psychology, set up a laboratory to study the mind.

Uncritical acceptance The tendency to believe claims because they seem true or because it would be nice if they were true.

Confirmation bias The tendency to remember or notice information that fits one's expectations, while forgetting or ignoring discrepancies.

Superstition Unfounded belief held without evidence or in spite of falsifying evidence.



Wilhelm Wundt (1832–1920). Wundt is credited with making psychology an independent science, separate from philosophy. Wundt's original training was in medicine, but he became deeply interested in psychology. In his laboratory, Wundt investigated how sensations, images, and feelings combine to make up personal experience.

If psychology is the study of the mind, then how can a psychologist tell me anything about what is in my own mind? Wundt would have agreed. After all, you are the only person who can directly observe the inner workings of your own mind, right? How, Wundt wondered, do we experience sensations, images, and feelings?

Wundt (and psychologists ever since) relied on **scientific observation**. Although casual observation also relies on gathering *empirical evidence* (information gained from direct observation), scientific observation is *systematic*, or carefully planned. For example, has someone ever told you that people in New York City (or Paris, or wherever) are rude? This may mean no more than that the person had a bad encounter on a single visit. An anecdote like this may well say nothing about New Yorkers or Parisians in general. Scientific observations also are *intersubjective*, which means that more than one observer can confirm them. Basically, the scientific approach says, "Let's take a more objective look" (Stangor, 2015; Stanovich, 2013).

Wundt proceeded, then, by systematically observing and measuring objective stimuli of various kinds (e.g., lights, sounds, and weights). A **stimulus** is any physical energy that affects a person and evokes a response [stimulus: singular; stimuli (STIM-you-lie): plural].

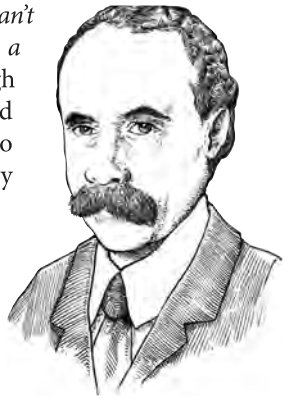
He then presented various stimuli to observers, who were asked to "look within" via **introspection**, the personal observation of mental events such as thoughts, feelings, and sensations. Stop reading, look around you and focus on an object. Now carefully describe aloud your inner thoughts, feelings, and sensations about that object. You are *introspecting*. (Introspect, Fiona, introspect!)

Aware that casual introspection may be unreliable, he sought to train his *introspectionists* to be systematic and scientific as they looked inward to report their reactions to various stimuli (Asthana, 2015). Over the years, Wundt studied vision, hearing, taste, touch, memory, time perception, and many other topics. By insisting on systematic observation and measurement, he asked some interesting questions and got contemporary psychology off to a good start as the scientific study of mental events (Schultz & Schultz, 2016).

Structuralism

Another of Wundt's students, Edward Titchener (TICH-in-er) brought his ideas to the United States. He called Wundt's ideas **structuralism**, the study of sensations and personal experience analyzed as basic elements.

But how could he do that? You can't analyze conscious experience as you do a chemical compound, can you? Although even Wundt didn't think that you could do that, the structuralists tried to explore "mental chemistry," mostly by using introspection. For instance, an observer might hold an apple and decide that she or he had experienced the item's hue (color), roundness, and weight. Another question that a structuralist might have asked is, "What basic tastes mix together to create complex flavors as different as broccoli, lime, bacon, and strawberry cheesecake?" Critics of structuralism led psychology in several new directions.

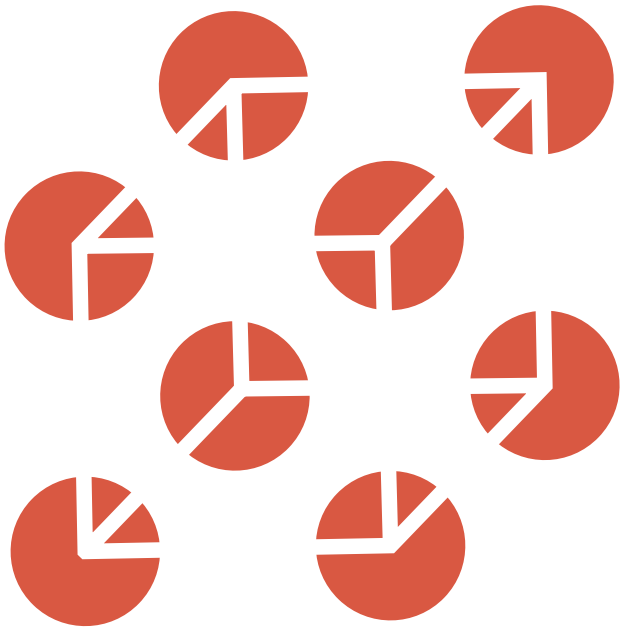


Max Wertheimer (1880–1941). Wertheimer first proposed the Gestalt viewpoint to help explain perceptual illusions. He later promoted Gestalt psychology as a way to understand not only perception, problem solving, thinking, and social behavior, but also art, logic, philosophy, and politics.

Gestalt Psychology

Imagine playing "Happy Birthday" on a flute and then on a guitar. The guitar duplicates none of the flute's sounds. Yet the melody is still recognizable—so long as the *relationship* between the notes remains the same.

