



psychology in your life

SECOND EDITION

GRISON
HEATHERTON
GAZZANIGA



PSYCHOLOGY IN YOUR LIFE





PSYCHOLOGY IN YOUR LIFE

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For all teachers who inspire
others, especially
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Sarah Heatherton and James Heatherton

Lilli, Emmy, Garth, Dante,
and Rebecca



ABOUT THE AUTHORS



SARAH GRISON is Associate Professor of Psychology at Parkland College. She brings more than 20 years of psychology teaching experience to *Psychology in Your Life*. Sarah examines how psychological research can be applied to teaching and learning. She teaches introductory psychology every term and puts her laboratory and classroom research into practice to improve student learning and actively engage students. She has created and taught courses to support novice teachers in developing their skills. Sarah is a certified Teacher-Scholar who previously was recognized each year on the University of Illinois List of Excellent Teachers. She has won the University of Illinois Provost's Initiative for Teaching Advancement Award and the Association for Psychological Science Award for Teaching and Public Understanding of Psychological Science. She is a member of the Association for Psychological Science; the American Educational Research Association; the International Mind, Brain, and Education Society; and the American Psychological Association (Division 2, Society for Teaching of Psychology).



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MICHAEL S. GAZZANIGA is Distinguished Professor and Director of the Sage Center for the Study of the Mind at the University of California, Santa Barbara. In his career, he has introduced thousands of students to psychology and cognitive neuroscience. He founded and presides over the Cognitive Neuroscience Institute and is founding editor-in-chief of the *Journal of Cognitive Neuroscience*. He is past president of the American Psychological Society and a member of the American Academy of Arts and Sciences, the Institute of Medicine, and the National Academy of Sciences. He has held positions at the University of California, Santa Barbara; New York University; the State University of New York, Stony Brook; Cornell University Medical College; and the University of California, Davis. He has written many notable books, including, most recently, *Tales from Both Sides of the Brain: A Life in Neuroscience*.

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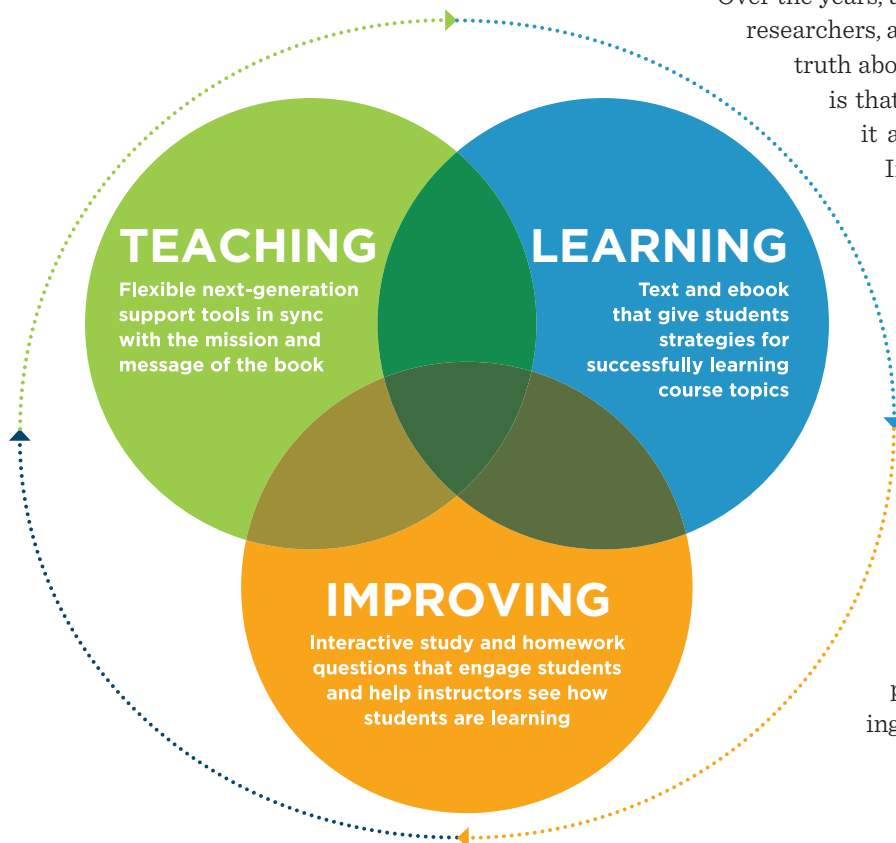


PREFACE FOR TEACHERS

Everyone who has taught introductory psychology remembers their “first time.” Most instructors have a humorous story about being handed the textbook just a few days before class began and being pointed in the direction of the classroom. We, the authors of *Psychology in Your Life*, certainly remember our first experiences. One of us was in a hot and windowless attic teaching discussion sections at Carnegie Mellon University. Another one of us was trying to overcome the imposter syndrome, teaching at Harvard in a building named after William James. And yet another one of us was trying to hold the attention of 800 students at the University of California, Santa Barbara, right before the 1967 Summer of Love. Whether we started teaching as undergraduate students, doctoral students, or faculty, all of us were immediately hooked on the experience. We are passionate about the field and about exposing students to the science of psychology as well as helping them learn just how relevant psychology is to their everyday lives.

Over the years, as we have gained experience as teachers, researchers, and authors, we have come to realize a key truth about inspiring students to learn. This truth is that learning is not a unitary process, nor is it an activity conducted alone by students. Instead, learning results from three interconnected factors: teachers teaching, students learning, and continuous efforts to improve the skills of both teachers and students.

We created *Psychology in Your Life* because we wanted a textbook and integrated support materials that supported excellence in all three of these aspects of education. Even more importantly, we wanted to develop tools that would really work. Accordingly, we designed the book and support materials based on the latest psychological research about the pedagogical practices that facilitate teaching, learning, and making improvements.



Great Teaching Improves Learning

Providing support to both teachers and students is more important than ever because both teachers and students are experiencing a “perfect storm” of challenges. Teachers must teach more students in a wider variety of course formats, support learning in many different students, and figure out how to assess student learning. Often, we must achieve these goals with fewer resources, less support, and little training. While students can sometimes learn without teachers, great teaching improves student learning. All teachers, from the most experienced to the novice, can use a helping hand to support their students’ learning. *Psychology in Your Life* supports teachers in two main ways.



