PSYCHOLOGY

CICCARELLI
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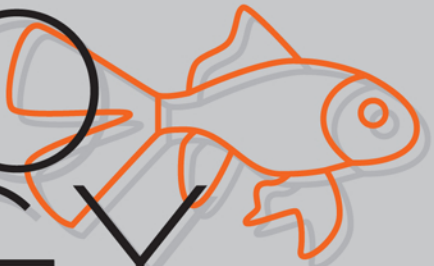

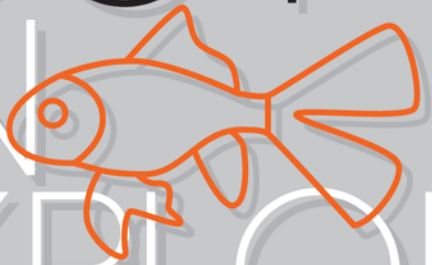

AN EXPLORATION

FOURTH
EDITION

Psychology

An Exploration

Fourth Edition

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Gulf Coast State College

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Brief Contents

Contents

Revel™

Educational Technology Designed for the Way Today's Students Read, Think, and Learn

When students are engaged deeply, they learn more effectively and perform better in their courses. This simple fact inspired the creation of Revel: an immersive learning experience designed for the way today's students read, think, and learn. Built in collaboration with educators and students nationwide, Revel is a fully digital and highly engaging way to deliver respected Pearson content. Revel enlivens course content with media interactives and assessments—integrated directly within the authors' narrative—that provide opportunities for students to read, practice, and study in one continuous experience. This interactive educational technology boosts student engagement, which leads to better understanding of concepts and improved performance throughout the course.

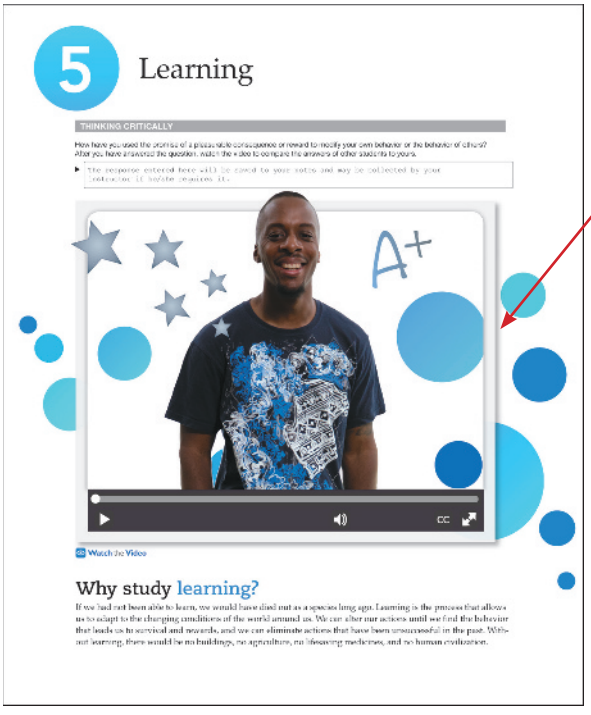
Learn more about Revel
http://www.pearsonhighered.com/revel/

Learner-Centered Approach

Our goal is to awaken students' curiosity and energize their desire to learn by having them read and engage with the material. This edition was written with digital learning materials clearly in mind. With the dynamic learning aids of previous editions as a foundation, the fourth edition builds on the Revel experience. Digital materials are interactive, allowing students to experience figures, graphs, and tables in an active learning process. Instead of simply looking and reading, the student is *doing* things with the digital materials. This format will truly help students engage in the learning process and will also help instructors make classroom presentations more vivid and attention grabbing.

DYNAMIC VIDEOS AND ARTWORK

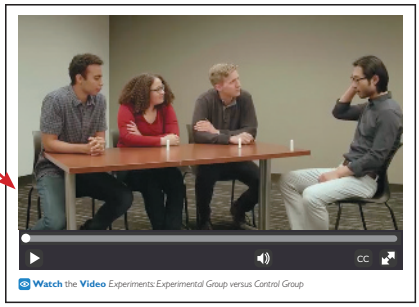
Fresh, engaging videos and updated artwork encourage students to interact more fully with the content.



Chapter-Opening Journal Prompts and Student Voice Videos
Chapters open with videos in which psychology students share personal stories about how the chapter theme directly applies to their lives. For the fourth edition, we've added the ability for students to answer these questions for themselves before watching the video responses.

New Introduction to Psychology Video Series

More than 20 new videos have been created for this edition. These videos cover a variety of key topics in introductory psychology, from careers in psychology to experiments to diagnosing and classifying disorders.



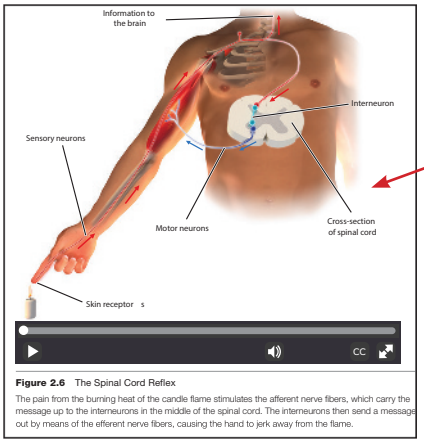


Figure 2.6 The Spinal Cord Reflex

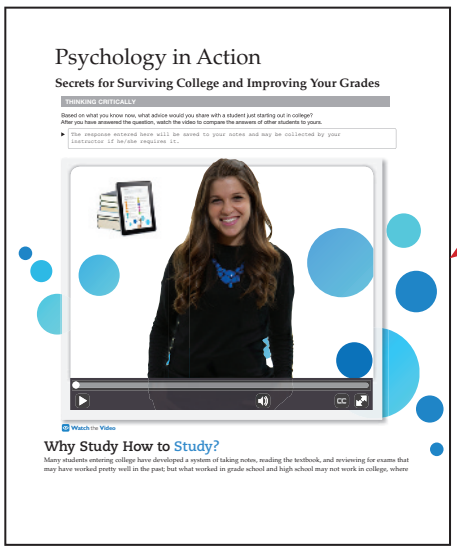
The pain from the burning heat of the candle flame stimulates the afferent nerve fibers, which carry the message up to the interneurons in the middle of the spinal cord. The interneurons then send a message out by means of the efferent nerve fibers, causing the hand to jerk away from the flame.

New Biological Artwork and Animations

A new art program designed for Revel takes into account all of the visual media that students now interact with; the artwork is designed in a contemporary aesthetic that matches the graphical quality users see in other digital experiences such as video games.

EMPHASIS ON APA LEARNING GOALS

We have used the APA goals and assessment recommendations as guidelines for structuring our content. For the fourth edition, we have placed even greater emphasis on these goals.

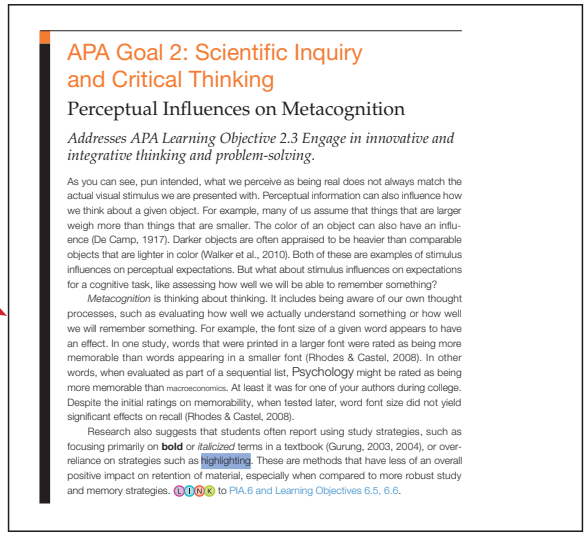


Updated Psychology in Action Chapter

This chapter has been restructured around eight modules, which address many of the APA learning goals for the undergraduate psychology major. Each module is accompanied by a study tip video: study skills, managing time, reading textbooks, getting the most out of lectures, studying for exams, writing papers, improving your memory, and your ethical responsibility.

New chapter feature on APA Goal 2: Scientific Reasoning and Critical Thinking

Each chapter of the text now includes a special feature that reinforces scientific inquiry and critical thinking skills. Students are introduced to a psychological topic and then encouraged to practice their skills using a hands-on interactive example.



APA Goal 2: Scientific Inquiry and Critical Thinking

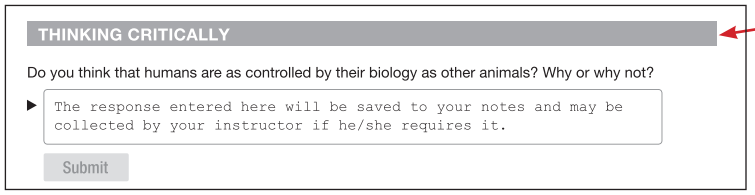
Perceptual Influences on Metacognition

Addresses APA Learning Objective 2.3 Engage in innovative and integrative thinking and problem-solving.

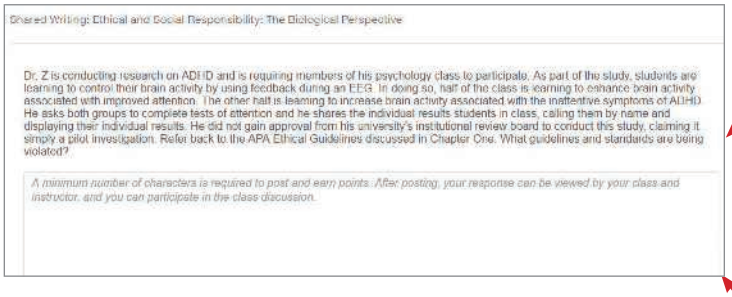
As you can see, pun intended, what we perceive as being real does not always match the actual visual stimulus we are presented with. Perceptual information can also influence how we think about a given object. For example, many of us assume that things that are larger weigh more than things that are smaller. The color of an object can also have an influence (De Camp, 1917). Darker objects are often appraised to be heavier than comparable objects that are lighter in color (Walker et al., 2010). Both of these are examples of stimulus influences on perceptual expectations. But what about stimulus influences on expectations for a cognitive task, like assessing how well we will be able to remember something?

Metacognition is thinking about thinking. It includes being aware of our own thought processes, such as evaluating how well we actually understand something or how well we will remember something. For example, the font size of a given word appears to have an effect. In one study, words that were printed in a larger font were rated as being more memorable than words appearing in a smaller font (Rhodes & Castel, 2008). In other words, when evaluated as part of a sequential list, Psychology might be rated as being more memorable than macroeconomics. At least it was for one of your authors during college. Despite the initial ratings on memorability, when tested later, word font size did not yield significant effects on recall (Rhodes & Castel, 2008).

Research also suggests that students often report using study strategies, such as focusing primarily on **bold** or *italicized terms* in a textbook (Gurung, 2003, 2004), or over-reliance on strategies such as highlighting. These are methods that have less of an overall positive impact on retention of material, especially when compared to more robust study and memory strategies. LINK to PIA.6 and Learning Objectives 6.5, 6.6.



Critical Thinking Journal Prompts
Journal prompts allow students to write short critical thinking–based journal entries about the chapter content. By reinforcing critical thinking, the prompts offer another way to expose students to the skills covered in APA Goal 2: Scientific Reasoning and Critical Thinking.



New Shared Writing Prompts Focused on APA Goal 3: Ethical and Social Responsibility in a Diverse World
Shared Writing Prompts in each chapter foster collaboration and critical thinking skills by providing students the opportunity to write a brief response to a chapter-specific question and engage in peer-to-peer feedback on a discussion board. In this edition, Shared Writing Prompts focus on topics related to APA Goal 3: Ethical and Social Responsibility in a Diverse World.

New Shared Writing Prompt focused on APA Goal 5: Professional Development
An additional Shared Writing Prompt in Appendix B: Applied Psychology and Psychological Careers provides students with the opportunity to reflect on their personal career goals in light of the knowledge they have gained throughout the course.

EMBEDDED INTERACTIVE CONTENT

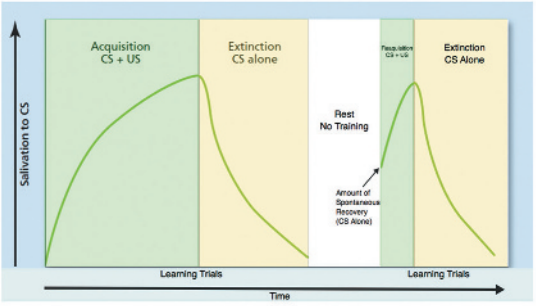
Interactive content has been fully incorporated into all aspects of the text, allowing students a more direct way to access and engage with the material.

Watch **Videos** of topics as they are explained.

Interactive Figures and Tables walk students through some of the more complex processes in psychology and offer students the ability to evaluate their knowledge of key topics.

Figure 5.3 Extinction and Spontaneous Recovery

This graph shows the acquisition, extinction, spontaneous recovery, and reacquisition of a conditioned salivary response. Typically, the measure of conditioning is the number of drops of saliva elicited by the CS on each trial. Note that on the day following extinction, the first presentation of the CS elicits quite a large response. This response is due to spontaneous recovery.