Now imagine what would happen if you played the notes of "Happy Birthday" in the correct order, but at a rate of one per hour. What would you have? Nothing! The separate notes would no longer be a melody. Perceptually, the melody is more than the individual notes that define it.



This design is entirely made up of broken circles. However, as the Gestalt psychologists discovered, our perceptions have a powerful tendency to form meaningful patterns. Because of this tendency, you will probably see a cube in this design, even though it is only an illusion. Your whole perceptual experience exceeds the sum of its parts.

Observations like these launched the Gestalt school of thought. German psychologist Max Wertheimer (VERT-hi-mer) was the first to advance the Gestalt viewpoint. It is inaccurate, he said, to introspectively analyze psychological events into pieces, or elements, as the structuralists tried. Accordingly, **Gestalt psychology** studied experiences of thinking, learning, and perception as whole units, not by analyzing them into parts. Their slogan was, "The whole is greater than the sum of its parts." In fact, the German word *Gestalt* means form, pattern, or whole.

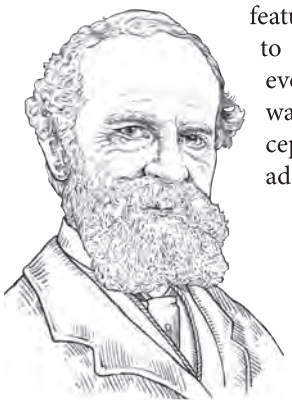
Like a melody, many experiences cannot be broken into smaller units, as the structuralists proposed. For this reason, studies of perception and personality have been especially influenced by the Gestalt viewpoint. Gestalt psychology also inspired a type of psychotherapy.

Functionalism

American scholar William James further broadened psychology to include animal behavior, religious experience, abnormal behavior, and other interesting topics. James's brilliant first book, *Principles of Psychology* (1890), helped establish the field as a separate discipline (Kardas, 2014).

James's interest in how the mind functions to help us adapt to the environment grew into **functionalism**, a school of psychology that considers behaviors in terms of active adaptations. James regarded consciousness as an ever-changing *stream* or *flow* of images and sensations, not a set of lifeless building blocks, as the structuralists claimed.

The functionalists admired Charles Darwin, who deduced that creatures evolve in ways that favor survival. According to Darwin's principle of **natural selection**, physical features that help plants and animals adapt to their environments are retained in evolution. Similarly, the functionalists wanted to find out how the mind, perception, habits, and emotions help us adapt and survive.



William James (1842–1910). William James was the son of philosopher Henry James, Sr., and the brother of novelist Henry James. During his long academic career, James taught anatomy, physiology, psychology, and philosophy at Harvard University. James believed strongly that ideas should be judged in terms of their practical consequences for human conduct.

What effect did functionalism have on contemporary psychology? Functionalism brought the study of animals into psychology. It also promoted educational psychology (the study of learning, teaching, classroom dynamics, and related topics). Learning makes us more adaptable, so the functionalists tried to find ways to improve education. For similar reasons, functionalism spurred the rise of *industrial/organizational* psychology, the study of people at work. (■ Today, educational psychology and industrial or organizational psychology remain two major applied specialties. See Chapter 18 for more information about applied psychology.)

The Shortcomings of Introspection

The early psychologists all relied mainly on introspection, casual or otherwise, for observations of the mind in action. Right from the beginning, introspection proved to be a poor way to answer psychological questions (Benjafield, 2015). No matter how insightful the individual, systematic the observations, or well trained the introspectionists, results from one introspection to the next frequently disagreed. Even worse, there was no way to settle intersubjective differences (my trained introspectionists are better than your trained introspectionists?). Think about it. If you and a friend both introspect on your perceptions of an apple and end up listing different basic elements, who would be right?

As if this were not problem enough, in 1901 one of Wundt's students, Karl Marbe, reported a dramatic example what had come to be called **imageless thought** (Hergenhahn & Henley, 2014). He asked trained introspectionists to introspect while they compared two objects of different weights, holding one weight in each hand. They could clearly describe their experiences of each weight and which one was heavier, but they could not describe the mental process of judging which one was heavier. As Marbe put it, the thought process of comparing the weights did not form a conscious "image." Thus not only did introspection fail to yield reliable, consistent observations of the mind at work, but it also appeared that some of the mind's work was not open to introspection.

To appreciate the full implications of the discovery of imageless thought, let's have a close look at a more recent study. Imagine that you are one of the shoppers that psychologists Timothy Wilson and Richard Nesbitt invited to examine four pairs of silk stockings hanging on a rack. The shoppers were asked a deceptively simple question: "Which pair is the highest quality, and why?" (Wilson & Nisbett, 1978). The results can be found in ● Figure 1.1. As you can see, the order in which the stockings were displayed strongly influenced which pair was chosen.

Scientific observation An empirical investigation structured to answer questions about the world in a systematic and intersubjective fashion (i.e., observations can be reliably confirmed by multiple observers).

Stimulus Any physical energy that an organism senses.

Introspection Personal observation of your own thoughts, feelings, and behavior.

Structuralism Study of sensations and personal experience analyzed as basic elements.

Gestalt psychology Study of thinking, learning, and perception in whole units, not by analysis into parts.

Functionalism School of psychology that considers behaviors in terms of active adaptations.

Natural selection Darwin's theory that evolution favors those plants and animals best suited to their living conditions.