TEACHING

First, Teachers Have Easy access to Materials that Are Aligned with the Learning Goals They Have Chosen for Their Students

Teachers’ goals for their students differ, based on the school, the students, and the teachers’ philosophies about teaching and learning (Kang, 2008). For example, individual teachers choose which content goals to focus on and which student skills to help develop, including cognitive skills such as application, writing, critical thinking, or scientific thinking (American Psychological Association, 2013; Anderson, 2002; Dunn, Halonen, & Smith, 2009). When using the *Psychology in Your Life* support package, teachers can focus on the learning goals and skills that are most relevant for their students. They can then use the corresponding pedagogical resources. Our rich bank of tools draws on our combined 75 years of teaching introductory psychology, and we know these tools work because we have overseen their development. The resources we offer—Active Learning PowerPoint lecture slides, Demonstration Videos for Students, in-class activities, clicker questions, discussion topics, video clip suggestions, and more—are tagged in the online repository by chapter, section, and learning goal, so teachers can easily search for resources related to specific learning goals and skill development. What’s more, these resources have been designed to be used flexibly in either face-to-face or online learning environments.

Second, Teachers Receive Support at All Levels of Experience

We remember the dread we felt when we began to teach with few or no support materials. In response, we created Teaching Videos. Filmed in Sarah Grison’s home office, these clips offer brief observations to less experienced teachers about the concepts that students tend to find challenging. In presenting strategies for overcoming these challenges (Buskist & Groccia, 2012), our videos refer to specific pedagogical supports in the textbook as well as to resources in the instructor support materials. Meanwhile, even as experienced teachers, we still find ourselves hunting for new ways to engagingly demonstrate concepts. To address this need, we created Demonstration Videos for Teachers. These clips provide step-by-step instructions for doing in-class demonstrations of 30 important concepts found in the textbook. Printed summaries describe the materials, including handouts, needed to perform the demonstrations.

Active Engagement Improves Learning

Many students face obstacles to learning. They may find it difficult to absorb complex information. They may simply never have been taught how to learn. Students also vary in their desire to learn as well as what motivates them to engage with material. In addition, students often have limited time and money, so they have to strategize about engaging with material effectively and efficiently. *Psychology in Your Life* encourages students in two main ways.



LEARNING

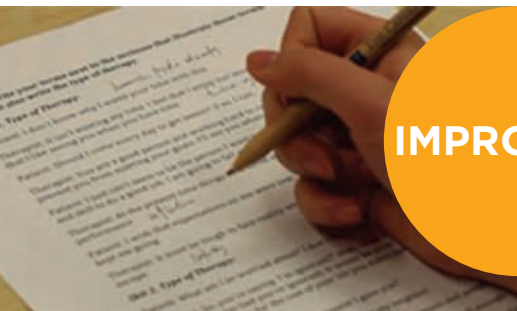
First, the Book and Ebook Encourage Students to Engage in Active Reading Processes

Successful learning is goal-directed (American Psychological Association, 2013; Toukuhama-Espinosa, 2011). For this reason, each section of each chapter of *Psychology in Your Life* starts with learning goals that indicate what students should learn in that section. With other textbooks, students may not actually do anything with such goals. Perhaps they highlight key words or reread text passages, but these activities are not effective learning techniques (Dunlosky et al., 2013). To encourage active use of our learning goals, we have paired each learning goal with a reading activity. In writing answers to reading activities associated with learning goals, the students will begin to remember, understand, and apply the concepts. Teachers can collect the students' answers for a grade or even just check that they are completed, because low-stakes writing assignments like these can help learning (Elbow & Sorcinelli, 2005).

Second, the Book and Ebook Give Students Many Different Ways to Actively Work with the Material

Learning is enhanced when we relate new information to what we already know and when we ask why a particular thing happens (Dunlosky, et al., 2013; Toukuhama-Espinosa, 2011). Throughout each chapter of *Psychology in Your Life*, students can engage with activities. These active learning features are the Has It Happened to You?, Try It Yourself, Being a Critical Consumer, Scientific Thinking, and Using Psychology in Your Life boxes. Some of the features reinforce the book's content, some help foster critical thinking, and others help relate the book's content and critical thinking to the students' lives. All of these features will help students learn and apply the material.

Practice Makes Perfect



IMPROVING

Most students need to work with material to master it and to demonstrate their learning. Using multiple tools to distribute learning over time will maximize student learning (Cepeda et al., 2006). Accordingly, *Psychology in Your Life* includes two main ways for students to practice with the material over time and to get feedback on their performance, which will improve their learning.

First, Students Can Repeatedly Practice with the Material by Using the InQuizitive and ZAPS 2.0 Interactive Learning Tools

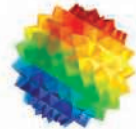
Repeated practice improves learning (Dunlosky et al., 2013; Toukuhama-Espinosa, 2011). When students get rich feedback about their answers, their learning is further enhanced (Hattie & Timperley, 2007). InQuizitive is a formative, adaptive homework tool that provides students with different types of interactive questions so they can work with the concepts and receive feedback about their answers. Students who earn higher scores on homework tools of this kind tend to obtain higher scores on exams (Regan, 2015). In addition, ZAPS 2.0, the online, interactive psychology research labs, allow students to engage in activities that simulate psychological research from the perspective of the participant or the researcher. By using ZAPS 2.0, students will experience the scientific method for themselves and hone their scientific thinking skills. These tools are discussed in further detail below.

Second, Students Can Test Themselves on the Concepts in Several Ways

Students need fast and simple ways to quiz themselves on their learning immediately after reading material in a textbook. Repeated testing lets students reaccess remembered information. Such reaccessing enhances learning (Roediger & Karpicke, 2006) and promotes transfer of the information to new situations using the concepts (Carpenter, 2012). Accordingly, the textbook and the ebook provide an

appendix of self-quizzes, with one for each chapter. The answers are given for all the questions, and each question is associated with a specific learning goal in the chapter, so students can easily see which goals they have and have not mastered, then return to the appropriate sections of the text to review material. Lastly, teachers have the option of providing short pre-lecture and post-lecture quizzes to their students from the Norton Coursepack, a bank of multiple-choice questions that can be easily housed in any learning management system. Indeed, research shows that pre-lecture quizzes have learning benefits, including improved scores on later exams (Narloch, Garbin, & Turnage, 2006).