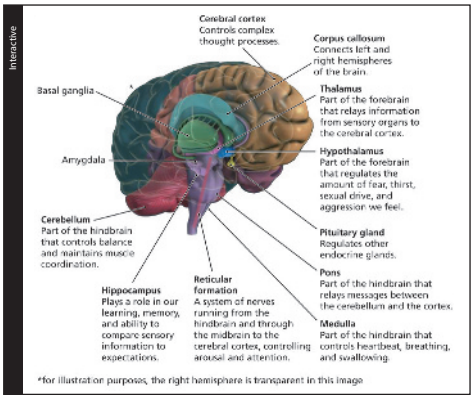
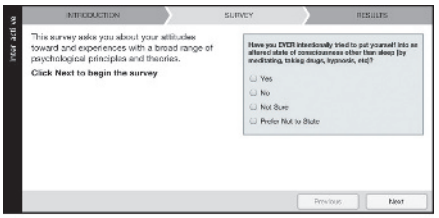


Figure 2.13 Major Structures of the Human Brain

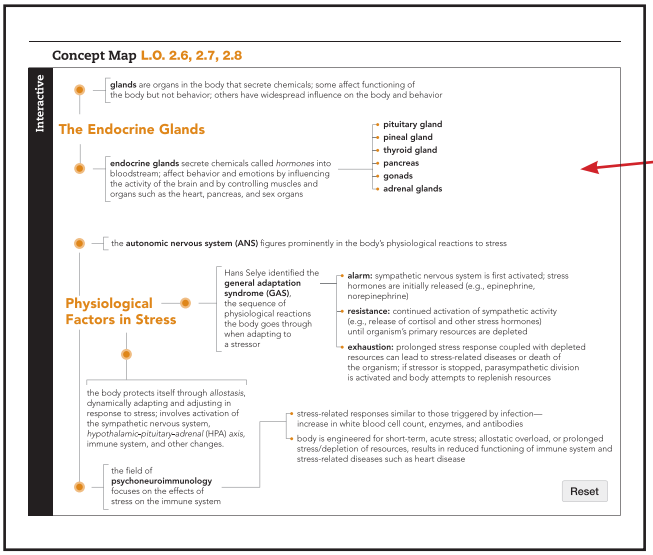
Interactive versions of brain-based figures allow students to rotate the brain 360 degrees and isolate regions.

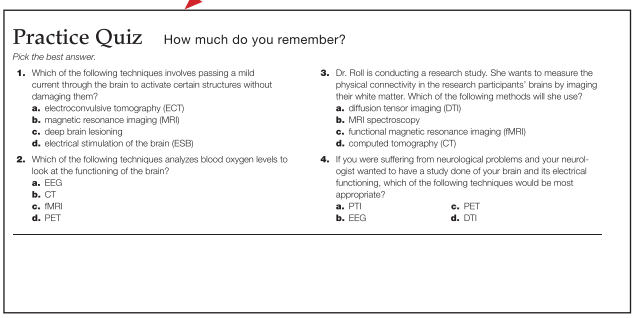
Simulate **experiments** and answer **surveys** directly from the narrative.



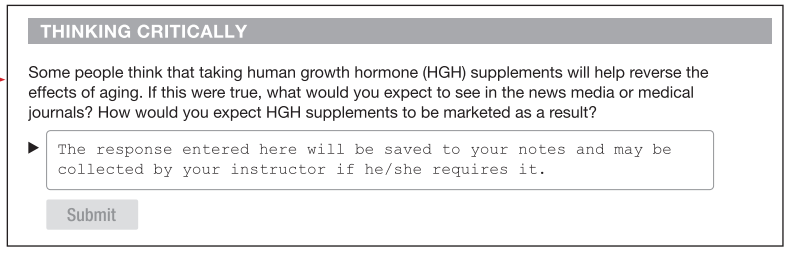
Reinforce connections across topics with **Interactive Concept Maps**.

Take **Practice Quizzes** as you read.





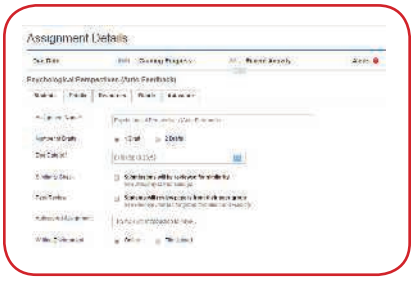
Writing Prompts allow students to write about the chapter content and receive auto-feedback.



Teaching and Learning Package

Integration and Feedback

It is increasingly true today that as valuable as a good textbook is, it is still only one element of a comprehensive learning package. The teaching and learning package that accompanies *Psychology: An Exploration, 4e,* is the most comprehensive and integrated on the market. We have made every effort to provide high-quality instructor resources that will save you preparation time and will enhance the time you spend in the classroom.



MYPSYCHLAB MyPsychLab is an online homework, tutorial, and assessment program that truly engages students in learning. It helps students better prepare for class, quizzes, and exams—resulting in better performance in the course—and provides educators with a dynamic set of tools for gauging individual and class progress. MyPsychLab comes from Pearson, your partner in providing the best digital learning experience.

LEARNING CATALYTICS Learning Catalytics is a "bring your own device" student engagement, assessment, and classroom intelligence system. It allows instructors to engage students in class with real-time diagnostics. Students can use any modern, web-enabled device (smartphone, tablet, or laptop) to access it.

WRITING SPACE Better writers make great learners—who perform better in their courses. To help you develop and assess concept mastery and critical thinking through writing, we created the Writing Space in MyPsychLab. It's a single place to create, track, and grade writing assignments, provide writing resources, and exchange meaningful, personalized feedback with students, quickly and easily, including autoscoring for practice writing prompts. Plus, Writing Space has integrated access to Turnitin, the global leader in plagiarism prevention.

PEARSON WRITER Good writing is an important skill that opens doors for you, whether at school or in the workplace. Pearson Writer offers writing support for anyone—regardless of skill level, subject, or discipline. It's affordable, built for mobile devices, and easy to use, so rather than spending time learning new software, you can just focus on your ideas. Pearson Writer takes care of the labor-intensive details of writing—gathering and citing sources, proofreading for grammar and usage, and staying organized—so you can concentrate on what matters to you. Your grades will improve, your thoughts will be clearer, and you will become a better writer.

Presentation and Teaching Resources

The Instructor's Resource Center (**www.pearsonhighered.com/irc**) provides information on the following supplements and downloadable files:

Interactive PowerPoint Slides (ISBN 0-13-463711-9) bring the Ciccarelli/White design into the classroom, drawing students into the lecture and providing appealing interactive activities, visuals, and videos. The slides are built around the text's learning objectives and offer many direct links to interactive exercises, simulations, and activities.

Standard Lecture PowerPoint Slides (ISBN 0-13-463700-3) These ADA PowerPoint slides provide an active format for presenting concepts form each chapter and feature relevant figures and tables from the text.

Art PowerPoint Slide (ISBN 0-13-479670-5) These slides contain only the photos, figures, and line art from the text.

Instructor's Resource Manual (ISBN 0-13-463698-8), prepared by Alan Swinkels, St. Edward's University, offers detailed chapter lecture outlines, chapter summaries, learning objectives, activities, exercises, assignments, handouts, and demonstrations for in-class use as well as useful guidelines for integrating the many Pearson media resources into your classroom and syllabus.

Test Item File (ISBN 0-13-463706-2) contains more than 1,800 questions categorized by learning objective and question type (factual, conceptual, or applied). Rationales for each correct answer and the key distracter in the multiple-choice questions help instructors evaluate questions and provide more feedback to students.

Pearson MyTest (ISBN 0-13-462462-9), a powerful assessment generation program, helps instructors easily create and print quizzes and exams. Questions and tests can be authored online, allowing instructors ultimate flexibility. For more information, go to **www.PearsonMyTest.com**.

APA Assessment Bank

Available within MyPsychLab, a unique bank of assessment items allows instructors to assess student progress against the American Psychological Association's Learning Goals and Outcomes.

Accessing All Resources

For a list of all student resources available with Ciccarelli/White, *Psychology: An Exploration, 4e*, go to **www.mypearsonstore.com** and enter the text ISBN 0-13-451796-2, and check out the "Everything That Goes With It" section under the photo of the book cover.

For access to all instructor resources for Ciccarelli/White, *Psychology: An Exploration, 4e,* simply go to **http://pearsonhighered.com/irc**.

For technical support for any of your Pearson products, you and your students can contact **http://247.pearsoned.com**.

Learning Outcomes and Assessment

Learning Objectives

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

Learning Objectives

5.1 Define the term *learning*.

5.2 Identify the key elements of classical conditioning as demonstrated in Pavlov's classic experiment.

5.3 Apply classical conditioning to examples of phobias and taste aversions.

5.4 Identify the contributions of Thorndike and Skinner to the concept of operant conditioning.

5.5 Differentiate between primary and secondary reinforcers and positive and negative reinforcement.

5.6 Identify the four schedules of reinforcement.

5.7 Identify the effect that punishment has on behavior.

5.8 Explain the concepts of discriminant stimuli, extinction, generalization, and spontaneous recovery as they relate to operant conditioning.

5.9 Describe how operant conditioning is used to change animal and human behavior.

5.10 Explain the concept of latent learning.

5.11 Explain how Köhler's studies demonstrated that animals can learn by insight.

5.12 Summarize Seligman's studies on learned helplessness.

5.13 Describe the process of observational learning.

5.14 List the four elements of observational learning.

5.15 Describe an example of conditioning in the real world.

Goals and Standards

In recent years, many psychology departments have been focusing on core competencies and how methods of assessment can better enhance students' learning. In response, the American Psychological Association (APA) established recommended goals for the undergraduate psychology major beginning in 2008 with a set of 10 goals, and revised again in 2013 with a new set of 5 goals. Specific learning outcomes were established for each of the goals, and suggestions were made on how best to tie assessment practices to these goals. In writing this text, we have used the APA goals and assessment recommendations as guidelines for structuring content and integrating the teaching and homework materials. For details on the APA learning goals and assessment guidelines, please see **www.apa.org/**.

APA LEARNING OUTCOMES AND OBJECTIVES	TEXT LEARNING OBJECTIVES AND FEATURES

Goal 1: Knowledge Base in Psychology

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

1.1 Describe key concepts, principles, and overarching themes in psychology.	*Learning Objectives: 1.2, 1.3, 1.5, 1.6, 1.12, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.12, 2.13, 2.14, 2.15, 2.16, 3.1, 3.2, 3.3, 3.4, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 3.12, 3.13, 3.14, 3.15, 3.16, 4.1, 4.2, 4.3, 4.4, 4.6, 4.8, 4.9, 4.10, 4.11, 4.12, 4.13, 4.14, 4.15, 5.1, 5.2, 5.3, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11, 5.13, 5.14, 5.15, 6.1, 6.2, 6.3, 6.4, 6.5, 6.7, 6.9, 6.10, 6.12, 7.1, 7.2, 7.6, 7.7, 7.9, 7.10, 7.11, 7.12, 7.13, 7.14, 8.1, 8.2, 8.3, 8.7, 8.8, 8.9, 8.11, 8.12, 8.15, 8.16, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 9.11, 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 10.8, 10.9, 10.10, 10.11, 10.12, 10.14, 10.15, 10.16, 11.1, 11.2, 11.3, 11.5, 11.6, 11.7 11.8, 11.9, 11.10, 11.11, 11.12, 11.13, 11.14, 11.16, 11.17, 11.18, 11.19, 12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.8, 12.9, 12.10, 12.11, 12.12, 12.13, 12.14, 12.15, 12.16, 13.1, 13.2, 13.3, 13.4, 13.5, 13.6, 13.8, 13.9, 13.10,13.11, 13.12, A.1, A.2, A.3, A.4, A.5, A.6, B.1, B.2, B.3, B.4, B.5, B.6*
1.2 Develop a working knowledge of the content domains of psychology	*Learning Objectives: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3, 2.4, 2.5, 2.9, 2.10, 2.12, 2.13, 2.14, 2.15, 2.16, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.10, 3.11, 3.12, 3.13, 3.14, 3.15, 3.16, 3.17, 4.1, 4.2, 4.4, 4.3, 4.6, 4.8, 4.11, 4.15, 5.2, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11, 5.12, 5.13, 5.14, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.12, 6.13, 7.1, 7.2, 7.6, 7.7, 7.8, 7.10, 7.11, 7.13, 8.1, 8.2, 8.3, 8.6, 8.7, 8.8, 8.9, 8.10, 8.11, 8.12, 8.13, 8.14, 8.16, 8.17, 9.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 9.10, 9.11, 10.1, 10.2, 10.3, 10.5, 10.6, 10.7, 10.8, 10.9, 10.11, 10.12, 10.15, 10.16, 11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.8, 11.10, 11.11, 11.13, 11.14, 11.17, 11.18, 11.19, 12.1, 12.2, 12.3, 12.4, 12.8, 12.9, 12.11, 12.12, 12.13, 12.14, 12.15, 12.32, 13.1, 13.2, 13.3, 13.4, 13.5, 13.6, 13.8, 13.9, 13.10, 13.11, A.1, A.2, A.3, A.4, A.5, A.6, B.1, B.2, B.5, B.7, B.8, B.9*
1.3 Describe applications that employ discipline-based problem solving	*Learning Objectives: 1.7, 1.8, 2.8, 2.16, 3.9, 3.14, 3.15, 3.16, 3.17, 4.11, 4.12, 4.13, 4.14, 4.15, 5.3, 5.5, 5.6, 5.7, 5.9, 5.12, 5.13, 5.14, 5.15, 6.2, 6.6, 6.9, 6.10, 6.11, 6.14, 7.3, 7.4, 7.7, 7.9, 7.15, 8.4, 9.5, 9.6, 9.7, 9.8, 9.9, 10.2, 10.3, 10.5, 10.7, 10.8, 10.9, 10.10, 10.11, 10.12, 10.13, 10.14, 10.15, 11.15, 11.16, 11.17, 12.11, 12.12, 13.2, 13.3, 13.4, 13.5, 13.6, 13.7, 13.8, 13.9, 13.10, 13.11, 13.12, 13.13, A.2, A.5, B.1, B.2, B.3, B.4, B.5, B.6, B.7, B.8, B.9* Major concepts are reinforced with learning tools: Writing Space, Experimental Simulations, Video Series, Visual Brain, and instructor's teaching and assessment package.