Imageless thought An old term describing the inability of introspectionists to become subjectively aware of some mental processes; an early term describing the cognitive unconscious.

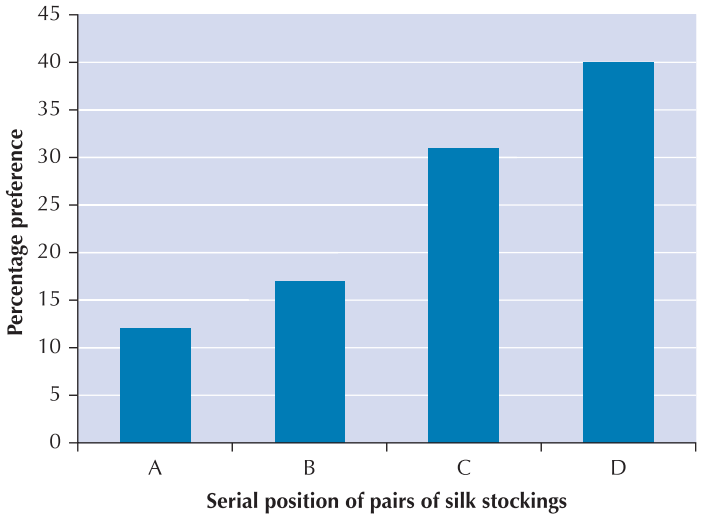


Figure 1.1 The effects of serial position on preference. The four pairs of silk stockings in this experiment were labeled A, B, C, and D, from left-to-right. The results clearly show that the serial position of the individual pairs of stockings; that is, where each pair appeared in the "lineup," influenced shopper's preferences. (Data adapted from Wilson & Nisbett, 1978.)

The shoppers were not told that all the stockings were objectively identical. Also, each pair appeared equally often in each of the four serial positions. This was achieved by changing the order of the four pairs before each shopper made a choice. This made it virtually impossible that the pair in position D was actually consistently of better quality.

If the shoppers were introspectively aware of the underlying psychological processes that resulted in their choices, they surely would have identified serial position as a relevant factor. Amazingly, while serial position *objectively* influenced the shopper's choice, no shopper gave serial position as a *subjective* reason for his or her choice. Apparently, you are not always the best judge of why you behave the way you do (Wilson, 2004). That is, even when introspection does yield information, there is no guarantee that the information is accurate.

What reasons did the shoppers give? If you think about it, it *would* be odd to hear someone say, "The pair in position D are the best because they are on the far right." Apparently, not knowing exactly why they made their choice, the shoppers gave the sorts of reasons that you (and they) might expect a thoughtful shopper to give: smoothness, visual appearance, color, weave, and so on. They gave plausible but incorrect answers such as, "I chose the pair in position D because they were the sheerest and most elastic."

Wilson and Nisbett's finding is only one of hundreds of similar reports, dating back to Marbe. Taken together, they confirm that much of our thinking actually takes place in the **cognitive unconscious**, a part of the mind of which we are subjectively unaware and therefore not open to introspection (see, e.g., Bar-Anan, Wilson, & Hassin, 2010; Nisbett & Wilson, 1977).

We will encounter the cognitive unconscious many times during our exploration of psychology. (■ For example, in Chapter 7.4 we explore the accuracy of police lineups. Given what you now know, just imagine being arrested on suspicion of committing a murder . . . and being assigned to position D in a four-person lineup.)

So does imageless thought take place in the cognitive unconscious? Precisely! Try it for yourself. Close your eyes and extend both hands palms up while a friend gives you two objects of different weights, one in each outstretched palm. You will certainly become aware of the sensations associated with each object and should notice that you *immediately* know which is heavier. It will just "pop into your mind." But *how* did you decide this? Marbe couldn't know it in 1901, but by documenting an example of the *cognitive unconscious* in action, he set in motion a debate that would eventually result in the rejection of introspectionism (remember the stockings?).

Self-Report Data

Although introspection is no longer thought to be the best way to study the mind, it is still widely used as an important source of insight in studies of hypnosis, meditation, problem solving, moods, and many other topics.

But why? Here's an example: Suppose you are interested in asking whether dreams have meaning. The *only* way you could do that is to write down your own dreams when you can remember them (i.e., by introspecting) or to gather other people's introspective accounts of their dreams.

Similarly, sometimes psychologists would like to ask everyone in the world a few well-chosen questions: "What form of discipline did your parents use when you were a child?" "What is the most dishonest thing you've done?" When we ask people to answer *survey* questions, we are gathering **self-report data**, probably the most common form of data collection that psychologists use. In some cases, we ask participants to self-report their answers in their own words, either by writing things down or giving an answer verbally in an interview. Other times, we'll ask them to complete a test, questionnaire, or survey.

Here's a contemporary example of systematically gathering self-report data: Have you ever wondered if, when it comes to giving gifts, it really is "the thought that counts"? Francesca Gino and Francis Flynn (2011) decided to find out. They asked gift recipients to rate how much they would appreciate getting a gift that they requested, as opposed to one chosen by the gift giver. It turns out people, on average, prefer gifts that they specifically request to gifts that the giver *thinks* might be appreciated. In contrast, gift givers believed that recipients would be just as appreciative of a gift that they chose for them (see ● Figure 1.2).