Introducing the Second Edition of Psychology in Your Life



Because *Psychology in Your Life* is informed by evidence-based principles that help teachers support student learning, we need to continually update the book and the teaching support materials to reflect new research findings. Our pedagogical input comes from psychology teachers who are using the materials, including Sarah Grison and her colleagues at Parkland College. Guided by the latest understandings of teaching, learning, and improving, the second edition of *Psychology in Your Life* has been updated in several important ways.

A New Chapter on Sex, Gender, and Sexuality In the past few years, we have seen extraordinary and rapid advances in our psychological understanding of what biological sex is, how we come to understand our gender identity, and how biological sex and gender identity differ from sexual orientation. Accordingly, our new chapter—Chapter 10, “Sex, Gender, and Sexuality”—presents the most recent psychological research on these topics, especially with respect to the biological bases of sexual orientation. Our approach is simultaneously informative about concepts that students may be unfamiliar with and sensitive toward people who may personally identify with the material. We also help students connect with the material by relating it to current events. In addition, all of the teaching support materials for the new chapter have been developed by the authors and other experienced teachers who teach this material regularly. After reading this chapter and working with the active learning materials, students should understand, among other things, why biological sex, gender, and sexual orientation are different concepts that exist on a continuum.

Every Chapter Has Been Revised and Updated Comments from reviewers, our teaching colleagues, and our students have helped us ensure that every chapter in the textbook is as accurate and compelling as possible. First, we added information on topics that are important in the field of psychology. Second, we cited the most recent psychological research for the topics discussed in each chapter. Third, we added active learning to two of the book’s pedagogical features: The Scientific Thinking and Being a Critical Consumer boxes now include questions for students to think about and answer, either as homework or while in class. Fourth, we worked to enhance student comprehension in some places by reorganizing the content, changing the phrasing, and/or redesigning the graphics. Fifth, we updated the references to popular culture to keep our discussions and images fresh. Finally, we revised the teaching support materials so they align perfectly with the changes in the textbook. As a result of these changes, this new edition of *Psychology in Your Life* provides both teachers and students with the best, most up-to-date information on psychological research and current events related to psychology, along with excellent new interactive ways for students to engage with the material.

Here is a chapter-by-chapter list of notable changes in this second edition:

1. Introducing the World of Psychology

- Added humanistic psychology as an influential psychological school of thought
- Clarified the cycle of the scientific method to include information on how to do a literature review

2. The Role of Biology in Psychology

- Added information about the electrical properties of the neuron and action potentials
- Clarified what happens to neurotransmitters that don't bind to dendritic receptors
- Included information on hemispheric specialization

3. Consciousness

- Reorganized the information about consciousness in split-brain patients
- Simplified the graphics related to electrical activity in the brain during sleep
- Updated information about the effects of drugs on consciousness to include clinical applications of certain drugs (such as MDMA for treatment of PTSD)

4. Development Across the Lifespan

- Made the chapter shorter, more relevant, and easier to digest
- Created a Being a Critical Consumer feature exploring whether educational media helps infants learn to talk
- Designed a figure for Kohlberg's levels of moral development
- Added new research on how physical exercise can mediate cognitive decline in people as they age

5. Sensation and Perception

- Changed content to ensure that students understand wavelengths and how they differ from frequencies
- Clarified the function of smell receptors in olfaction
- Added information about the perception of pain according to gate control theory

6. Learning

- Included updated information about the debate on what happened to "Little Albert," the infant in John Watson's classical conditioning research
- Changed the Try It Yourself feature to help students practice using operant conditioning with a pet
- Added examples of negative reinforcement that students are likely to have experienced

7. Memory

- Added information about taking notes on laptops, which affects how students pay attention to and remember information from class
- Clarified the research on how suggestibility affects memory
- Included research on false memories to complete the section on memory distortion

8. Thinking and Intelligence

- Streamlined and clarified the presentation of how we think about concepts
- Updated the table that presents the various models of how we think about concepts
- Created a new Using Psychology in Your Life feature about making major decisions

9. Motivation and Emotion

- Reorganized parts of the chapter so the first section focuses on theories of motivation and the second focuses on specific motivations
- Added material on how grit helps people achieve long-term goals
- Added a new figure on the biological motivations related to hunger

10. Sex, Gender, and Sexuality

- New!

11. Health and Well-Being

- Added new information about health effects of e-cigarettes
- Added a section on health impacts of sexually transmitted infections
- Added information about positive impacts of exercising more, quitting smoking, and practicing safer sex

12. Social Psychology

- Explained how group membership influences competition and cooperation
- Added new information about modern racism
- Clarified the information about bystander apathy surrounding the Kitty Genovese story

13. Self and Personality

- Clarified the three aspects of the reciprocal determinism theory of personality
- Created a new figure showing how traits are best understood as a continuum ranging from very low to very high on certain characteristics
- Changed the section on objective measures to focus primarily on self-report tools used to investigate personality, such as questionnaires

14. Psychological Disorders

- Ensured the chapter is consistent with changes made in *DSM-5*
- Clarified the graphics showing depressed and elevated moods in bipolar disorders

15. Psychological Treatments

- Added information about historical approaches to the treatment of psychological disorders
- Included new approaches to treating bipolar disorders with antipsychotic drugs
- Clarified new research showing that use of higher doses of SSRIs are associated with suicide attempts in adolescents who have depression

Inquizitive Homework Tool Research shows that repeatedly practicing with material promotes learning. As a major step toward helping students practice, we are delighted to offer InQuizitive with the new edition. This formative, adaptive homework tool is designed to motivate students to engage with the concepts in a gamelike environment. In particular, the tool provides interactive questions of many styles (drag and drop, matching, etc.) to encourage students to work with the material. The tool also provides formative feedback not just on the correctness of answers, but also on the thought processes that a student most likely got wrong, and it links students with the concepts in the ebook so they can check their understanding of ideas. Finally, the tool is formative because it adapts to any concepts a student got wrong to provide additional questions, and practice, on the topics. InQuizitive was designed based on psychological research about how students learn, and the tool has been tested in the classroom to obtain direct evidence of its impact on learning and indirect evidence about students' attitudes toward it. Because teachers can easily access the student data from InQuizitive, they can flexibly tailor their classes to provide support for the concepts that students find most challenging.