Goal 2: Scientific Inquiry and Critical Thinking

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

2.1 Use scientific reasoning to interpret behavior	*Learning Objectives: 1.2, 1.12, 2.3, 2.4, 2.6, 2.7, 2.9, 1.3, 3.1, 3.2, 3.3, 3.4, 3.6, 3.7, 3.8, 3.17, 4.6, 4.9, 4.15, 5.2, 5.4, 5.10, 5.11, 5.13, 5.14, 6.8, 6.9, 6.12, 6.13, 7.1, 7.2, 7.6, 7.10, 8.2, 8.6, 8.8, 8.11, 8.13, 9.1, 9.4, 9.7, 9.9, 10.2, 10.3, 10.6, 10.8,10.9, 10.10, 10.14, 10.15, 11.2, 11.3,11.4, 11.11, 11.13, 11.14, 11.19, 12.1, 12.3, 12.2, 12.6, 12.8, 12.10, 12.14, 12.16, 13.1, 13.9, 13.10, 13.11*
2.2 Demonstrate psychology information literacy	*Learning Objectives: PIA.3, PIA.6, PIA.7, A.1, A.2, A.3, A.4, A.5, A.6*
2.3 Engage in innovative and integrative thinking and problem-solving	*Learning Objectives: 3.4, 3.5, 3.6, 3.7, 3.8, 3.10, 3.11, 3.12, 3.13, 3.15, 5.1, 6.1, 7.6, 8.15, 9.1, 9.10, 9.13, 10.1, 11.1, 12.2,12.3, 13.1, B.1, B.5, B.7, B.9*
2.4 Interpret, design and conduct basic psychological research	*Learning Objectives: 1.5, 1.6, 1.7, 1.8, 1.9, 2.9, 2.10, 3.14, 3.17, 4.4, 4.9, 5.2, 5.4, 6.10, 7.7, 7.8, 8.1, 11.17, 11.18, 13.8, 13.9, A.1, A.2, A.3, A.4, A.5, A.6*
2.5 Incorporate sociocultural factors in scientific inquiry	*Learning Objectives: 4.6, 5.4, 7.6, 7.13, 7.14, 8.7, 8.14, 8.16, 8.17, 9.4, 9.9, 10.9, 10.10, 10.11, 11.2, 11.3, 11.4,11.5, 11.8, 13.1, 13.2, 13.10, 13.11* Scientific inquiry is reinforced with learning tools: Writing Space, Experimental Simulations, Video Series, Visual Brain, and instructor's teaching and assessment package.

Goal 3: Ethical and Social Responsibility

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

3.1 Apply ethical standards to psychological science and practice

Learning Objectives: 1.10, 1.11

3.2 Promote values that build trust and enhance interpersonal relationships

Learning Objectives: PIA.8, 9.9, 10.4, 10.5, 10.10, 10.11

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

Learning Objectives: 2.8, 4.11, 7.6, 7.7, 7.9, 8.15, 9.9, 10.7, 10.8, 10.9, 10.10, 10.11, 10.14, 10.15, 11.16, 12.11, 12.2, B.1

Ethics and social responsibility are reinforced with learning tools: Writing Space, Experimental Simulations, Video Series, Visual Brain, and instructor's teaching and assessment package.

Goal 4: Communication

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

4.1 Demonstrate effective writing in multiple formats

Learning Objectives: PIA.7, A.2

4.2 Exhibit effective presentation skills in multiple formats

Learning Objectives: A.2, A.5

4.3 Interact Effectively with Others

Learning Objectives: PIA.1, PIA.3, PIA.4, PIA.5, PIA.6

Communication goals are reinforced with learning tools: Writing Space, Experimental Simulations, Video Series, Visual Brain, and instructor's teaching and assessment package.

Goal 5: Professional Development

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

5.1 Apply psychological content and skills to professional work

Learning Objectives: PIA.7, PIA.8, 1.10, 1.11, 1.12, 2.8, 3.9, 4.11, 4.15, 5.2, 5.9, 5.12, 6.9, 6.11, 7.5, 7.6, 7.7, 7.8, 9.5, 9.6, 9.7, 9.8, 9.9, 9.11, 10.7,10.10, 11.15, 11.16, 12.17, 13.10, B.1, B.2, B.3, B.4, B.5, B.6, B.7, B.8, B.9

5.2 Exhibit self-efficacy and self-regulation

Learning Objectives: PIA.1, PIA.2, PIA.3, PIA.4, PIA.5, 5.12, 9.11, 12.17

5.3 Refine project management skills

Learning Objectives: PIA.2, PIA.7, 9.11, 12.17

5.4 Enhance teamwork capacity

Learning Objectives: B.7, B.8

5.5 Develop meaningful professional direction for life after graduation

Learning Objectives: PIA.6, B.2, B.3, B.4, B.7

Professional development goals are reinforced with learning tools: Writing Space, Experimental Simulations, Video Series, Visual Brain, and instructor's teaching and assessment package.

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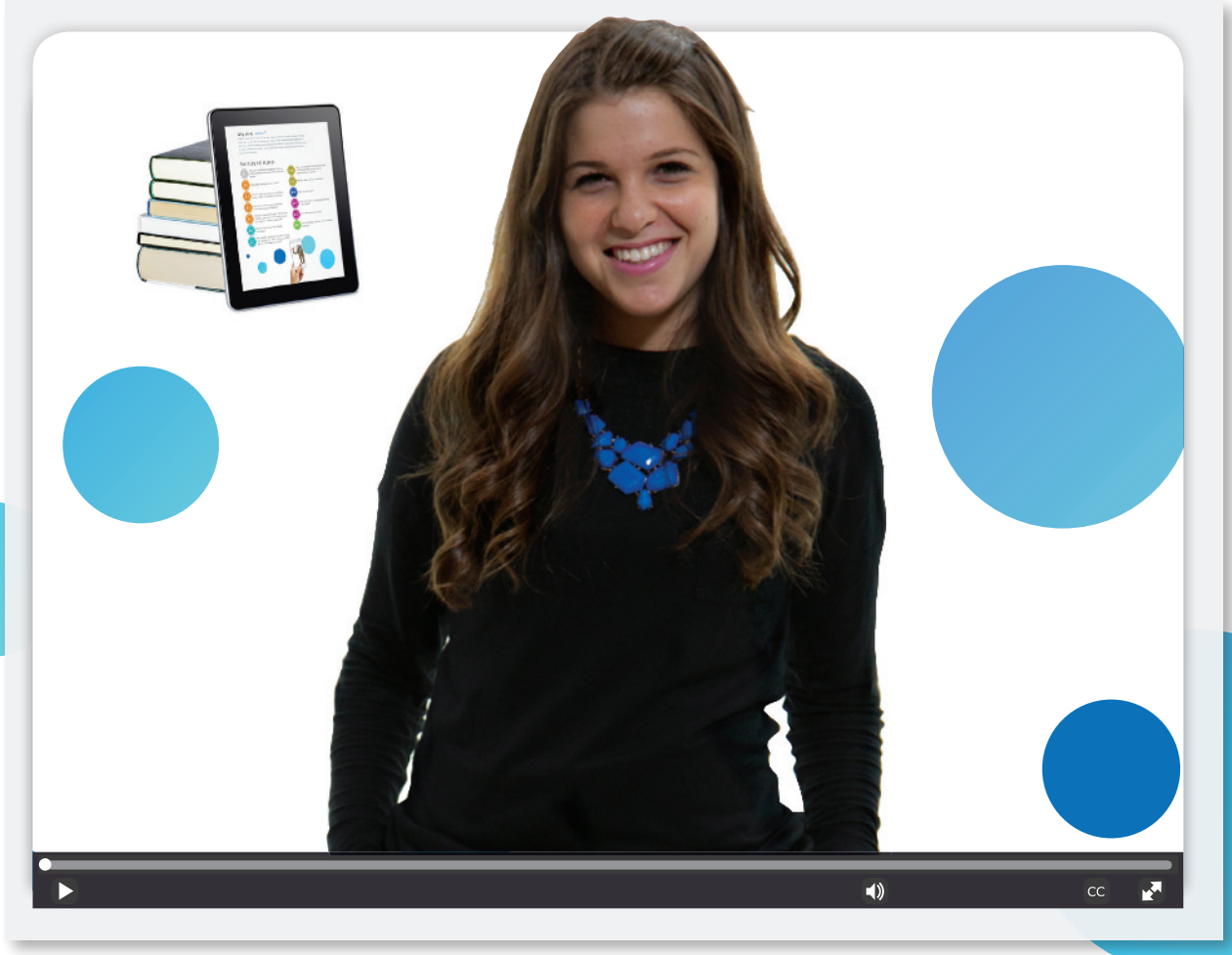
Psychology in Action

Secrets for Surviving College and Improving Your Grades

THINKING CRITICALLY

Based on what you know now, what advice would you share with a student just starting out in college?
After you have answered the question, watch the video to compare your answers to those of other students.

▶ The response entered here will be saved to your notes and may be collected by your instructor if he/she requires it.



Watch the Video

Why study how to study?

Many students entering college have developed a system of taking notes, reading the textbook, and reviewing for exams that may have worked pretty well in the past; but what worked in grade school and high school may not work in college, where the expectations from teachers are higher and the workload is far greater. Students should develop skills in the following areas in order to do their absolute best in any college course: study methods, time management, effective reading of course materials, active listening and note taking, studying for exams, memory strategies, and writing papers. One final aspect of being a successful student involves being an ethical

student—exactly how can you use the materials you find for your research paper, for example, without committing the sin of *plagiarism* (claiming the work of someone else as your own)?

This introduction presents various techniques and information aimed at maximizing knowledge and skills in each of these eight areas. In addition, brief videos are available on each of these topics. These topics address aspects of the American Psychological Association's (APA) undergraduate learning goals. APA Goal 2 (Scientific Inquiry and Critical Thinking) is addressed in Chapter One and is the basis of a feature in every chapter.

Learning Objectives

PIA.1 Identify four methods of studying.

PIA.2 Describe some strategies for time management.

PIA.3 Describe how to read a textbook so that you get the most out of your reading efforts.

PIA.4 Identify the best methods for taking notes and listening in class.

PIA.5 Describe how to approach studying for exams.

PIA.6 Explain how using mnemonics can help you improve your memory for facts and concepts.

PIA.7 Describe the key steps in writing papers for college.

PIA.8 Identify some of the key ethical considerations you'll face as a student.

Some students find it helpful to hear the content in addition to reading it. This is especially true when learning a new language. This woman is listening to an audio recording from her textbook as she follows along and looks at the figures and photos.

Watch the Video *Study Methods*

Study Skills

PIA.1 Identify four methods of studying.

I want to make better grades, but sometimes it seems that no matter how hard I study, the test questions turn out to be hard and confusing and I end up not doing very well. Is there some trick to getting good grades?

Many students would probably say their grades are not what they want them to be. They may make the effort, but they still don't seem to be able to achieve the higher grades they wish they could earn. A big part of the problem is that despite many different educational experiences, students are rarely taught how to study.

We learn many different kinds of things during our lives, and using only one method of learning probably isn't going to work for everyone. Students may have preferences for a particular study method or may find it useful to use a combination of different methods. *Verbal study methods* involve the use of words, expressed either through writing or speaking. For instance, after you read about a topic, you might put it into your own words, or you might write out longer, more detailed versions of the notes you took in class. *Visual learning methods* involve the use of pictures or images. Students using these methods may look at or create charts, diagrams, and figures to master the content. There are also those who prefer to learn by hearing the information (*auditory learning methods*). Listening to a recording of a lecture is a good example. Finally, there are people who use the motion of their own bodies to help them remember key information (*action learning methods*). For instance, you might construct a three-dimensional model to gain a better understanding of a topic.

THINKING CRITICALLY

Describe some other ways in which the various study methods can be put to use.

The response entered here will be saved to your notes and may be collected by your instructor if he/she requires it.