Isn't the outcome of this study obvious? It isn't if you started out believing otherwise. Sometimes the results of studies match our personal observations or commonsense beliefs, and other times, they come as a surprise. In this instance, you may have guessed the outcome. Your suspicions were confirmed by scientific observation. However, it could easily have turned out differently.

How about getting money for a gift; does that make a difference? Gino and Flynn (2011) checked that out as well. They found that gift recipients preferred getting money even more than getting a gift that they requested, although gift givers thought exactly the opposite. Apparently, we struggle more with the idea of thoughtful gifts when we are the givers than when we are the recipients.

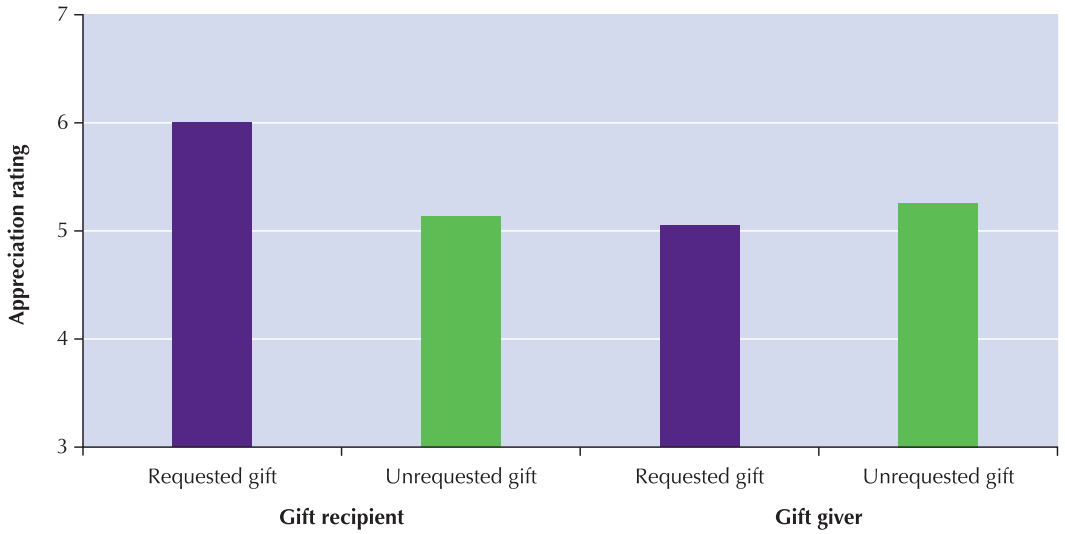


Figure 1.2 Results of an empirical study. The graph shows that the recipients of gifts appreciate gifts they have requested more than gifts the giver chooses. Gift givers were slightly more likely to believe that recipients would prefer receiving an unrequested gift (although the difference was not statistically significant). (Data adapted from Gino & Flynn, 2011.)

1.3 Beyond Introspection—Behaviorism, Psychoanalysis, Humanism, and Biopsychology

GATEWAY QUESTION 1.3:
How did psychology deal with the limitations of introspection?

Faced with what had been shown to be a seriously flawed method, introspection, psychology took a fateful twist (or two, or three). To begin, the introspective method was soon challenged by **behaviorism**, a school of thought in psychology that emphasizes the study of observable actions over study of the mind.

Behaviorism

Behaviorist John B. Watson objected strongly to the study of the "mind" or conscious experience. He believed that introspection is unscientific precisely because there is no objective way to settle disagreements between observers. Watson realized that he could study the behavior of animals even though he couldn't ask animals questions or know what they were thinking (Hergenhahn & Henley, 2014). He simply observed the relationship between any *stimuli* (i.e., events in the environment) and an animal's **response** (any muscular action, glandular activity, or other identifiable aspect of behavior). These observations were objective because they did not involve introspecting based on subjective experience. Why not, he asked, apply the same objectivity to study human behavior? For Watson and many other behaviorists, psychology was *not* the study of mind; it was the study of *behavior*.

Psychologists ever since have agreed with Watson and systematically study behavior directly in order to draw more valid conclusions. Would you say it's true, for instance, that "the clothes make the man"? Or do you believe that "you can't judge a book by its cover"? Why introspect about it? As psychologists, we simply look at some people who are well dressed and some who are not and, through scientific observation, find out who makes out better in a variety of situations.

Watson soon also adopted Russian physiologist Ivan Pavlov's (ee-VAHN PAV-lahv) concept of *conditioning* to

John B. Watson (1878–1958). Watson's intense interest in observable behavior began with his doctoral studies in biology and neurology. Watson became a psychology professor at Johns Hopkins University in 1908 and advanced his theory of behaviorism. He remained at Johns Hopkins until 1920, when he left for a career in the advertising industry!

Cognitive unconscious The part of the mind of which we are subjectively unaware and that is not open to introspection.

Self-report data Information that is provided by participants about their own thoughts, emotions or behaviors, typically on a questionnaire or during an interview.

Behaviorism School of thought in psychology that emphasizes study of observable actions over study of the mind.

Response Any muscular action, glandular activity, or other identifiable aspect of behavior.

explain most behavior. (A *conditioned response* is a learned reaction to a particular stimulus.) Watson claimed, "Give me a dozen healthy infants, well-formed, and my own special world to bring them up in, and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant-chief, and yes, beggarman and thief" (Watson, 1913/1994).