New! ZAPS 2.0 For those teachers who place a priority on helping students understand psychology as a science, and the scientific method used in psychological research, we now offer the opportunity to use ZAPS 2.0. This tool gives students a taste of what psychological research is like by letting them engage with interesting online experiments in a hands-on fashion. Across over 20 core psychological concepts, students get the opportunity to act as a participant and as a researcher to create and gather data from these labs, explore results, and share their findings. To reach these goals, each interactive lab has four parts: a brief video introduction to a concept presented in the text, an experiment or experience in which the student generates data based on her responses, an analysis of the data generated by the student and peers, and an examination of the theory behind the concept. To support teachers using ZAPS 2.0, each lab includes an instructors' kit with ideas about how best to align the lab with the content in *Psychology in Your Life*. The instructor's kit also offers ideas and materials to help students use and learn from the data produced in the lab.



Using Evidence-Based Teaching and Learning to Improve Educational Experiences



Psychology in Your Life provides a unique pedagogical system, supporting teaching skills and student learning while providing ways to get evidence about educational outcomes. We have spent several years working hard to make this vision into a reality. Now we give the new and improved *Psychology in Your Life* to you, so that these tools might help support learning in your students, and so that students can learn from you in the best way possible.

ACKNOWLEDGMENTS



Like teaching and learning, writing a textbook and developing unique and integrated educational tools for teachers and students are joint efforts. Our work to support teachers and students in *Psychology in Your Life* has depended so much on the support that we received in the years we have been engrossed in this project. First, we wish to thank our families for their unwavering support. Our spouses and significant others have been incredibly understanding and generous when we repeatedly worked through family vacations. And our children and grandchildren have patiently waited for us to finish working on the days when they wanted to spend time with us. We are very grateful to each of you.

It has been our good fortune to have been joined by so many talented individuals during the process of developing and revising *Psychology in Your Life*. We are extremely grateful to our colleagues who lent their expertise in psychology to writing material for the textbook. Carrie V. Smith, at the University of Mississippi, wrote the Being a Critical Consumer features. She's an excellent teacher, and her efforts will help train students to be educated consumers of information. Debra Mashek, at Harvey Mudd College, wrote the Using Psychology in Your Life features. Her engaging and insightful voice will help students use psychology to improve their own lives. We thank Beth Morling, at the University of Delaware, for her expert advice on our research methods coverage. Tasha R. Howe, at Humboldt State University, contributed material to our development chapter. We are very grateful to Ines Segert, at the University of Missouri, for offering advice about each chapter and checking the accuracy of the text, figures, captions, and InQuizitive questions. We are also very grateful to the faculty, graduate students, and undergraduates at the University of Illinois, Urbana-Champaign. Many of the teaching and learning principles we used in *Psychology in Your Life* were inspired by the teaching of Dr. Sandra Goss Lucas, who has spent many years training graduate students in pedagogical best practices. In addition, many of the teaching practices used in this book have been empirically tested with the undergraduate students in introductory psychology, who helped us learn more about what helped them learn and what did not.

Most importantly, we wish to thank all of the psychology teachers at Parkland College, and the graduate student teachers and researchers from the University of Illinois, Urbana-Champaign, for sharing with us their knowledge of psychological concepts and of evidence-based teaching and learning pedagogies. It is only with their expertise that we have been able to develop and update the materials to support teachers' skills in the Interactive Instructor's Guide and student learning in Norton Smartwork and in the Test Bank. In particular, Travis Sola, Crystal Carlson, Genevieve Henricks, Rachel Smallman, Angela Isaacs, and Lauren Bohn Gibson, we thank you. Your dedication to our mission, boundless energy, and drive for excellence are truly inspirational. Daniel Kolen, you are a fast learner about psychology, and

your keen eye and production talent have perfected our video materials to support students and teachers. You are a true gem in your profession, and we are grateful to call you one of us—a member of “The Team.”

Reviewers and Advisors for Our New Chapter on Sex, Gender, and Sexuality

Recently there have been vast developments in the psychological understanding of biological sex, gender, and sexuality. In addition, these topics are incredibly relevant to students today. Given both of these facts, we wanted to create a chapter that both reflects the best scientific knowledge and will have a lasting impact on students. In achieving this goal, we worked closely with several research experts in the field and with teachers who have had extraordinary success in engaging students with this complex material. We thank all of these people, listed below, for their excellent guidance, which helped us create a chapter founded in psychological research and representing the most current thinking on the topics.

Paul Abramson, *University of California, Los Angeles*

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Andrea Zabel, *Midland College*

Focus Group Participants We were guided and advised by fun, insightful, and committed introductory psychology teachers who attended several focus groups in Chicago; Houston; Washington, D.C.; St. Pete Beach; and Reno. They all read chapters, gave advice about level and detail, and helped to hone the look, feel, and content of the book and support program. We extend a special thank you to Laura Hebert, at Angelina College, for consulting her class several times to help us choose the best possible title for the textbook. We also thank Gregg Gold, at Humboldt State, for his excellent accuracy checking of an early version of the learning chapter. And we extend a special thank you to the Washington, D.C., focus group members/Mike Gazzaniga lunch club for the lively discussion on teaching, split-brain research, and life in general.

Reviewers The chapters were thoroughly reviewed as they moved through the editorial and production process over two editions. Reviewers included star teachers who checked for issues such as level, detail, pacing, and readability, all of which support student comprehension. Reviewers also included experts who checked for scientific accuracy and helped us find the right balance of correctness, clarity, and conciseness. Our reviewers showed extraordinary attention to detail and understanding of the student experience. We are grateful to all the reviewers listed here. Their efforts reflect a deep commitment to excellence in psychology and in teaching students about the importance and applicability of our field.