Submit

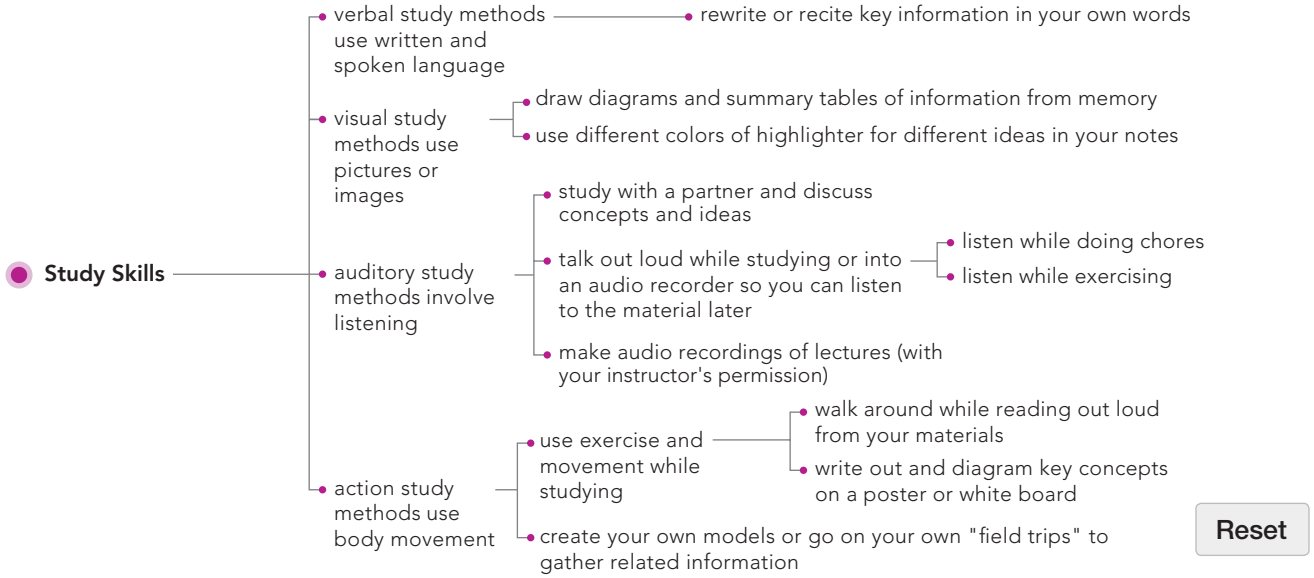
Table PIA.1 lists just some of the ways in which you can study. All of the methods listed in this table are good for students who wish to improve both their understanding of a subject and their grades on tests.

Table PIA.1 Multiple Study Methods

Verbal Methods (involve speaking or writing)	Visual Methods (involve pictures, images)	Auditory Methods (involve listening)	Action Methods (involve physical activity)
Use flash cards to identify main points or key terms.	Make flash cards with pictures or diagrams to aid recall of key concepts, or use the flashcards in REVEL.	Join or form a study group or find a study partner so you can discuss concepts and ideas.	Sit near the front of the classroom. If online, give yourself room to walk around while studying. Take notes by making pictures or charts to help you remember key terms and ideas.
Write out or recite key information in whole sentences or phrases in your own words.	Make charts and diagrams and sum up information in tables.	While studying, speak out loud or into a digital recorder you can play back later or to the audio recordings in REVEL.	Read out loud, or use the audio feature in REVEL while walking around.
When looking at diagrams, write out a description.	Use different colors of highlighter for different sections of information in text, e-text, or notes.	Make speeches.	Study with a friend.
Use "sticky" notes to remind yourself of key terms and information, and put them in the notebook text or e-text or on a mirror that you use frequently.	Visualize charts, diagrams, and figures.	Record the lectures (with permission). Take notes on the lecture sparingly, using the recording to fill in parts you might have missed.	While exercising, listen to recordings of important information, either your own or those in REVEL.
Practice spelling words or repeating facts to be remembered.	Trace letters and words to remember key facts.	Read notes or text material into a digital recorder or get study materials recorded and play back while exercising or doing chores.	Write out key concepts on a large board or poster.
Rewrite things from memory.	Use the interactive figures and tables available in REVEL.	When learning something new, state or explain the information in your own words out loud or to a study partner.	Make your own flash cards, using different colors and diagrams, and lay them out in order on a large surface.
	Redraw things from memory.	Use musical rhythms as memory aids, or put information to a rhyme or a tune.	Make a three-dimensional model.
			Spend extra time in the lab.
			Go to off-campus areas such as a museum or historical site to gain information.

Concept Map L.O. PIA.1

Interactive



Practice Quiz How much do you remember?

Pick the best answer.

1. In an episode of a popular television program, a detective reconstructs a crime scene by using various foods from his dinner table. He uses ears of corn to represent the cars, mashed potatoes to form the sides of the road, and so on. What method of learning best fits the method this character seems to be using to think about the events of the crime?

a. verbal
b. visual
c. auditory
d. action

2. Gilbert has been advised by a learning expert to study by using techniques like using flash cards, writing out important points in his own words and then reciting them, using sticky notes to emphasize important points, and creating descriptions of figures and images. Gilbert's tutor is recommending the use of _____ study methods.

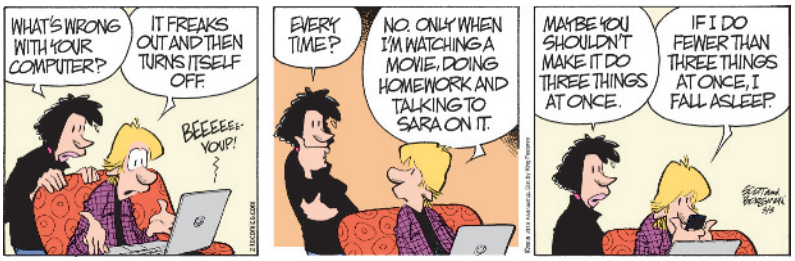
a. auditory
b. action
c. visual
d. verbal

Managing Time

PIA.2 Describe some strategies for time management.

One of the biggest failings of college students (and many others) is managing the time for all the tasks involved. Procrastination, the tendency to put off tasks until some later time that often does not arrive, is the enemy of time management. There are some strategies to defeating procrastination (The College Board, 2011):

- Make a map of your long-term goals. If you are starting here, what are the paths you need to take to get to your ultimate goal?
- Use a calendar to keep track of class times, time devoted to studying, time for writing papers, work times, social engagements, everything! Use the calendar app on your phone, tablet, or computer—or all three.
- Before you go to bed, plan your next day, starting with when you get up and prioritizing your tasks for that day. Mark tasks off as you do them.
- Go to bed. Getting enough sleep is a necessary step in managing your tasks. Eating right and walking or stretching between tasks is a good idea, too.



- If you have big tasks, break them down into smaller, more manageable pieces. For example, if you have to write a paper, divide the task into smaller ones, such as making an outline or writing the introductory paragraph. How do you eat an elephant? One bite at a time.
- Do small tasks, like taking a practice quiz or writing the first paragraph of a paper, in those bits of time you might otherwise dismiss: riding the bus to school or work, waiting in a doctor's office, and so on.
- Build in some play time—all work and no play pretty much ensures you will fail at keeping your schedule. Use play time as a reward for getting tasks done.
- If your schedule falls apart, don't panic—just start again the next day. Even the best time managers have days when things don't go as planned.

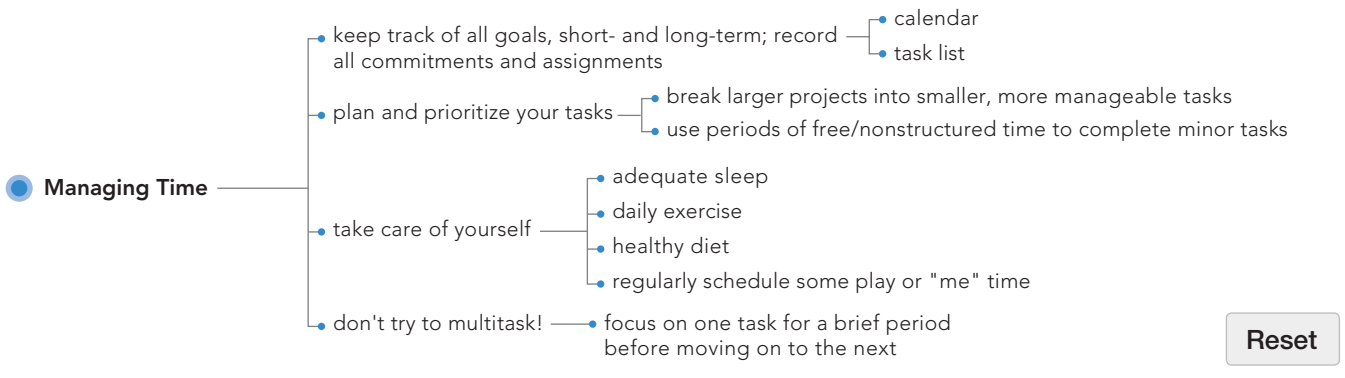
Another problem that often interferes with time management is the enduring myth that we can effectively multitask. In today's world of technological interconnectedness, people tend to believe they can learn to do more than one task at a time. The fact, however, is that the human mind is not meant to multitask, and trying to do so not only can lead to car wrecks and other disasters but also may result in changes in how individuals process different types of information, and not for the better. One study challenged college students to perform experiments that involved task switching, selective attention, and working memory (Ophir et al., 2009). The expectation was that students who were experienced at multitasking would outperform those who were not, but the results were just the opposite: the "chronic multitaskers" failed miserably at all three tasks. The results seemed to indicate that frequent multitaskers use their brains less effectively, even when focusing on a single task. Yet another study found that the grade point averages of students who multitasked while studying were negatively affected (Junco & Cotton, 2012).

Researchers also have found that people who think they are good at multitasking are actually not (Sanbonmatsu et al., 2013), while still another study indicates that video gamers, who often feel their success at gaming is training them to be good multitaskers in other areas of life such as texting or talking while driving, are just as unsuccessful at multitasking as nongamers (Donohue et al., 2012). In short, it's better to focus on one task and only one task for a short period of time before moving on to another than to try to do two things at once.

Watch the Video *Managing Time*

Concept Map L.O. PIA.2

Interactive



Practice Quiz How much do you remember?

Pick the best answer.

1. Which of the following is *not* a question that students should ask themselves in order to maximize their studying effectiveness?
   - **a.** How can I most effectively highlight while I am reading my textbook?
   - **b.** How should I improve my memory for facts and concepts?
   - **c.** How can I best manage my time and avoid procrastination?
   - **d.** How can I write good term papers?
2. Which of the following is a suggestion to help you with time management skills?
   - **a.** When you have a big project to complete, try to complete it all at once rather than breaking it down into smaller pieces so that you don't put it off until later.
   - **b.** Try to focus only on short-term goals, since looking at long-term goals can be defeating and upsetting.
   - **c.** Build in some play time, using it as a reward for getting tasks done.
   - **d.** If your schedule falls apart, make sure to panic immediately!
3. What does the research show in regard to multitasking?
   - **a.** Chronic multitaskers have developed strategies that allow them to use their brains more effectively.
   - **b.** Chronic multitasking may be related to less effective ways of processing different types of information.
   - **c.** Multitasking is effective, but only if you limit the number of tasks to 5 or fewer.
   - **d.** Video gamers are better at multitasking in all areas of life.

Reading the Text: Textbooks Are Not Meatloaf

PIA.3 Describe how to read a textbook so that you get the most out of your reading efforts.

No matter what the study method, students must read the textbook or other assigned course materials to be successful in the course. (While that might seem obvious to some, many students today seem to think that just taking notes on lectures or slide presentations will be enough.) This section deals with how to read textbooks—whether in print or online—for understanding rather than just to "get through" the material.

Students make two common mistakes in regard to reading a textbook. The first mistake is simple: Many students don't bother to read the textbook *before* watching the lecture that will cover that material. Trying to get anything out of a lecture without having read the material first is like trying to find a new, unfamiliar place without using a GPS or any kind of directions. It's easy to get lost. This is especially true because of the assumption that most instructors make when planning their lectures: They take for granted that the students have already read the assignment. The instructors then use the lecture to go into detail about the information the students supposedly got from the reading. If the students have not done the reading, the instructor's lecture isn't going to make a whole lot of sense.

The second mistake most students make when reading textbook material is to try to read it the same way they would read a novel: They start at the beginning and read continuously. With a novel, it's easy to do this because the plot is usually interesting and people want to know what happens next, so they keep reading. It isn't necessary to remember every little detail—all they need to remember are the main plot points. One could say that a novel is like meatloaf—some meaty parts with lots of filler. Meatloaf can be eaten quickly, without even chewing for very long.

With a textbook, the material may be interesting but not in the same way that a novel is interesting. A textbook is a big, thick steak—all meat, no filler. Just as a steak has to be chewed to be enjoyed and to be useful to the body, textbook material has to be "chewed" with the mind. You have to read slowly, paying attention to every morsel of meaning.

So how do you do that? Probably one of the best-known reading methods is called SQ3R, first used by F. P. Robinson in a 1946 book *Effective Study*. The letters S-Q-R-R-R stand for:

Before reading any chapter in a text, survey the chapter by reading the outline and the section headings.

SURVEY

Look at the chapter you've been assigned to read. Read the outline, learning objectives, or other opening materials. Then scan the chapter and read the headings of sections, and look at tables and figures. Quickly read through the chapter summary if one is provided.

It might sound like it takes too much time to do this, but you should just be skimming at this point—a couple of minutes is all it should take. Why do this at all? Surveying the chapter, or "previewing" it, as some experts call it, helps you form a framework in your head around which you can organize the information in the chapter when you read it in detail. Organization is one of the main ways to improve your memory for information. LINK to Learning Objective 6.5.

QUESTION

After previewing the chapter, read the heading for the first section. *Just* the first section! Try to think of a question based on this heading that the section should answer as you read. For example, in Chapter One there's a section titled "Pavlov, Watson, and the Dawn of Behaviorism." You could ask yourself, "What did Pavlov and Watson do for psychology?" or "What is behaviorism?" In this text, we've presented a list of learning objectives for the key concepts in the chapter that can be used with the SQ3R method. There are also student questions highlighted throughout the chapters that can serve the same purpose. Now when you read the section, you aren't *just* reading—you're reading to *find an answer*. That makes the material much easier to remember later on.

READ

Now read the section, looking for the answers to your questions. As you read, take notes by making an outline of the main points and terms in the section. This is another area where some students make a big mistake. They assume that highlighting words and phrases is as good as writing notes. One of the author's former students conducted research on the difference between highlighting and note taking, and her findings were clear: Students who wrote their own notes during the reading of a text or while listening to a lecture scored significantly higher on their exam grades than students who merely highlighted the text (Boyd & Peeler, 2004). Highlighting requires no real mental effort (no "chewing," in other words), but writing the words down yourself requires you to read the words in depth and to understand them. When we study memory, you'll learn more about the value of processing information in depth. LINK to Learning Objective 6.2.