Would most psychologists agree with Watson's claim? No. The early behaviorists believed that all responses are *determined* by stimuli. Today, this is regarded as an overstatement. Just the same, by stressing the study of observable behavior, behaviorism helped make psychology a natural science rather than a branch of philosophy.

Observational Data

Psychologists' data, then, come not only from participant's subjective self-reports; they can also come from the objective observation and measurement of participants' behavior. **Observational data** can be either *naturalistic* or *structured*.

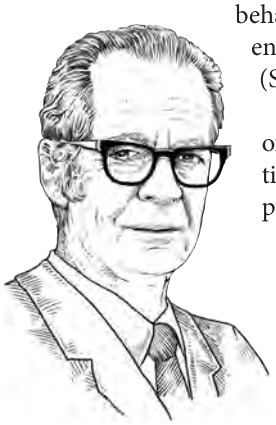
Naturalistic observations take place in a *natural setting* (the typical environment in which a person or animal lives, works, or plays), without any interference from the researcher. For example, in 1960, Jane Goodall first observed a wild chimpanzee in Tanzania use a grass stem as a tool to remove termites from a termite mound (Van Lawick-Goodall, 1971).

In contrast, **structured observations** are those in which psychologists put each participant in the same position and then watch their behavior. For example, if we were interested in studying empathy, we might have children come to a research lab and have a researcher pretend to trap their finger in a door and express pain. The researcher would express her pain in exactly the same way for each child, and would then watch to see how the children actually responded. Notice that observations provide only *descriptions* of behavior. To *explain* observations, we may need to use experimental research methods.

Radical Behaviorism

The best-known behaviorist, B. F. Skinner (1904–1990), believed that our actions are controlled by rewards and punishments. Many of Skinner's ideas about learning grew out of his work with rats and pigeons. Nevertheless, he believed that the same laws of behavior apply to humans. (■ See Chapter 6.4 for more information about operant conditioning.)

As a **radical behaviorist**, Skinner not only rejected introspection, he also rejected the concept of *mind* as an inappropriate subject matter for scientific psychology. Skinner believed that behavior can be explained without reference to mental events, such as *thinking* (Schultz & Schultz, 2016).



B. F. Skinner (1904–1990). Skinner studied simple behaviors under carefully controlled conditions. In addition to advancing psychology, Skinner hoped that his radical brand of behaviorism would improve human lives.

Behaviorists deserve the credit for much of what we know about learning, conditioning, and the proper use of rewards and punishments. Skinner was convinced that a designed culture based on positive reinforcement could encourage desirable behavior. He also opposed the use of punishment because it doesn't teach correct responses. Too often, he believed, misguided rewards and punishments lead to destructive actions that create problems such as overpopulation, pollution, and war.

Behaviorism is also the source of behavior therapy, which uses learning principles to change problem behaviors such as overeating, unrealistic fears, or temper tantrums. (■ See Chapter 15.4 and 15.5 for more information about behavior therapy.)

Psychoanalytic Psychology

As behaviorism's distrust of introspection pushed American psychology to grow more scientific, an Austrian doctor named Sigmund Freud, who also distrusted introspection, was developing radically different ideas that opened new horizons in art, literature, and history, as well as psychology (Barratt, 2013). Freud believed that mental life is like an iceberg: Only a small part is exposed. He called the area of the mind that lies outside personal awareness the *unconscious*. Today, Freud's notion is often referred to as the **dynamic unconscious**, to differentiate it from the concept of the *cognitive unconscious* (Zellner, 2011). According to Freud, our behavior is deeply influenced by unconscious thoughts, impulses, and desires—especially those concerning sex and aggression.

Freud theorized that many unconscious thoughts are *repressed*, or held out of awareness, because they are threatening. But sometimes, he said, they are revealed by dreams, emotions, or slips of the tongue. (Freudian slips are often humorous, as when a student who is late for class says, "I'm sorry I couldn't get here any later.") Because of this, Freud held that you cannot take people's self-reports literally, since much is left out and much of the rest is disguised. To more accurately interpret self-reports, he created **psychoanalysis**, the first fully developed psychotherapy, or "talking cure" to explore unconscious conflicts and emotional problems. (■ See Chapter 15.2 for more details.)

Like the behaviorists, Freud believed that all thoughts, emotions, and actions are *determined*. In other words, nothing is an accident. If we probe deeply enough, we will find the causes of every thought or action. Unlike the behaviorists, he believed that unconscious processes (not external stimuli) were responsible for what people do. Freud was also among the first to appreciate that childhood affects adult personality (perhaps best expressed in the quote by poet William Wordsworth, "the child is father to the man").

Sigmund Freud (1856–1939). For over 50 years, Freud probed the unconscious mind. In doing so, he altered contemporary views of human nature. His early experimentation with a "talking cure" for hysteria is regarded as the beginning of psychoanalysis. Through psychoanalysis, Freud added psychological treatment methods to psychiatry.

It wasn't long before some of Freud's students modified his ideas. Known as **neo-Freudians** (*neo* means "new" or "recent"), they accepted some of Freud's theory but revised parts of it. Many, for instance, placed less emphasis on sex and aggression and more on social motives and relationships. Some well-known neo-Freudians are Alfred Adler, Anna Freud (Freud's daughter), Karen Horney (HORN-eye), Carl Jung (yoong), Otto Rank (rahnk), and Erik Erikson. Today, Freud's ideas have been altered so much that few strictly psychoanalytic psychologists are left. However, his legacy is still evident in **psychodynamic theory**, which continues to emphasize internal motives, conflicts, and unconscious forces (Moran, F., 2010).