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The Norton Team To realize a vision, you must take a first step. For *Psychology in Your Life*, the first step was a leap of faith, when W. W. Norton & Co. saw the possibilities of what this project could bring to teachers and students. As the oldest and largest independent publishing company, Norton has created some of the best-respected and iconic books in modern times. The excellence of these works makes Norton stand out as a beacon among publishers. Because the company is wholly owned by its employees, the employees are the heart and soul of this excellence.

Psychology in Your Life exists because of the extraordinary contributions of so many people at Norton. At the top of the list is Sheri Snavely, the editor of *Psychology in Your Life*. When Sarah and Sheri first discussed this project, many publishing companies were interested in taking a new approach to developing evidence-based educational products. While representatives from many companies wanted to hear about this project, Sheri wanted to learn about it through experience. She asked to sit in on Sarah's introductory psychology class. No one from another company had asked to do that, but Sheri needed to see if Sarah was a teacher who actually "walked the walk" of supporting student learning in class. That hands-on approach enabled Sheri to see the value in the vision. Sheri's leadership and guidance have provided a constant star to keep us oriented in the right direction. She has our utter gratitude, respect, and admiration.

One of our key goals for this textbook was providing appropriate, accurate, and engaging information about psychology while supporting students' abilities to understand the material. The developmental editor for the second edition, Kurt Wildermuth, helped us make the text accessible while maintaining the integrity of the content. He then carried the chapters through the many stages from manuscript editing to publication. Kurt mentored us through these processes, and he should be knighted for his sage advice, expertise, and patience.

Most textbooks have media components. The new vision for the electronic media in *Psychology in Your Life* is the brainchild of Patrick Shriner, electronic media editor extraordinaire. Patrick's expertise and creativity helped guide us in crafting many new tools to support teachers' skills, including the development of the Interactive Instructor's Guide and the creation of original Demonstration Videos for Students, Demonstration Videos for Teachers, and Teaching Videos. Patrick and the amazing associate media editor, Stefani Wallace, worked tirelessly with us to design all aspects of the ebook; Integrated Instructor's Guide; InQuizitive online formative, adaptive homework tool; and Test Bank around the core learning goals in the textbook. The end result of these long hours of joint work is something remarkable: media that is part of an integrated package, connected to all aspects of *Psychology in Your Life*. Behind the scenes, editorial assistant Eve Sanoussi, assistant editor Scott Sugarman, and media assistant Alex Trivilino ensured that these many processes went smoothly. Their intelligence and organizational abilities helped guide us through invigorating and informative focus groups with talented teachers, rigorous reviewing and accuracy checking, and assembling the media support package.

One of the greatest joys in developing *Psychology in Your Life* has been working with Lauren Winkler, our energetic and creative marketing manager. Lauren helped us convert an abstract vision to an easily communicated reality. She has a natural instinct for explaining complex ideas in simple terms, and her attention to detail in pursuing this goal through two editions is unwavering. Norton's sales managers, representatives, and specialists are truly invested in supporting teachers and students. Their expertise, insight, and mission focus make them extraordinary advocates for excellence in education.

Finally, we want to thank the teachers we have met at conferences and meetings, where we have exchanged ideas about challenges in teaching and how to address those challenges. By contributing to the ideas behind *Psychology in Your Life*, those teachers have become part of the extended Norton family.



LETTER TO STUDENTS

Welcome to introductory psychology! It seems like just yesterday when we, the authors of this textbook, began studying psychology. Those experiences opened up a whole new world of amazing facts and insights, exciting questions and investigations. We hope that you experience this same excitement during your introduction to psychology. This book will help you along that path.

Psychology is everywhere, affecting every second of your life. Regardless of your goals—whether you plan to be a psychology major, pursue a different bachelor's degree, get an associate's degree, or earn a professional certificate—in this book and in your class you can learn information that will change your life for the better.

Learning about psychology can positively affect your life in three main ways. First, if you plan to study psychology, the content that you learn in this book will provide a solid foundation for success in later psychology courses. Second, what you will learn in this book and your class can influence your personal life. The concepts discussed here will help you know yourself better; understand your family members, friends, and people you encounter; and improve your relationships. Third, taking this class will help you develop academic skills. Many topics in psychology directly translate into skills that you can use to improve your studying. Look out especially for the discussions of attention, memory, and learning.

Of course, in order for you to get these benefits from this book and the class, you must engage in the learning process. In short, you need to perform activities that help you practice with the concepts. These simple tips will increase your active learning:

- 1. Actively work with your teacher.** Read the syllabus for your class. Meet with your teacher. Get to know your teacher's goals for your learning—what the instructor believes students must do to succeed in the class.
- 2. Actively read the textbook.** The best *time* to read the book is a few days before going to class. The best *way* to read is not by merely taking in the words or highlighting important ones. How many times have you thought, “Wait—what did I just read?” Instead, make reading an active process by writing out answers to the reading activities at the start of each section of the book. Bring your answers to class, and ask questions about any topics that are unclear to you.
- 3. Actively participate in class.** Merely sitting in class does not ensure that you are learning! Instead, actively pay attention by working with the material. Take notes on what your teacher says, then ask for access to any visual materials the teacher uses (such as PowerPoint slides), and check your notes against your teachers' materials after class. Always write out your own examples of the major ideas because doing so helps learning.

- 4. Repeatedly practice with the material.** You can practice with the concepts in several ways. For example, you should take the self-quiz for each chapter in Appendix B at the back of this book and check your answers. Also, view your teachers' quizzes as opportunities to practice. If your teacher is using InQuizitive—the online formative, adaptive homework tool—then you should complete all the assigned activities. You will be amazed at how much you will learn!
- 5. Practice good test-taking skills.** Most of us get nervous about taking tests. However, with the right study strategy and a positive attitude, taking tests is not that bad! The most important thing to do is space your learning out through the term. As you read the book, practice with the concepts inside and outside class. This way, you maximize how memory works. Don't cram your studying into one or two nights before a test. Not only is cramming a bad way to remember things, but it will reduce the amount of sleep you get, and (as you'll learn later in this book) adequate sleep is vital for remembering material you study. In addition, think about each test as a challenge—for example, as a way to show what you know. Thinking of a test as a threat will only stress you out more. Try to get to the test early, relax, and think positive thoughts. As you read the questions carefully, underline the key parts of each one. Read every answer and map each one back onto what you underlined to see if that answer fits or not. By slowly and thoroughly processing information, you can calmly and clearly make your way through the test.