After reading a chapter section, take time to reflect on what the information means and how it might relate to real-world situations.

RECITE

It may sound silly, but reciting out loud what you can remember from the section you've just read is another good way to process the information more deeply and completely. How many times have you thought you understood something, only to find that when you tried to explain it to someone, you didn't understand it at all? Recitation forces you to put the information in your own words—just as writing it in notes does. Writing it down accesses your visual memory; saying it out loud gives you an auditory memory for the same information. If you have ever learned something well by teaching it to someone else, you already know the value of recitation. If you feel self-conscious about talking to yourself, talk into a digital recorder—and it's a great way to review later.

Now repeat the Question, Read, and Recite instructions for each section, taking a few minutes' break after every two or three sections. Why take a break? There's a process that has to take place in your brain when you are trying to form a permanent memory for information, and that process takes a little time. When you take a break every 10 to 20 minutes, you are giving your brain the time to accomplish this process. A break will help you avoid

a common problem in reading texts—finding yourself reading the same sentence over and over again because your brain is too overloaded from trying to remember what you just read.

RECALL/REVIEW

Finally, you've finished reading the entire chapter. If you've used the guidelines listed previously, you'll only have to read the chapter as thoroughly this one time instead of having to read it over and over throughout the semester and just before exams. Once you've read the chapter, take a few minutes to try to remember as much of what you learned while reading it as you can. A good way to do this is to take any practice quizzes that might be available. For this text, we offer both practice quizzes within the print text and online quizzes and study materials in the e-text. If there are no quizzes, read the chapter summary in detail, making sure that you understand everything in it. If there's anything that's confusing, go back to that section in the chapter and read again until you understand it.

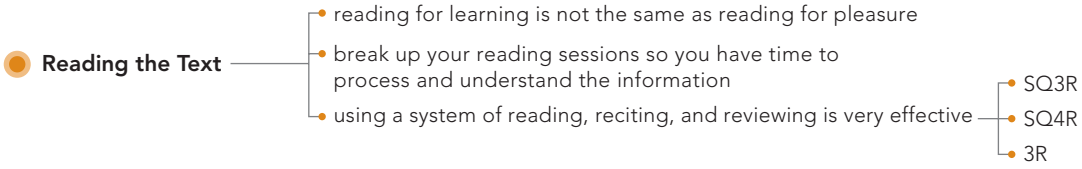
Some educators and researchers now add a fourth R: *Reflect*. To reflect means to try to think critically about what you have read by trying to tie the concepts into what you already know, thinking about how you can use the information in your own life, and deciding which of the topics you've covered interests you enough to look for more information on that topic (Richardson & Morgan, 1997). For example, if you have learned about the genetic basis for depression, you might better understand why that disorder seems to run in your best friend's family. LINK to Learning Objective 12.9.

Reading textbooks in this way means that, when it comes time for the final exam, all you will have to do is carefully review your notes to be ready for the exam—you won't have to read the entire textbook all over again. What a time saver! Recent research suggests that the most important steps in this method are the three Rs: read, recite, and review. In two experiments with college students, researchers found that when compared with other study methods such as rereading and note-taking study strategies, the 3R strategy produced superior recall of the material (McDaniel et al., 2009).

Watch the Video *Reading the Text*

Concept Map L.O. PIA.3

Interactive



Reset

Practice Quiz How much do you remember?

Pick the best answer.

1. What does the S in SQ3R stand for?
   a. survey **c.** synthesize
   b. study **d.** stand
2. As you read the text material, you should
   a. use a highlighter so that you don't waste time writing notes.
   b. avoid taking notes while reading so that you can concentrate on the material.
   c. make an outline of the main points and key terms.
   d. read the entire chapter all at once.
3. Candice has surveyed the material, developed questions to consider, and begun reading the material to find the answers to her questions. What should she do next?
   a. Recite out loud what she can remember from the section she just read.
   b. Reread the material a second time.
   c. Review the material from the chapter she has read.
   d. Retain the material by committing it to memory.

Here are two things instructors love to see: attentive looks and note taking during the lecture. And for the student who learns better just listening, a small digital recorder (used with permission) can help for later review of the lecture. How should these students have prepared before coming to this class?

Getting the Most Out of Lectures

PIA.4 Identify the best methods for taking notes and listening in class.

As mentioned earlier, mastering course content means you have to attend the lectures. Even if lectures are online, you have to read or watch them. But just attending or reading or watching is not enough; you have to process the information just as you have to process the text material. To get the most out of lectures, you need to take notes on the content, and taking notes involves quite a bit more than just writing down the words the instructor says or printing out the PowerPoint slides.

One very important fact you must remember: PowerPoint slides are not meant to be notes at all; they are merely talking points that help the instructor follow a particular sequence in lecturing. Typically, the instructor will have more to say about each point on the slide, and that is the information students should be listening to and writing down. In Table PIA.1, the suggestion to use highlighters of different colors is not meant to replace taking notes but instead to supplement the notes you do take.

How should you take notes? As stated earlier, you should try to take notes while reading the chapter (*before* attending the lecture) by writing down the main points and the vocabulary terms (*in your own words* as much as possible). This forces you to think about what you are reading. The more you think about it, the more likely it is that the concepts will become a part of your permanent memory. LINK to Learning Objective 6.5.

Taking notes while listening to the lecture is a slightly different procedure. First, you should have your notes from your earlier reading in front of you, and it helps to leave plenty of space between lines to add notes from the lecture. A major mistake made by many students is to come to the lecture without having read the material first. This is an EXTREMELY BAD IDEA. If you come to the lecture totally unprepared, you will have no idea what is important enough to write down and what is just the instructor's asides and commentary. Reading the material first gives you a good idea of exactly what is important in the lecture and reduces the amount of notes you must take.

THINKING CRITICALLY

What are some reasons why not relying on the instructor's PowerPoints might be beneficial in committing information to memory?

The response entered here will be saved to your notes and may be collected by your instructor if he/she requires it.

Submit

Watch the Video *Lecture Notes*

There is an art to really listening to someone, too, often called *active listening*. Active listeners make eye contact with the speaker and sit facing the speaker in a place where they can easily hear and see the speaker. Active listeners focus on what is being said rather than how the speaker looks or sounds (not always an easy task) and ask questions when they do not understand something or need a clarification. Asking questions during a lecture is a good way to stay engaged in actively processing the speaker's message.

Ask your instructor if you can bring a digital recorder to class to record the lecture. You will then be able to listen during the class and use the recording to take notes from later. Some students may prefer to jot down diagrams, charts, and other visual aids along

with their written notes. When you have good notes, taken while reading the text and from the lectures, you will also have ready-made study aids for preparing to take exams. The next section deals with the best ways to study for exams.

Concept Map L.O. PIA.4

Interactive

Getting the Most Out of Lectures

- read your textbook and take notes before class so you can focus on the lecture–in the lecture only take notes on the most important ideas
- take notes and write information in your own words; create diagrams or charts
- engage in active listening; focus on what is being discussed and ask questions for clarification

Reset

Practice Quiz How much do you remember?

Pick the best answer.

1. To maximize success, which method of note-taking should Juan use?
- **a.** He should take notes in his own words as much as possible.
- **b.** He should write down every word from the PowerPoint slides used in class.
- **c.** He should highlight the text rather than writing his own notes.
- **d.** He should make sure his notes contain the exact words used by his instructor.

2. Avery maintains eye contact when listening to her instructors. She also places herself so that she can see and hear the instructors. Additionally, she works to listen to the content of the lecture instead of focusing on how they look or what they are wearing. Avery would be described as a(n)
- **a.** accomplished student.
- **b.** passive listener.
- **c.** active listener.
- **d.** social listener.

Studying for Exams: Cramming Is Not an Option

PIA.5 Describe how to approach studying for exams.

Inevitably, the time will come when your instructor wants some hard evidence that you have truly learned at least some of the material to which you have been exposed. There is a right way to study for a test, believe it or not. Here are some good things to remember when preparing for an exam, whether it's a quiz, a unit test, a midterm, or a final (Carter et al., 2005; Reynolds, 2002):

- **Timing is everything.** One of the worst things students can do is to wait until the last minute to study for an exam. Remember the analogy about "chewing" the steak? (Just as a steak has to be chewed to be enjoyed and to be useful to the body, textbook material has to be "chewed" with the mind.) The same concept applies to preparing for an exam: You have to give yourself enough time. If you've read your text material and taken good notes as discussed in the previous sections, you'll be able to save a lot of time in studying for the exam, but you still need to give yourself ample time to go over all of those notes. The time management tips given earlier in this chapter will help you prioritize your studying.
- **Find out as much as you can about the type of test and the material it will cover.** The type of test can affect the way in which you want to study the material. An

Could this be you? The scattered materials, the frantic phone call to a friend or professor, and the tense and worried facial expression are all hallmarks of that hallowed yet useless student tradition, cramming. Don't let this happen to you.

objective test, for example, such as multiple-choice or true/false, is usually fairly close to the text material, so you'll want to be very familiar with the wording of concepts and definitions in the text, although this is not a suggestion to memorize a lot of material.

These kinds of tests can include one of three types of questions:

- **Factual**: Questions that ask you to remember a specific fact from the text material. For example, "Who built the first psychological laboratory?" requires that you recognize a person's name. (The answer is Wilhelm Wundt.)
- **Applied**: Questions that ask you to use, or apply, information presented in the text. For example, consider the following question:

  Ever since she was scared by a dog as a young child, Angelica has been afraid of all dogs. The fact that she is afraid not only of the original dog but of all types of dogs is an example of

  a. stimulus generalization.
  b. stimulus discrimination.
  c. spontaneous recovery.
  d. shaping.

  This question requires you to take a concept (in this case, generalization) and apply it to a real-world example.
- **Conceptual**: Questions that demand that you think about the ideas or concepts presented in the text and demonstrate that you understand them by answering questions like the following: "Freud is to _____ as Watson is to _____." (The answers could vary, but a good set would be "the unconscious" and "observable behavior.")

Notice that although memorizing facts might help on the first type of question, it isn't going to help at all on the last two. Memorization doesn't always help on factual questions either because the questions are sometimes worded quite differently from the text. It is far better to understand the information rather than be able to "spit it back" without understanding it. "Spitting it back" is memorization; understanding it is true learning. LINK to Learning Objective 6.2. There are different levels of analysis for information you are trying to learn, and the higher the level of analysis, the more likely you are to remember (Anderson et al., 2001; Bloom, 1956). *Factual questions* are the lowest level of analysis: knowledge. *Applied questions* are a higher level and are often preferred by instructors for that reason—it's hard to successfully apply information if you don't really understand it. *Conceptual questions* are a kind of analysis, a level higher than either of the other two. Not only do you have to understand the concept, you have to understand it well enough to compare and contrast it with other concepts. They might be harder questions to answer, but in the long run, you will get more "bang for your buck" in terms of true learning.

Subjective tests, such as essay tests and short-answer exams, require not only that you are able to recall and understand the information from the course but also that you are able to organize it in your own words. To study for a subjective test means that you need to be familiar with the material *and* that you need to be able to write it down. Make outlines of your notes. Rewrite both reading and lecture notes and make flash cards, charts, and drawings. Practice putting the flash cards in order. Talk out loud or study with someone else and discuss the possible questions that could be on an essay test. You might find that only a few of these methods work best for you, but the more ways in which you try to study, the better you will be able to retrieve the information when you need it. It may sound like a big investment of your time, but most students vastly underestimate how long it takes to study—and fail to recognize that many of these techniques are doable when first reading the textbook assignment and preparing for the classroom lecture. DON'T CRAM!

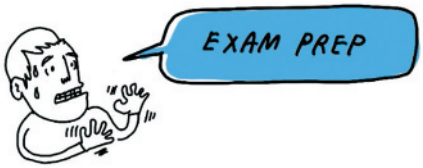
You might also look at old tests (if the instructor has made them available) to see what kinds of questions are usually asked. If this is not possible, make sure you pay close attention to the kinds of questions asked on the first exam so you will know how to prepare for future tests. Write out your own test questions as if you were the instructor. Not only does this force you to think about the material the way it will appear on the test, it also provides a great review tool. Other helpful advice:

- **Use SQ3R.** You can use the same method you used to read the text material to go over your notes. Skim through your notes, try to think of possible test questions, recite the main ideas and definitions of terms, either out loud, into a digital recorder, or to a friend or study group. Review by summarizing sections of material or by making an outline or flash cards that you can use in studying important concepts.
- **Use the concept maps if provided.** When surveying the chapter, make sure you look over any concept maps. (In this text, they are provided at the end of each major section of the chapters, just before the practice quizzes). **Concept maps** are a visual organization of the key concepts, terms, and definitions found in each section and are an excellent way to "see" how various concepts are linked together (Carnot et al., 2001; Novak, 1995; Wu et al., 2004). They are also a great way to review the chapter once you have finished reading it, just to check for understanding—if the concept maps don't make sense, then you've missed something and need to go back over the relevant section. You can also make your own concept maps as you take notes on the chapter. A good resource for the background behind concept maps and how to use them is at **cmap.ihmc.us/Publications/ResearchPapers/TheoryCmaps/TheoryUnderlyingConceptMaps.htm.**
- **Take advantage of all the publisher's test and review materials.** Practice helps, and most textbooks come with a study guide or a Web site. Those materials should have practice quizzes available—take them. We offer practice quizzes in both the print and Revel versions of this text. The Revel e-text also offers a variety of opportunities for students to quiz themselves on the information in tables, figures, and graphs. The more types of quiz questions you try to answer, the more successful you will be at interpreting the questions on the actual exam. You'll also get a very good idea of the areas that you need to review. And remember, retrieval practice, or actually testing your recall through tests or quizzes, is a great way to improve long-term learning (Karpicke, 2012; Karpicke & Blunt, 2011), even when just thinking about the information or rehearsing it in your mind (Smith et al., 2013)! Retrieval practice works better than simply restudying. The key is testing your retrieval of information, not your recognition of information. Also, a good resource of study helps created by Joe Landsberger is the Website Study Guides and Strategies, available at **www.studygs.net**.
- **Make use of the resources.** If you find that you are having difficulty with certain concepts, go to the instructor well in advance of the exam for help. (This is another good reason to manage your study time so that you aren't trying to do everything in a few hours the night before the exam.) There are help centers on most college and university campuses with people who can help you learn to study, organize your notes, or tutor you in the subject area.
- **Don't forget your physical needs.** Studies have shown that not getting enough sleep is bad for memory and learning processes (Stickgold et al., 2001; Vecsey et al., 2009). Try to stop studying an hour or so before going to bed at a reasonable time to give your body time to relax and unwind. Get a full night's sleep if possible. Do not take sleep-inducing medications or drink alcohol, as these substances prevent normal stages of sleep, including the stage that seems to be the most useful for memory

concept map
an organized visual representation of knowledge consisting of concepts and their relationships to other concepts.