Humanistic Psychology

For a time, radical behaviorism and psychoanalysis combined to offer the unsettling view that we humans don't consciously know much about ourselves. Eventually, *humanists* like Abraham Maslow and Carl Rogers questioned the Freudian idea that we are ruled solely by unconscious forces . They also were uncomfortable with the radical behaviorist emphasis on conditioning and the rejection of mental events, such as thinking, as appropriate topics for scientific psychology (Schultz & Schultz, 2016).

Both views have a strong undercurrent of **determinism**—the idea that behavior is determined by forces beyond our control. Instead, humanists stress **free will**, our ability to make conscious, voluntary choices. Of course, past experiences and the unconscious do affect us. Nevertheless, humanists believe that people can freely *choose* to live more creative, meaningful, and satisfying lives.

Humanistic psychology, then, is the study of people as inherently good and consciously motivated to learn and improve. Humanists believe that everyone has this potential, and they seek ways to help it emerge. Humanists are interested in psychological needs for love, self-esteem, belonging, self-expression, creativity, and spirituality. Such needs, they believe, are as important as our biological urges for food and water. For example, newborn infants deprived of human love may die just as surely as they would if deprived of food. Maslow's concept of self-actualization is a key feature of humanism. **Self-actualization** refers to the process of fully developing personal potential.

Abraham Maslow (1908–1970). As a founder of humanistic psychology, Maslow was interested in studying people of exceptional mental health. Such self-actualized people, he believed, make full use of their talents and abilities. Maslow offered his positive view of human potential as an alternative to the schools of behaviorism and psychoanalysis.

How scientific is the humanistic approach? Initially, humanists were less interested in treating psychology as a science. They stressed subjective factors, such as one's self-image, self-evaluation, and frame of reference. (*Self-image* is your perception of your own body, personality, and capabilities. *Self-evaluation* refers to appraising yourself as good or bad. A *frame of reference* is a mental perspective used to interpret events.) Today, humanists still try to understand how we perceive ourselves and experience the world. However, most now do research to test their ideas, just as other psychologists do (Schneider, Bugental, & Pierson, 2001).

Biopsychology

More recently, **biopsychology** undertook to study the physical brain and body structures that underlie behavior and mental processes. To do so, biopsychologists make use of physiological measures of those mental processes. **Physiological data** can be gathered using tools that map brain activity such as EEG or fMRI, but psychologists even gather data that are related to the functioning of the heart, the tension in our muscles, and the dilation of our pupils. Yet other studies gather information about the levels of hormones such as *cortisol* (to assess stress), *testosterone* (as a measure of aggression), and *oxytocin* (an indicator of affiliation).

What's the point of such measures? At one time, for example, we had no choice but to rely upon the introspective reports of people who say they never dream. Then the electroencephalograph (EEG) was invented to measure brainwaves. Certain brainwave patterns, as well as the presence of eye movements, can objectively reveal whether a person is dreaming. People who report never dreaming, it turns out, dream frequently. Rather, they forget their

Observational data Data that come from watching participants and recording their behavior.

Naturalistic observation Observing behavior as it unfolds in natural settings.

Structured observation Observing behavior in situations that have been set up by the researcher.

Radical behaviorism A behaviorist approach that rejects both introspection and any study of mental events, such as thinking, as inappropriate topics for scientific psychology.

Dynamic unconscious In Freudian theory, the parts of the mind that are beyond awareness, especially conflicts, impulses, and desires not directly known to a person.

Psychoanalysis Freudian approach to psychotherapy emphasizing the exploration of unconscious using free association, dream interpretation, resistances, and transference to uncover unconscious conflicts.

Neo-Freudians Psychologists who accepts the broad features of Freud's theory but have revised the theory to include the role of cultural and social factors while still accepting some of its basic concepts.

Psychodynamic theory Any theory of behavior that emphasizes internal conflicts, motives, and unconscious forces.

Determinism The idea that all behavior has prior causes that would completely explain one's choices and actions if all such causes were known.

Free will The ability to freely make choices that are not controlled by genetics, learning, or unconscious forces; the idea that human beings are capable of making choices or decisions themselves.

Humanistic psychology Study of people as inherently good and motivated to learn and improve.

Self-actualization The process of fully developing personal potentials.

Biopsychology Study of the physical brain and body structures that underlie behavior and mental processes.

Physiological data Data that come from participants' physiological processes (including measures of the brain and heart, muscles, and the production of hormones).

AJPhoto/Science Source

The scientific study of dreaming was made possible by use of the EEG, a device that records the tiny electrical signals generated by the brain as a person sleeps. The EEG converts these electrical signals to a written record of brain activity. Certain shifts in brain activity, coupled with the presence of rapid eye movements, are strongly related to dreaming.

dreams before awakening. If they are awakened when the EEG indicates they are dreaming, they vividly remember the dream. Thus, the EEG helped make the study of dreaming more scientific. (■ See Chapter 5.4 for more information.)