As writers, we hope that you enjoy reading this book. As researchers, we hope you come to appreciate how fascinating psychology is. And as teachers, we hope you understand how relevant this material is to your daily life. If you come away from this class thinking about psychology in your life, then we will have achieved a great goal. And if you might want to major in psychology, or even look toward a profession in the field, then we will feel lucky to have you among us.

Have fun! Learn things.

Sarah Grison

Todd F. Heatherton

Michael S. Gazzaniga

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PSYCHOLOGY IN YOUR LIFE

1 Introducing the World of Psychology

YOU'RE DRIVING DOWN THE STREET, talking on your cell phone as you negotiate the traffic, stop signs, and pedestrians. Then the driver in front of you stops suddenly. You frantically drop the phone and swerve, barely avoiding a collision. Your heart is pounding as you realize what could have happened.

BIG QUESTIONS

- 1.1 Why Is Psychology Important to You?
- 1.2 What Do Psychologists Investigate?
- 1.3 Who Are Psychologists Today?
- 1.4 How Do Psychologists Conduct Research?





FIGURE 1.1

Psychology in Daily Life: The Dangers of Using a Cell Phone While Driving

Kelsey Raffaele took this photo of herself (photo courtesy of her mother, Bonnie Raffaele). Bonnie Raffaele helped get a new law passed in their state that prevents novice drivers from using cell phones while driving. For more information on the dangers of using a cell phone while driving, please visit thekdrchallenge.com/Kelsey_s_Story.html.

Kelsey Raffaele, a 17-year-old high school senior in Michigan, wasn't so lucky (**Figure 1.1**). In January 2010, Kelsey was driving through town after school and decided to pass a slower vehicle in front of her. When she saw an oncoming vehicle in the passing lane, she misjudged the distance and crashed. Kelsey spoke her last words on her cell phone as she talked with her best friend, Stacey Hough: "Oh [no], I'm going to crash."

If you are like 70 percent of the people in the United States, you talk on a cell phone every day when you are driving. This habit is so common that most of us never think twice about it. That's exactly what Stacey Hough reported. She was driving behind Kelsey at the time of the accident. "[We] used our phones all the time behind the wheel. We never thought anything would come of it," said Stacey. "Until it happen[s], you don't think it could happen."

Statistics contradict people's intuition that they can drive safely when talking on the phone. The National Highway Traffic Safety Administration estimates that about 1.4 million car crashes each year, a little less than one-third of all car crashes, involve drivers who are using cell phones. Cell phone use is reported in about 18 percent of distracted driving fatalities. The common wisdom is that these accidents happen because the driver has only one hand on the wheel while holding the phone with the other. Because of this habit, several states have enacted laws that require the use of hands-free phones while driving. But even when they have two hands on the steering wheel, can people really drive safely while talking on the phone?

Unfortunately, we cannot use intuition to answer questions like this one. Intuition fails here because what seems to be obvious is rarely the whole story. Behind the "obvious" are mental processes that cause us to think and act in certain ways. In fact, according to the latest research findings, a driver's performance is similar whether he is holding a phone or using a hands-free device. This finding implies that the absence of one hand on the steering wheel is not the problem. The distraction of the conversation is the main reason drivers miss the important visual and audio cues that ordinarily would help them avoid a crash.

Having all the data can help us make informed decisions about what actions to take. In the case of cell phones and driving, the research suggests that current legislation is not likely to reduce risk. Instead, we must limit cell phone use while driving. But how can public policies succeed in getting people not to use cell phones when driving, if these drivers believe they are not at risk? Could manufacturers create cell phones and other in-car products that are less distracting when drivers use them? And how might we understand which drivers are most at risk and provide intervention for them?

When you decided to take a psychology course, you probably did not think it would deal with issues such as cell phone use. But questions like these are at the forefront of psychological research. This text introduces you to current topics and looks at how you can use psychology to think critically and guide your daily life. Just imagine what this knowledge might have done for Kelsey Raffaele—and for the thousands of other people like her who perish in distracted driving accidents every year.

1.1 Why Is Psychology Important to You?



LEARNING GOALS

- a. Remember the key terms about psychology.
- b. Apply critical thinking to your life.
- c. Apply psychology to your life.



READING ACTIVITIES

- List all of the boldface words and write down their definitions.
- Use the three critical thinking questions to come to an appropriate conclusion about an issue in your life.
- Give three examples of how the material and/or skills you learn in this course can help you improve your life.

Understanding and applying the principles of psychology can affect us in critical ways. For example, psychology can help us understand why we should not talk on our cell phones while driving. It can also help us understand other people. Why are some people fascinated by celebrities, such as Kim Kardashian and Justin Bieber, whereas many others try to ignore media coverage of celebrities (**Figure 1.2**)? Or think about the last time a friend or family member did something that really surprised you. You may have wanted to understand that person’s motives, thoughts, desires, intentions, moods, actions, and so on.

All of us want to know whether other people are friends or enemies, leaders or followers, likely to reject us or fall in love with us. We also want to understand ourselves—why we love the people we do, why we get so angry when someone laughs at us, or why we made that “stupid mistake.” Psychology can help us understand other people and ourselves. In turn, this understanding can help us improve our friendships, work more effectively in groups, be better parents, and have more success in our academic work and at our jobs. In short, psychology can help us improve our lives.

Psychology Explains Our Mental Activity and Behavior

We saw in this chapter’s opening story that people believe they can talk on a cell phone and still drive safely. This story is important because it shows that we cannot use our intuition to truly understand people or to predict behavior. By contrast, **psychology** is the systematic, objective study of our mental activity and our behavior.