Many students studying for exams ignore one of the most valuable resources to which they have access: the instructor. Most instructors are happy to answer questions or schedule time for students who are having difficulty understanding the material.

Sleep has been shown to improve memory and performance on tests, so get a good night's sleep before every exam.



Watch the Video *Exam Prep*

and learning (Davis et al., 2003). Do eat breakfast; hunger is harmful to memory and mental performance. A breakfast heavy on protein and light on carbohydrates is the best for concentration and recall (Benton & Parker, 1998; Dani et al., 2005; Pollitt & Matthews, 1998; Stubbs et al., 1996).

- **Use your test time wisely.** When taking the test, don't allow yourself to get stuck on one question that you can't seem to answer. If an answer isn't clear, skip that question and go on to others. After finishing all of the questions you can answer easily, go back to the ones you have skipped and try to answer them again. This accomplishes several things: You get to experience success in answering the questions you can answer, which makes you feel more confident and relaxed; other questions on the test might act as memory cues for the exact information you need for one of those questions you skipped; and once you are more relaxed, you may find that the answers to those seemingly impossible questions are now clear because anxiety is no longer blocking them. This is a way of reducing stress by dealing directly with the problem, one of many ways of dealing effectively with stress. LINK to Learning Objective 9.5.

THINKING CRITICALLY

Many elementary and secondary school programs now offer breakfast to their students. What foods would benefit these children the most and why?

The response entered here will be saved to your notes and may be collected by your instructor if he/she requires it.

Submit

Concept Map L.O. PIA.5

Interactive

Studying for Exams

- spacing out studying sessions (distributed practice) is more effective than cramming (massed practice); start early!
- knowing what kind of test questions to expect can help guide study efforts
- retrieval practice, testing your recall through tests or quizzes, works much better than simply rereading, restudying, or relying on recognition methods
- use effective time management strategies, both when studying and while taking exams
- don't forget to take care of yourself by getting enough sleep, proper nutrition, and exercise

Reset

Practice Quiz How much do you remember?

Pick the best answer.

1. Which category is the following question an example of?
   True or False: Psychology is the study of behavior and mental processes.
   a. factual question
   b. conceptual question
   c. applied question
   d. critical question

2. Which questions are the highest level of analysis and often considered the hardest to answer on a test?
   a. factual
   b. applied
   c. conceptual
   d. true/false

3. Tom is studying for his first psychology exam. What should he do to ensure he remembers all he studied?
   a. Begin studying many days in advance to give his brain time to commit the material to memory and repeatedly test his retrieval of information.
   b. Memorize as much of the information as possible.
   c. Study all night long before the exam—he can sleep after the test.
   d. Wait to study until just before the scheduled exam, so that the information will be fresh in his mind.
4. What is the value of retrieval practice?
   a. It assists only in preparing for essay-based exams.
   b. It allows students more opportunities to study.
   c. It helps increase long-term learning.
   d. No research exists to prove that retrieval practice is effective.
5. Simply spitting information back out on a test is likely more indicative of _____, while truly understanding information is more indicative of actual _____.
   a. learning; memorization
   b. memorization; learning
   c. behavior; action
   d. a process; a gift

Improving Your Memory

PIA.6 Explain how using mnemonics can help you improve your memory for facts and concepts.

Everyone needs a little memory help now and then. Even memory experts use strategies to help them perform their unusual feats of remembering. These strategies may be unique to that individual, but there are many memory "tricks" that are quite simple and available for anyone to learn and use. A memory trick or strategy to help people remember is called a **mnemonic**, from the Greek word for memory. Take a look at **Figure PIA.1** to see examples of a few of the more popular mnemonics, some of which may sound familiar:

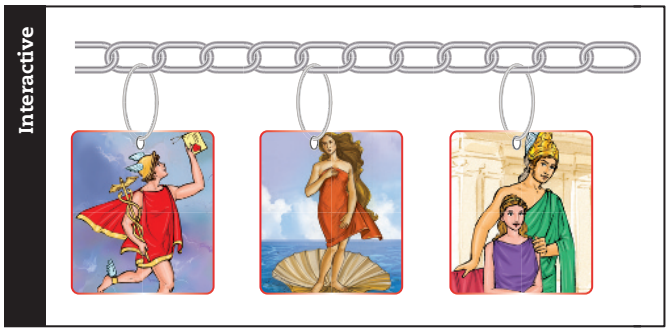


Figure PIA.1 Popular Mnemonics

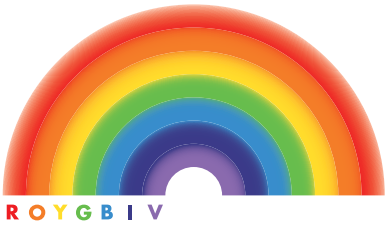
mnemonic
a strategy or trick for aiding memory.

- **Linking.** Make a list in which items to be remembered are linked in some way. If trying to remember a list of the planets in the solar system, for example, a person could string the names of the planets together like this: *Mercury* was the messenger god, who carried lots of love notes to *Venus*, the beautiful goddess who sprang from the *Earth's* sea. She was married to *Mars*, her brother, which didn't please her father *Jupiter* or his father *Saturn*, and his uncle *Uranus* complained to the sea god, *Neptune*. That sounds like a lot, but once linked in this way, the names of the planets are easy to recall in proper order.
- **The peg-word method.** In this method, it is necessary to first memorize a series of "peg" words, numbered words that can be used as keys for remembering items associated with them. A typical series of peg words is:

One is a bun.	Five is a hive.	Eight is a gate.
Two is a shoe.	Six is bricks.	Nine is a line.
Three is a tree.	Seven is heaven.	Ten is a hen.
Four is a door.		

To use this method, each item to be remembered is associated with a peg word and made into an image. For instance, if you are trying to remember the parts of the nervous system, you might picture the brain stuck inside a bun, the spinal cord growing out of a shoe or with shoes hanging off of it, and the peripheral nerves as the branches of a tree.

- **The method of loci (LOW-kee or LOW-si).** In this method, the person pictures a very familiar room or series of rooms in a house or other building. Each point of the information is then made into an image and "placed" mentally in the room at certain locations. For example, if the first point was about military spending, the image might be a soldier standing in the doorway of the house throwing money



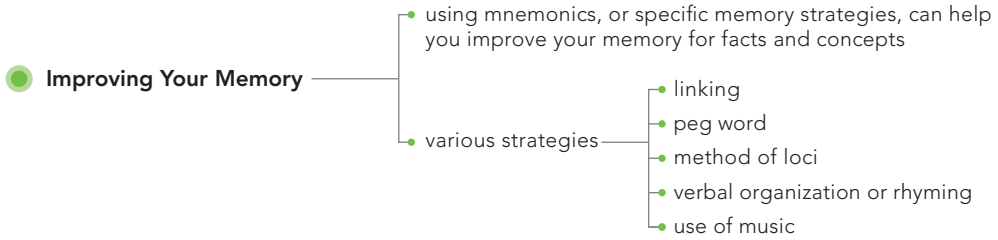
out into the street. Each point would have its place, and all the person would need to do to retrieve the memories would be to take a "mental walk" around the house.

- **Verbal/rhythmic organization.** How do you spell relief? If, when spelling a word with an *ie* or an *ei* in it, you resort to the old rhyme "I before E except after C, or when sounded as A as in neighbor or weigh," you have made use of a verbal/rhythmic organization mnemonic. "Thirty days hath September, April, June, and November …" is another example of this technique. Setting information into a rhyme aids memory because it uses verbal cues, rhyming words, and the rhythm of the poem itself to aid retrieval. Sometimes this method is accomplished through making a sentence by using the first letters of each word to be remembered and making them into new words that form a sentence. The colors of the rainbow are ROY G. BIV (red, orange, yellow, green, blue, indigo, and violet). The notes on the musical staff are "Every Good Boy Does Fine." There are countless examples of this technique.
- **Put it to music (a version of the rhythmic method).** Some people have had success with making up little songs, using familiar tunes, to remember specific information. The best example of this? The alphabet song.

Watch the Video *Improve Memory*

Concept Map L.O. PIA.6

Interactive



Reset

Practice Quiz How much do you remember?

Pick the best answer.

1. Which of the following is *not* one of the mnemonic techniques described in this chapter?
a. method of loci **c.** linking
b. rote memorization **d.** peg-word

2. "My very excellent mother just served us nine pizzas" is a mnemonic for remembering the order of the planets in our solar system (including poor, downgraded Pluto, of course). What kind of mnemonic is this?
a. method of loci **c.** peg-word
b. linking **d.** verbal/rhythmic organization

Writing Papers

PIA.7 Describe the key steps in writing papers for college.

Several steps are involved in writing a paper, whether it be a short paper or a long one. You should begin all of these steps well in advance of the due date for the paper (not the night before):

1. **Choose a topic.** The first step is to choose a topic for your paper. In some cases, the instructor may have a list of acceptable subjects, which makes your job easier. If that is not the case, don't be afraid to go to your instructor during office hours and talk about some possible topics. Try to choose a topic that interests you—one you would like to learn more about. The most common mistake students make is to

choose subject matter that is too broad. For example, the topic "autism" could fill a book. A narrower focus might discuss a single form of autism in detail. Again, your instructor can help you narrow down your topic choices.

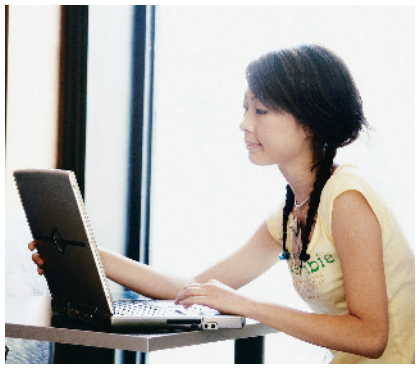
2. **Do the research.** Find as many sources as you can that have information about your topic. Don't limit yourself to textbooks. Go to your school library and ask the librarian to point you in the direction of some good scientific journals that would have useful information on the subject. Be very careful about using the Internet to do research: Not everything on the Internet is correct or written by true experts—avoid other students' papers and "encyclopedia" Web sites that can be written and updated by darn near anyone.
3. **Take notes.** While reading about your topic, take careful notes to remember key points and write down the reference that will go along with the reading. References for psychology papers are usually going to be in APA (American Psychological Association) style, which can be found at www.apastyle.org.

   Taking good notes helps you avoid using the materials you find in their exact or nearly exact form, a form of cheating we'll discuss more in a later module of this chapter.
4. **Decide on the thesis.** The thesis is the central message of your paper—the message you want to communicate to your audience—which may be your instructor, your classmates, or both, depending on the nature of the assignment. Some papers are persuasive, which means the author is trying to convince the reader of a particular point of view, such as "Autism is not caused by immunizations." Some papers are informative, providing information about a topic to an audience that may have no prior knowledge, such as "Several forms of autism have been identified."
5. **Write an outline.** Using your notes from all your readings, create an outline of your paper—a kind of "road map" of how the paper will go. Start with an introduction (e.g., a brief definition and discussion of autism). Then decide what the body of the paper should be. If your paper is about a specific type of autism, for example, your outline might include sections about the possible causes of that type. The last section of your outline should be some kind of conclusion. For example, you might have recommendations about how parents of a child with autism can best help that child develop as fully as possible.
6. **Write a first draft.** Write your paper using the outline and your notes as guides. If using APA style, place citations with all of your statements and assertions. Failure to use citations (which point to the particular reference work from which your information came) is also a common mistake that many students make.

   It is very important that you avoid plagiarism, as discussed in Step 3. When you use a source, you are supposed to explain the information you are using in your own words *and* cite the source, as in the following example:

   In one study comparing both identical and fraternal twins, researchers found that stressful life events of the kind listed in the SRRS were excellent predictors of the onset of episodes of major depression (Kendler & Prescott, 1999).