Furthermore, physiological data are sometimes more reliable than self-report and even observational data. For example, suppose you are a judge deciding whether to convict someone on a drunk driving charge. To which of these pieces of evidence would you give the most weight? The accused's insistence that he was not drunk (self-report data)? The arresting officer's statement that the accused's car was weaving erratically in traffic (observational data)? A measured blood/alcohol level higher than the legal limit (physiological data)?

Knowledge Builder

Introducing Psychology: The Rise of Scientific Psychology

RECITE

1. Horoscopes provided by astrology are stated in positive terms, which have a "ring of truth." This fact is the basis of
   a. falsification
   b. uncritical acceptance
   c. confirmation bias
   d. critical thinking
2. The cognitive unconscious is
   a. better studied objectively
   b. inaccessible through introspection
   c. outside subjective awareness
   d. all of the above
3. _____ processes can be operationally defined in terms of _____.
4. Psychology is the _____ study of _____ and _____ processes.

REFLECT

Think Critically

5. Superstitions like astrology and graphology are harmless. True or false?
6. Modern sciences like psychology are built on intersubjective observations, which can be verified by two or more independent observers. Did structuralism meet this standard? Why or why not?

Self-Reflect

- How stringently do you evaluate your own beliefs and the claims made by others?
- How might you test the old saw that you can't teach an old dog new tricks?

Answers: 1. b 2. d 3. mental, observable behavior 4. Scientific, behavior, mental. 5. False. Although superstitions may seem like no more than a quaint nuisance, they can do real harm. For example, people seeking treatment for psychological disorders may become the victims of self-appointed "experts" who offer ineffective, pseudoscientific therapies (Kida, 2006; Lilienfeld, Ruscio, & Lynn, 2008). Or imagine being turned down for a job by a graphologist who was hired by the company to evaluate your suitability by analyzing your handwriting. Even a graphological society recommends that handwriting analysis should not be used to select people for jobs (Simner & Goffin, 2003). 6. No, it did not. Structuralism's downfall was that each observer examined the contents of his or her own mind—which is something that no other person can observe.

1.4 The Rise of Cognitive Psychology—Recovering the Mind

GATEWAY QUESTION 1.4:
How do cognitive psychologists objectively study subjective mental processes?

When the radical behaviorists rejected introspection as a legitimate scientific method, they also deliberately ignored the role that thinking plays in our lives. This approach was eventually criticized as "throwing the baby out with the bath water." Eventually, behaviorism became less radical, as references to mental processes (thinking) began to be used to explain even the behavior of animals (Zentall, 2002, 2011). As an example, let's say that a rat frequently visits a particular location in a maze because it offers access to food. A behaviorist would say that the rat visits this location because it is rewarded by the pleasure of eating each time that it goes there. A *cognitive behaviorist* would add that, in addition, the rat *expects* to find food at the location. This is the cognitive part of the rat's behavior.

Cognitive Psychology

By the late 1950s, **cognitive psychology** took form as the study of information processing, thinking, reasoning, and problem solving (Goldstein & Brockmole, 2017; Neisser, 1967). Unlike radical behaviorism, cognitive psychology is open to studying the mind and mental events. Like behaviorism (and unlike introspectionism), cognitive psychology relies primarily upon objective observation rather than subjective introspection.

But how can cognitive psychology objectively study subjective mental events without introspection? The answer lies in the concept

▲ Table 1.1 The Early Development of Psychology

Perspective	Date	Notable Events
Experimental psychology	1879	• Wilhelm Wundt opens the first psychology laboratory in Germany
	1883	• The first psychology lab in the United States is founded at Johns Hopkins University, in Baltimore, Maryland
	1886	• The first psychology textbook published in the United States; written by John Dewey
Structuralism	1898	• Edward Titchener advances psychology based on introspection
Functionalism	1890	• William James publishes *Principles of Psychology*
	1892	• The American Psychological Association is founded
Psychodynamic psychology	1895	• Sigmund Freud publishes his first studies
	1900	• Freud publishes *The Interpretation of Dreams*
Behaviorism	1906	• Ivan Pavlov reports his research on conditioned reflexes
	1913	• John Watson presents the behaviorist viewpoint
Gestalt psychology	1912	• Max Wertheimer and other researchers advance the Gestalt viewpoint
Humanistic psychology	1942	• Carl Rogers publishes *Counseling and Psychotherapy*
	1943	• Abraham Maslow publishes *A Theory of Human Motivation*
Biopsychology	1949	• Donald Hebb publishes *The Organization of Behavior*
Cognitive psychology	1956	• George Miller publishes *The Magic Number Seven, Plus or Minus Two*

of *operational definition*. An **operational definition** defines a scientific concept by stating the specific actions or procedures used to measure it. Suppose, for example, we want to objectively study hunger, a mental event which we all experience subjectively. We might operationally define the intensity of hunger by counting the number of hours of food deprivation. After all, it stands to reason that someone who has not eaten for 12 hours is most likely hungrier than she was after not having eaten for 3 hours.

Here's another example: Suppose we give a list of words to be studied and then, sometime later, ask for the words to be recalled from memory. We could operationally define memory accuracy as the number of words written down correctly divided by the total number of words originally presented. Again, it stands to reason that someone who correctly wrote down only 30 percent of the words has a less accurate memory for those words than someone who correctly wrote down 85 percent of the words.

Today, most psychologists accept that **psychology** is the scientific study of behavior and mental processes (appropriately operationally defined). It is this reliance on objective scientific observation to systematically answer questions about all sorts of behaviors and mental processes that distinguishes psychology from many other fields, such as history, law, art, and business (Stanovich, 2013).