Mental activity lets us perceive the world. That is, we use our senses—sight, smell, taste, hearing, and touch—to take in information from outside ourselves. Through mental activity, we interpret that information—each of us in our own unique ways. These processes of the mind, of receiving and interpreting information, are responsible for all of our memories, thoughts, and feelings. By contrast, the term *behavior* refers to all of our actions that result from sensing and interpreting information. It is important to remember that both our mental activity and our behavior are produced by our brains. In recent years, technology such as brain imaging has provided great



FIGURE 1.2

Understanding People

Psychology can help us understand ourselves. It also provides insight into why some people find certain celebrities fascinating. Here, fans pose for selfies with Kim Kardashian (**top, left**) and Justin Bieber (**bottom, middle**).

psychology

The study of mental activity and behavior, which are based on brain processes.



TRY IT YOURSELF: What Is Psychology?

Which picture(s) show aspects of psychology? See the answer below.



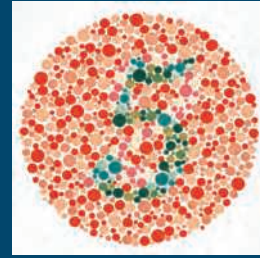
This woman is experiencing depression.



These people are friends.



This couple enjoys the thrill of roller coaster rides.



This is a color blindness test (see the 5?).



The design of this door is confusing—push or pull?

Answer: All of these pictures reflect psychology because they suggest the presence of mental processes and behavior that depend on brain activity.

insight into how our brains process information to let us think about and respond to information in the world around us.

So psychology focuses on mental activity, behavior, and brain processes. The areas of investigation range from the simple to the complex. What are some of the topics of interest in psychology? Using the Try It Yourself feature, see if you can figure out the answer.

Are you getting the impression that every aspect of what we think and do relates to psychology? Then you are right. You might be surprised to know that as you sit reading this textbook, you are experiencing psychology. Your eyes move across the page so you can see the words and understand their meaning. You are thinking about what is written, but maybe you are also feeling hungry. Perhaps you are thinking about someone you just met. You want to do well in this class, so you take notes on what you are reading in order to remember it. Psychology is a part of every moment of your life because everything you are thinking and doing relates to psychology.

Psychology Teaches Us to Think Critically

Do you believe in extrasensory perception (ESP)? ESP refers to the supposed ability to receive information directly through the mind, not through the physical senses such as vision or hearing. However, there is no compelling scientific support for ESP or mental telepathy. Yet according to a 2005 survey (Musella, 2005), 41 percent of Americans believe in ESP. What's more, about 37 percent of people believe in mental telepathy—the idea that one person can read another person's mind. Before taking a psychology course, many students believe things they've heard about the brain, mental activity, and behavior without stopping to think about why they believe what they do. But a main goal of this course is

to teach you to stop and investigate before you believe. In other words, in this course, you will learn to think critically.

STEPS IN CRITICAL THINKING In **critical thinking**, we systematically evaluate information to reach reasonable conclusions based on the evidence. Three steps are involved in becoming a skilled critical thinker.

The first step in critical thinking is to ask “What am I being asked to believe or accept?” Here we use friendly skepticism: keeping an open mind about a new idea or claim, but being cautious instead of accepting the information at face value. This combination of openness and caution is easy to achieve when a claim does not fit with our personal views. But we especially need to practice friendly skepticism when we think that we already “know” something.

The second step in critical thinking is to ask “What evidence is provided to support the claim?” Here, we use logic and reasoning to determine whether there are holes in the evidence or whether the information might be biased. For example, does the person presenting the information have a personal or political agenda?

The last step of critical thinking is to ask “What are the most reasonable conclusions?” Here, we consider whether there might be alternative explanations for the claim. We also make our final decisions about whether we believe the claim or not.

The Learning Tip explains how this book will help you develop strong critical thinking skills. Essentially, you will practice using these three steps to evaluate claims you see in the popular media. The media love a good story, and they often jump on findings from psychological research. Unfortunately, as you will see, media reports can be distorted or even totally wrong.

EVALUATING PSYCHOLOGY IN THE NEWS

One example of new psychology research that was turned into an overblown news report concerns the so-called Mozart effect. According to the original research, research participants showed significant but temporary gains in performing one type of task after listening to a Mozart sonata for 10 minutes, compared with listening to relaxation instructions or silence (Rauscher & Shaw, 1993).

News outlets quickly reported these results, but they misunderstood or misrepresented the findings with headlines that suggested that listening to Mozart was a way to increase intelligence (**Figure 1.3**). Even people surrounded by professional advisors can fall prey to such media reports. In this case, the governor of Georgia, Zell Miller, set aside \$105,000 of the state budget to provide classical music to each of the approximately 100,000 children born in the state each year. Though the babies and their parents may have enjoyed the music, there is no evidence that listening improved the infants’ intelligence.



LEARNING TIP: Developing Critical Thinking Skills

Throughout this textbook, Being a Critical Consumer features will help you develop critical thinking skills. These features present recent news articles from the popular press that make claims about psychological research. Each time you read a Being a Critical Consumer feature, try to answer the three key questions about the claim being made:

1. What am I being asked to believe or accept?
2. What evidence is provided to support the claim?
3. What are the most reasonable conclusions?

critical thinking

Systematically evaluating information to reach reasonable conclusions best supported by evidence.



FIGURE 1.3

Thinking Critically About Psychology in the News

Media reports seek to grab attention. The claims can be based on psychological research, but they can also be hype. Consider what happened when research revealed small gains in one type of performance task after participants listened to a Mozart sonata for 10 minutes. The media dubbed these gains the Mozart effect and falsely reported that listening to Mozart could make people smarter.

Thinking critically about claims in psychology will help you in your daily life. This ability will also help you study successfully in this and other classes. Indeed, one study found that students who use critical thinking skills complete an introductory psychology course with a more accurate understanding of the subject than do students who complete the same course without using critical thinking skills (Kowalski & Taylor, 2004).

Psychology Helps Us Succeed in School and at Work

Apart from a good grade, what do you hope to get out of this class? You'll find this class valuable whether it ends up being the only psychology course you ever take, you become a psychology major, or you plan to pursue a graduate degree and become a psychologist. Studying psychology can pave the way for success both in your schoolwork and in your professional life.

ACADEMIC SUCCESS Learning about psychology's major issues, theories, and controversies will help you succeed in your academic work. For example, in Chapter 7 you will learn how attention and memory work. This material will help you read and remember information better. In Chapter 9, you will learn about the connections between motivation and emotion. This information will help you motivate yourself to succeed.