   Your paper's reference section would have the following citation: Kendler, K. S., & Prescott, C. A. (1999). A population-based twin study of lifetime major depression in men and women. *Archives of General Psychiatry, 56*(1), 39–44. [Author's note: The number in front of the parentheses is the volume of the journal, the one inside is the issue number, and the last numbers are the page numbers of that article.]
7. **Let it sit.** Take a few days (if you have been good about starting the paper on time) to let the paper sit without reading it. Then go back over and mark places that don't sound right and need more explanation, a citation, or any other changes. This is much easier to do after a few days away from the paper; the need to reword will be more obvious.
8. **Write the revised draft.** Some people do more than one draft, while others do only a first draft and a final. In any case, revise the draft carefully, making sure to check your citations—and your spelling!

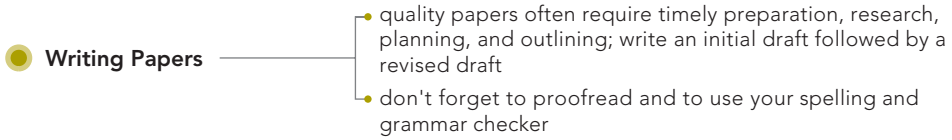


In earlier times, people actually had to write or type their first, second, and sometimes third drafts on real paper. The advent of computers with word-processing programs that allow simple editing and revision has no doubt saved a lot of trees from the paper mill. This also means there is no good excuse for failing to write a first draft and proofreading one's work.

Watch the Video *Paper Writing*

Concept Map L.O. PIA.7

Interactive



Reset

Practice Quiz How much do you remember?

Pick the best answer.

1. Tamika developed and researched a topic for her paper. What should she do next?
   - **a.** Begin writing a rough draft of her paper.
   - **b.** Begin writing as if her first draft will be her final draft.
   - **c.** Develop an outline as a road map to help her stay on track when writing her paper.
   - **d.** Let everything sit for a couple of days before beginning her rough draft.
2. Which of the following would be a more manageable topic for a term paper?
   - **a.** mental illness
   - **b.** learning
   - **c.** causes of schizophrenia
   - **d.** human development
3. Once you have written the first draft, what should you do?
   - **a.** Submit it to the instructor, as your first draft is usually the best effort.
   - **b.** Let it sit a few days before going back over it to make corrections.
   - **c.** Immediately write the second or final draft before the material gets too stale for you to remember why you wrote it the way you did.
   - **d.** Write the outline of the paper, which is easier to do once the paper is already written.

Your Ethical Responsibility as a Student

PIA.8 Identify some of the key ethical considerations you'll face as a student.

plagiarism
the copying of someone else's exact words (or a close imitation of the words) and presenting them as your own.

Many students have committed the sin of **plagiarism**, the copying of someone else's ideas or exact words (or a close imitation of the words) and presenting them as your own. When you cite someone else's work in your paper, you have to give them credit for that work. If you don't, you have committed plagiarism, whether you meant to do so or not, and this is theft. In taking credit for someone else's work, you hurt yourself and your reputation in a number of ways. You don't actually learn anything (because if you don't put it in your own words, you haven't really understood it), which means you aren't giving yourself the chance to develop the skills and knowledge you will need in your future career. You also put your integrity and honesty as a person under close scrutiny. Plagiarism shows disrespect for your peers as well—they did their own work and expected you to do the same (Pennsylvania State University, 2014).

How can you avoid plagiarizing? First, remember that if you want to use the actual words from your source, you should put them inside quotation marks and then include the reference or citation, including page numbers. If you want to use the ideas but don't want to plagiarize, try taking brief notes on the source material (preferably from more than one source) and then use your notes—not the actual source—to write the ideas in your own words. See **Table PIA.2** for some helpful resources.

Another ethical responsibility you have as a student is to not cheat. Most colleges and universities have honor codes about academic integrity, and cheating of any kind

Table PIA.2 Tools and Resources for Avoiding Plagiarism

Plagiarism Checker: http://smallseotools.com/plagiarism-checker/
Grammar and Plagiarism Checker: https://www.grammarly.com/plagiarism-checker
Purdue Online Writing Lab: https://owl.english.purdue.edu/owl/resource/589/1/
Indiana University Writing Tutorial Service: http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml
Accredited Schools Online: http://www.accreditedschoolsonline.org/resources/preventing-plagiarism/

can have some fairly severe consequences. Cheating can also involve copying answers from someone else's test as you look over their shoulder, stealing tests to get the answers before the exam, or even having someone else take your test for you, among others. Sadly, cheating in school is still very common. A survey of more than 23,000 American high school students (private, public, and charter school students) conducted by the Josephson Institute Center for Youth Ethics (2012) found that in 2012, more than half of the students admitted to cheating on an exam at least once, and more than a fourth said they had cheated more than once. Cheating at the college or university level also happens more often than it should, and even the most prestigious universities are not immune: In 2012, Harvard University investigated more than 125 undergraduates for plagiarism and other forms of cheating (Galante & Zeveloff, 2012).

Cheating involves many of the same concerns as plagiarism; you don't learn, and your instructors and peers will not respect you. In the long run, both plagiarism and cheating hurt you far more than any temporary relief you might get from these actions.

Watch the Video *Ethics*

Concept Map L.O. PIA.8

Interactive

Your Ethical Responsibility as a Student

- maintain academic integrity for yourself and others; take responsibility for your learning and education; do not take shortcuts
- do your own work and make sure you understand what constitutes academic dishonesty; do not plagiarize someone else's work and do not cheat

Reset

Practice Quiz How much do you remember?

Pick the best answer.

1. Michael is writing a paper for psychology. One of his sources is a text in which the following statement appears: When a deeply depressed mood comes on fairly suddenly and either seems to be too severe for the circumstances or exists without any external cause for sadness, it is called major depressive disorder. Which of the following would *not* be an acceptable way for Michael to use this material in his paper?
   a. Put the entire sentence in quotation marks and cite the author and textbook information where he found the quote.
   b. Summarize the ideas in the sentence in his own words.
   c. Use only part of the information, but make sure he uses his own language.
   d. All of the answer choices are correct.
2. In the Josephson Center survey, how many students reported cheating at least once?
   a. about one fourth
   b. a little more than half
   c. a little more than three fourths
   d. The survey found no reported incidences of cheating.

Psychology in Action Summary

Study Skills

PIA.1 Identify four methods of studying.

- Research has shown that using multiple learning methods to study is a useful and effective strategy.
- Four common learning methods are verbal, visual, auditory, and action methods.

Managing Time

PIA.2 Describe some strategies for time management.

- Making or using a calendar of prioritized tasks, breaking tasks down into smaller ones, and avoiding multitasking are some ways to improve time management.

Reading the Text: Textbooks Are Not Meatloaf

PIA.3 Describe how to read a textbook so that you get the most out of your reading efforts.

- Textbooks must be read in a different way from novels or popular books.
- The SQ3R method is an excellent way to approach reading a textbook: survey, question, read, recite, review.

Getting the Most Out of Lectures

PIA.4 Identify the best methods for taking notes and listening in class.

- Notes should be in your own words and written or typed, not highlighted in the text or on handouts.
- When taking notes from a lecture, you should be prepared by having the notes from your reading in front of you; some people may benefit from recording the lecture and taking notes afterward.

Studying for Exams: Cramming Is Not an Option

PIA.5 Describe how to approach studying for exams.

- Don't wait until the last minute to study.
- Find out about the types of questions on the exam.
- Use concept maps, the SQ3R method, and publishers' practice-test materials.
- Engage in retrieval practice; test your recall, not just recognition, of content often.
- Get plenty of sleep and eat breakfast, preferably something with protein.

Improving Your Memory

PIA.6 Explain how using mnemonics can help you improve your memory for facts and concepts.

- There are memory strategies called mnemonics, including methods that use imagery, rhymes, linking, and even music to improve memory.

Writing Papers

PIA.7 Describe the key steps in writing papers for college.

- Key steps in writing a research paper are to choose a topic, read about the topic, take notes on your reading, decide on the central message of your paper, write an outline, complete a first draft, and allow the paper to sit for a few days before going back and writing the final draft.

Your Ethical Responsibility as a Student

PIA.8 Identify some of the key ethical considerations you'll face as a student.

- Students need to realize that plagiarism and cheating in school are harmful to the students and disrespectful to others.

Test Yourself

Pick the best answer.

1. Cody learns best whenever he can see things laid out before him. He uses flash cards and concept maps and often tries to redraw charts and figures from memory. What learning method does Cody seem to prefer?
   a. verbal
   b. visual
   c. auditory
   d. action
2. Which of the following is *not* one of the strategies for defeating procrastination?
   a. Make a map of long-term goals.
   b. Use a calendar.
   c. Stay up all night to finish your task.
   d. Break big tasks down into smaller, more manageable pieces.
3. What learning aid gives the student the ability to more effectively read and remember material?
   a. chapter summaries
   b. content maps
   c. SQ3R
   d. practice quizzes
4. Which of the following is *not* a mistake often made by students when taking notes?
   a. Taking notes while reading the chapter before going to the lecture
   b. Highlighting material in the textbook as the instructor lectures
   c. Making sure you have not read the chapter before the lecture so that the material will be fresher and more memorable
   d. Using the PowerPoint slides as your notes

5. What type of question requires that you understand the material so well that you are able to compare and contrast it to other material?
   a. factual
   b. applied
   c. conceptual
   d. true/false

6. Your mom wants you to eat some breakfast before going off to your first psychology exam. What will you tell her?
   a. No thanks. A big meal will probably put me to sleep.
   b. Sounds good. Can I have some cereal and toast?
   c. All I want is some coffee. Caffeine will help me do my best!
   d. Thank you. Just some ham and eggs and maybe a small slice of bread.

7. Tabitha is stuck on a question while taking her psychology exam. What should she do?
   a. Stay on that question until she can figure out the answer.
   b. Go on to the other questions. Maybe she can find a clue to the one she skipped.
   c. Take a guess as to the correct answer. She probably will get it correct anyway.
   d. Review the questions she already has answered to find a clue there.

8. Which mnemonic involves first memorizing a series of numbered words?
   a. linking
   b. peg-word
   c. method of loci
   d. verbal/rhythmic organization

9. What is one of the most common mistakes students make when choosing a topic for a research paper?
   a. The topic is too broad.
   b. The topic is too narrow.
   c. The topic is unclear.
   d. The topic has no research to support it.

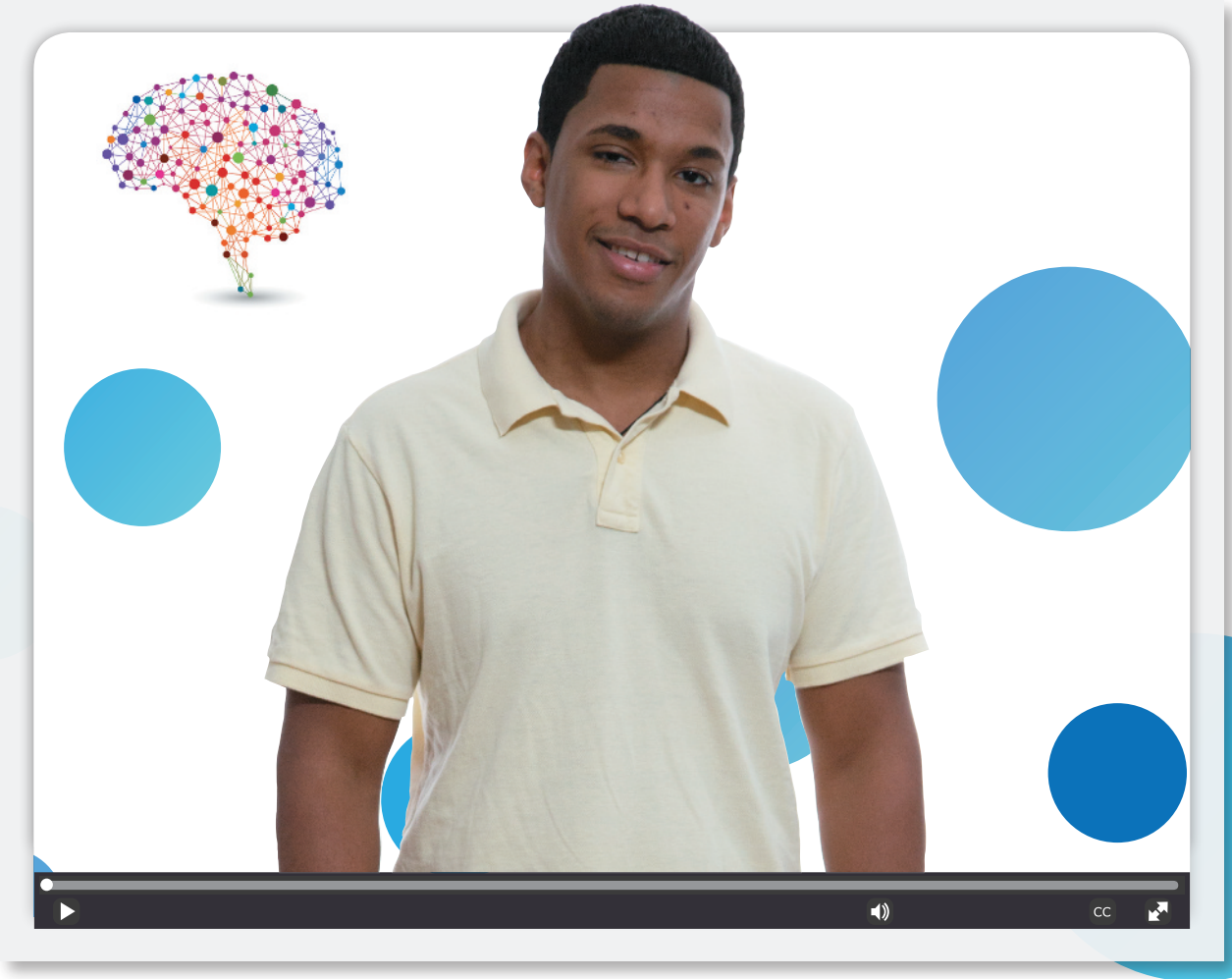
10. Keela has finished a draft of her research paper almost 2 weeks before the date it is due. What should she do now?
    a. Let it sit for a few days before reviewing it.
    b. Complete the final draft immediately while the material is still fresh in her head.
    c. Hand in her rough draft as if it were the final draft. Most students tend to make their paper worse when they revise it.
    d. Keela needs to start again, since papers finished early tend not to be well written.