To what does behavior refer in the definition of psychology? Any directly observable action or response—eating, hanging out, sleeping, talking, or sneezing—is a *behavior*. So are studying, gambling, watching television, tying your shoes, giving someone a gift, reading this book, and, yes, extreme marathoning. But psychologists haven't left out the mind; they also objectively study mental events, such as dreaming, thinking, remembering, understanding what you read, choosing stockings (or murder suspects), and other mental processes (Jackson, 2016). ▲ Table 1.1 presents a summary of psychology's early development.

1.5 The Biopsychosocial Model—One Model to Rule Them All

GATEWAY QUESTION 1.5:
What is the biopsychosocial model?

Key insights from the early schools of thought continue to influence contemporary psychology. Some early systems, such as structuralism, have disappeared entirely, while new ones have gained prominence. Also, viewpoints such as functionalism and Gestalt psychology have been absorbed into newer, broader perspectives.

Today, one overarching perspective has gained prominence. The **biopsychosocial model** accepts that human behavior and

Cognitive psychology The study of information processing, thinking, reasoning, and problem solving.

Operational definition Defining a scientific concept by stating the specific actions or procedures used to measure it. For example, hunger might be defined as the number of hours of food deprivation.

Psychology The scientific study of behavior and mental processes.

Biopsychosocial model An approach acknowledging that biological, psychological, and social factors interact to influence human behavior and mental processes.

mental processes are strongly influenced by a combination of *biological, psychological,* and *social* factors. As all-encompassing as this may at first seem, in practice the biopsychosocial model cannot by itself tell us *which* particular biological, psychological, and social factors influence any particular behavior. Only more detailed research can yield specific answers. Instead, it serves as a constant reminder of the value of taking a biological, psychological, *and* social perspective on that behavior (▲ Table 1.2).

For example, *anorexia nervosa* is an eating disorder involving a compulsive desire to lose weight (■ see Chapter 10.3). Instead of focusing exclusively on the biological or psychological factors underlying anorexia, the biopsychosocial model suggests we examine social factors as well. Sure enough, research from the social perspective suggests that idealized body images presented in the media play a role in triggering this potentially fatal disorder (Hausenblas et al., 2013).

The Biological Perspective

The **biological perspective** seeks to explain behavior in terms of biological principles such as evolution, genetics, and brain processes. **Evolutionary psychology** is an approach that emphasizes inherited, adaptive aspects of behavior and mental processes. *Biopsychologists* and others who study the brain and nervous system, such as biologists and biochemists, comprise the broader field of **neuroscience**. Using new techniques, *neuroscientists* are producing exciting insights about how the brain relates to thinking, feelings, perception, abnormal behavior, and other topics.

The Psychological Perspective

The **psychological perspective** views behavior as the result of psychological processes within each person. This view continues to emphasize scientific observation, just as the early psychologists did. However, cognitive psychology has gained prominence in recent years as researchers have devised suitable operational definitions and research methods to objectively study mental processes, such as thinking, memory, language, perception, problem solving, consciousness, and creativity (Reed, 2013). With a renewed interest in thinking, it can be said that psychology has finally "regained consciousness" (Robins, Gosling, & Craik, 1998).

Freudian psychoanalysis continues to evolve into the broader *psychodynamic view.* Although many of Freud's ideas have been challenged or refuted, psychodynamic psychologists continue to

▲ Table 1.2 Perspectives of the Biopsychosocial Model

Biological Perspective

Biopsychological View

Key idea: *Human and animal behavior is the result of internal physical, chemical, and biological processes.*

Seeks to explain behavior through activity of the brain and nervous system, physiology, genetics, the endocrine system, and biochemistry; a neutral, reductionistic, and mechanistic view of human nature.

Evolutionary View

Key idea: *Human and animal behavior is the result of the process of evolution.*

Seeks to explain behavior through principles based on natural selection; a neutral, reductionistic, and mechanistic view of human nature.

Psychological Perspective

Behaviorist View

Key idea: *Behavior is shaped and controlled by one's environment.*

Emphasizes the study of observable behavior and the effects of learning; stresses the influence of external rewards and punishments; a neutral, scientific, and somewhat mechanistic view of human nature.

Cognitive View

Key idea: *Much human behavior can be understood in terms of the mental processing of information.*

Concerned with thinking, knowing, perception, understanding, memory, decision making, and judgment; explains behavior in terms of information processing; a neutral, somewhat computerlike view of human nature.

Psychodynamic View

Key idea: *Behavior is directed by forces within one's personality that are often hidden or unconscious.*

Emphasizes internal impulses, desires, and conflicts—especially those that are unconscious; views behavior as the result of clashing forces within personality; a somewhat negative, pessimistic view of human nature.

Humanistic View

Key idea: *Behavior is guided by one's self-image, by subjective perceptions of the world, and by the need for personal growth.*

Focuses on subjective, conscious experience, human problems, potentials, and ideals; emphasizes self-image and self-actualization to explain behavior; a positive, philosophical view of human nature.

Social Perspective

Social View

Key idea: *Behavior is influenced by one's social and cultural context.*

Emphasizes that behavior is related to the social and cultural environment within which a person is born, grows up, and lives from day to day; a neutral, interactionist view of human nature.