Furthermore, as you learn about these psychological concepts, you will be developing important abilities: analyzing information by breaking it into pieces, evaluating ideas by drawing conclusions about them, and communicating about psychological concepts. In short, when you follow the simple rules in Using Psychology in Your Life, you will be well on your way to using psychological principles to help you achieve success in your schoolwork.

PROFESSIONAL SUCCESS Studying psychology will also prepare you for success in your professional life (**Figure 1.4**). Teachers and education professionals need to understand how people's thinking, social abilities, and behaviors develop over time (Chapter 4). Health care workers need to know how to relate to their patients, how patients' behaviors are linked to health, and what motivates or discourages patients from seeking medical care or following treatment plans (Chapter 11). People in business, marketing, advertising, and sales need

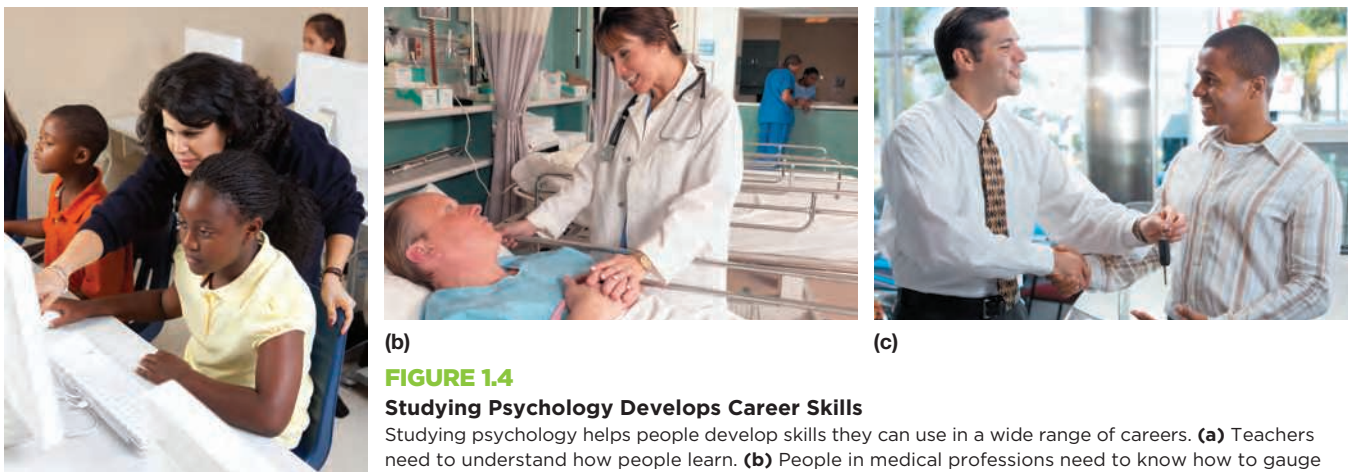


FIGURE 1.4

Studying Psychology Develops Career Skills

Studying psychology helps people develop skills they can use in a wide range of careers. **(a)** Teachers need to understand how people learn. **(b)** People in medical professions need to know how to gauge people's moods and their motivations to recover. **(c)** To convince people to buy products, salespeople need to understand the relationship between motivation and emotion.



USING PSYCHOLOGY IN YOUR LIFE:

How Can Psychology Help Me Study?

Knowing about psychology can be useful to you in many ways, even if you do not pursue a career in the field. The following learning strategies are all based on psychological research, and they will help you learn more efficiently and work more productively. Try practicing these techniques during this course and beyond, and you will see the benefits both in school and in your career.

- 1. THE RIGHT GOALS LEAD TO SUCCESS**—Throughout your life, you will set countless short-term and long-term goals for yourself, from getting that enormous pile of laundry done to succeeding in your job. In your coursework, it is important to choose goals that are challenging yet attainable. Then divide each goal into specific, achievable steps, or subgoals, and reward yourself when you reach a milestone. Even a small achievement is worth celebrating! In each chapter of this book, the Learning Goals will guide you in successfully reading the material.
- 2. A LITTLE STRESS MANAGEMENT GOES A LONG WAY**—Stress is a fact of life. A moderate amount of stress can improve your performance by keeping you alert, challenged, and focused. However, too much stress has the opposite effect and can diminish your productivity, interfere with your sleep, and even take a toll on your health. When the pressure is on in school, seek healthy ways to manage your stress, such as exercising, writing in a journal, spending time with friends, practicing yoga, or meditating.
- 3. CRAMMING IS A CRUMMY WAY TO LEARN**—You have a busy life, and it is always tempting to postpone studying until the night before an exam. But there is too much to learn to do that. You might be able to remember enough information to pass the exam the next day, but research shows that your learning won't last. To make learning stick, you need to space out your study sessions over the semester and build in plenty of time for active reviews.
- 4. LEARNING IS AN ACTIVE ENDEAVOR**—The more effort you put into studying actively over many days, the more benefit you will receive. Every time you learn something, you create “memory traces” in your brain. And by working with the information, you strengthen the memory traces, so you will be more likely to recall the memory in the future. As a result, merely rereading a chapter is not as effective as actively working with the information. Be sure to write down information as you read, write answers to the Reading Activities, and so on.
- 5. EXPLAINING ENHANCES UNDERSTANDING**—Memorizing information—for example, by writing definitions—is likely to result in shallow learning that is easily forgotten. By contrast, a deeper level of learning results when we connect information with what we already know. As you study for this course and answer the Reading Activities, be sure to describe concepts in your own words and apply the concepts to your life.
- 6. THERE ARE MANY WAYS TO LEARN**—People process information in two channels: visual and verbal. So another strategy for creating durable learning is to use both visual and verbal information. Supplement the notes you take with visuals such as concept maps, graphs, flowcharts, and other types of diagrams. Doing so makes you more likely to remember the information. And by emphasizing the connections among important ideas, you are also more likely to see the big picture.
- 7. SELF-QUIZZING IMPROVES LEARNING**—Testing yourself frequently is a good way to help you remember the material. One way to test yourself is to take the practice quizzes found in Appendix B at the back of this book.