1 The Science of Psychology

THINKING CRITICALLY

How would you define psychology? What do you hope to learn about psychology, yourself, and others after taking this course? After you have answered the question, watch the video to compare your answers to those of other students.

▶ The response entered here will be saved to your notes and may be collected by your instructor if he/she requires it.



Watch the Video

Why study psychology?

Psychology not only helps you understand why people (and animals) do the things they do, but it also helps you better understand yourself and your reactions to others. Psychology can help you comprehend how your brain and body are connected, how to improve your learning abilities and memory, and how to deal with the stresses of life, both ordinary and extraordinary. In studying psychology, an understanding of the methods psychologists use is crucial because research can be flawed, and knowing how research should be done can bring those flaws to light. And finally, psychology and its research methods promote critical thinking, which can be used to evaluate not just research but also claims of all kinds, including those of advertisers and politicians.

Learning Objectives

1.1 Describe the contributions of some of the early pioneers in psychology.

1.2 Summarize the basic ideas and the important people behind the early approaches known as Gestalt, psychoanalysis, and behaviorism.

1.3 Summarize the basic ideas behind the seven modern perspectives in psychology.

1.4 Differentiate between the various types of professionals within the field of psychology.

1.5 Recall the five steps of the scientific approach.

1.6 Compare and contrast some of the methods used to describe behavior.

1.7 Explain how researchers use the correlational technique to study relationships between two or more variables.

1.8 Identify the steps involved in designing an experiment.

1.9 Recall two common sources of problems in an experiment and some ways to control for these effects.

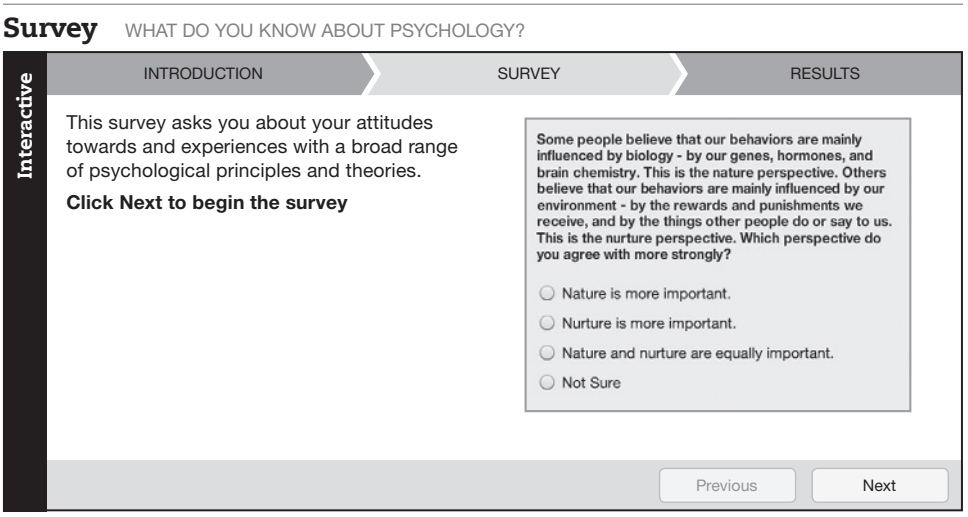
1.10 Identify some of the common ethical guidelines for doing research with people.

1.11 Explain why psychologists sometimes use animals in their research.

1.12 Recall the basic criteria for critical thinking that people can use in their everyday lives.

The History of Psychology

Some people believe psychology is just the study of people and what motivates their behavior. Psychologists do study people, but they also study animals. And to better understand what motivates behavior, psychologists study not only what people and animals do but also what happens in their bodies and in their brains as they do it. The study of psychology is not important only to psychologists: psychology is a *hub science* and findings from psychological research are cited and used in many other fields as diverse as cancer research, healt6h, and even climate change (Cacioppo, 2013; McDonald et al., 2015; Roberto & Kawachi, 2014; Rothman et al., 2015; van der Linden et al., 2015). Before examining the field of psychology, participate in the survey *What Do You Know About Psychology?* to understand more about your own preconceived notions of people and human behavior.



Simulate the **Experiment,** *What Do You Know About Psychology?*

Psychology is the scientific study of behavior and mental processes. *Behavior* includes all of our outward or overt actions and reactions such as talking, facial expressions, and movement. The term *mental processes* refers to all the internal, covert (hidden) activity of our minds such as thinking, feeling, and remembering. Why "scientific"? To study behavior and mental processes in both animals and humans, researchers must observe them. Whenever a human being observes anyone or anything, there's always a possibility that the observer will see only what he or she *expects* to see. Psychologists don't want to let these possible biases* cause them to make faulty observations. They want to be precise and to measure as carefully as they can—so they use a systematic** approach to study psychology scientifically.

How long has psychology been around?

See **Figure 1.1** for a timeline of the history of psychology. Psychology is a relatively new field in the realm of the sciences, only about 138 years old. It's not that no one thought about why people and animals do the things they do before then; on the contrary, there were philosophers,† medical doctors, and physiologists†† who thought about little else—particularly with regard to people. Philosophers such as Plato, Aristotle, and Descartes tried to understand

psychology
scientific study of behavior and mental processes.

*biases: personal judgments based on beliefs rather than facts.
**systematic: according to a fixed, ordered plan.
†philosophers: people who seek wisdom and knowledge through thinking and discussion.
††physiologists: scientists who study the physical workings of the body and its systems.

or explain the human mind and its connection to the physical body (Durrant, 1993; Everson, 1995; Kenny, 1968, 1994). Medical doctors and physiologists wondered about the physical connection between the body and the brain. For example, physician and physicist Gustav Fechner is often credited with performing some of the first scientific experiments that would form a basis for experimentation in psychology with his studies of perception (Fechner, 1860), and physician Hermann von Helmholtz (von Helmholtz, 1852, 1863) performed groundbreaking experiments in visual and auditory perception. LINK to Learning Objectives 3.2 and 3.6.

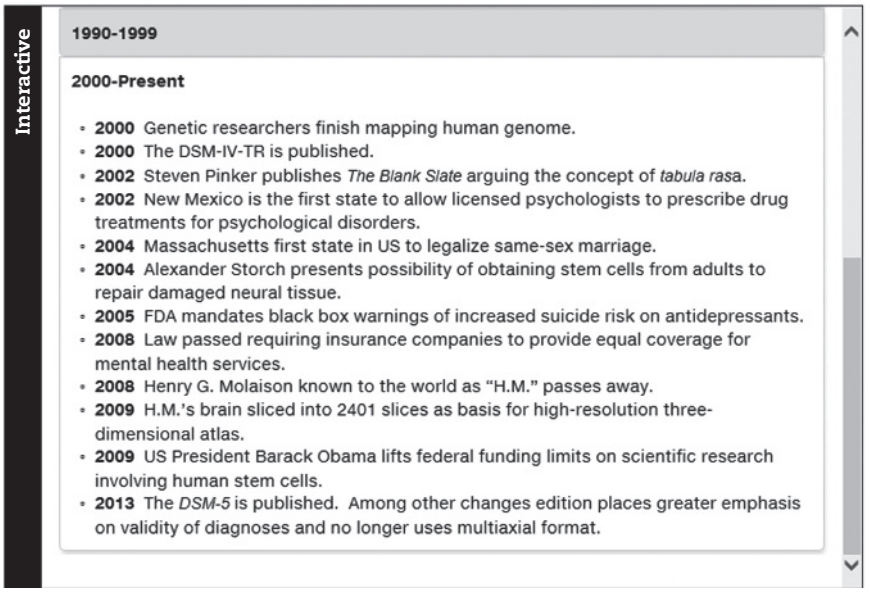


Figure 1.1 Timeline of the History of Psychology

IN THE BEGINNING: WUNDT, TITCHENER, AND JAMES

1.1 Describe the contributions of some of the early pioneers in psychology.

It really all started to come together in a laboratory in Leipzig, Germany, in 1879. It was here that Wilhelm Wundt (VILL-helm Voont, 1832–1920), a physiologist, attempted to apply scientific principles to the study of the human mind. In his laboratory, students from around the world were taught to study the structure of the human mind. Wundt believed that consciousness, the state of being aware of external events, could be broken down into thoughts, experiences, emotions, and other basic elements. In order to inspect these nonphysical elements, students had to learn to think objectively about their own thoughts—after all, they could hardly read someone else's mind. Wundt called this process **objective introspection**, the process of objectively examining and measuring one's own thoughts and mental activities (Rieber & Robinson, 2001). For example, Wundt might place an object, such as a rock, in a student's hand and have the student tell him everything that he was feeling as a result of having the rock in his hand—all the sensations stimulated by the rock. (Objectivity* was—and is—important because scientists need to remain unbiased. Observations need to be clear and precise but unaffected by the individual observer's beliefs and values.)

This was really the first attempt by anyone to bring objectivity and measurement to the concept of psychology. This attention to objectivity, together with the establishment of the first true experimental laboratory in psychology, is why Wundt is known as the father of psychology.

TITCHENER AND STRUCTURALISM IN AMERICA One of Wundt's students was Edward Titchener (1867–1927), an Englishman who eventually took Wundt's ideas to Cornell University in Ithaca, New York. Titchener expanded on Wundt's original ideas, calling his new viewpoint **structuralism** because the focus of study was the structure of the mind. He believed that every experience could be broken down into its individual emotions and sensations (Brennan, 2002). Although Titchener agreed with Wundt that consciousness could be broken down into its basic elements, Titchener also believed that objective introspection could be used on thoughts as well as on physical sensations. For example, Titchener might have asked his students to introspect about things that are blue rather than actually giving them a blue object and asking for reactions to it. Such an exercise might have led to something like the following: "What is blue? There are blue things, like the sky or a bird's feathers. Blue is cool and restful, blue is calm …" and so on.

objective introspection
the process of examining and measuring one's own thoughts and mental activities.

structuralism
early perspective in psychology associated with Wilhelm Wundt and Edward Titchener, in which the focus of study is the structure or basic elements of the mind.

*objectivity: expressing or dealing with facts or conditions as they really are without allowing the influence of personal feelings, prejudices, or interpretations.

Structuralists would be interested in all of the memories and sensations this woman is experiencing as she smells the strawberries.

In 1894, one of Titchener's students at Cornell University became famous for becoming the first woman to receive a Ph.D. in psychology (Goodman, 1980; Guthrie, 2004). Her name was Margaret F. Washburn, and she was Titchener's only graduate student for that year. In 1908, she published a book on animal behavior that was considered an important work in that era of psychology, *The Animal Mind* (Washburn, 1908).

Structuralism was a dominant force in the early days of psychology, but it eventually died out in the early 1900s, as the structuralists were busily fighting among themselves over just which key elements of experience were the most important. A competing view arose not long after Wundt's laboratory was established, shortly before structuralism came to America.

WILLIAM JAMES AND FUNCTIONALISM Harvard University was the first school in America to offer classes in psychology in the late 1870s. These classes were taught by one of Harvard's most illustrious instructors, William James (1842–1910). James began teaching anatomy and physiology, but as his interest in psychology developed, he began teaching it almost exclusively (Brennan, 2002). His comprehensive textbook on the subject, *Principles of Psychology*, is so brilliantly written that copies are still in print (James, 1890, 2015).

Unlike Wundt and Titchener, James was more interested in the importance of consciousness to everyday life than just its analysis. He believed the scientific study of consciousness itself was not yet possible. Conscious ideas are constantly flowing in an ever-changing stream, and once you start thinking about what you were just thinking about, what you were thinking about is no longer what you *were* thinking about—it's what you *are* thinking about—and … excuse me, I'm a little dizzy. I think you get the picture, anyway.

Instead, James focused on how the mind allows people to *function* in the real world—how people work, play, and adapt to their surroundings, a viewpoint he called **functionalism**. (He was heavily influenced by Charles Darwin's ideas about *natural selection*, in which physical traits that help an animal adapt to its environment and survive are passed on to its offspring.) If physical traits could aid in survival, why couldn't behavioral traits do the same? Animals and people whose behavior helped them to survive would pass those traits on to their offspring, perhaps by teaching or even by some mechanism of heredity.* (Remember that this was early in the days of trying to understand how heredity worked.) For example, a behavior such as avoiding the eyes of others in an elevator can be seen as a way of protecting one's personal space—a kind of territorial protection that may have its roots in the primitive need to protect one's home and source of food and water from intruders (Manusov & Patterson, 2006) or as a way of avoiding what might seem like a challenge to another person (Brown et al., 2005; Jehn et al., 1999).

One of James's early students was Mary Whiton Calkins, who completed every course and requirement for earning a Ph.D. but was denied that degree by Harvard University because she was a woman. Calkins eventually established a psychological laboratory at Wellesley College. Her work was some of the earliest research in the area of human memory and the psychology of the self. In 1905, she became the first female president of the American Psychological Association (Furumoto, 1979, 1991; Zedler, 1995). Unlike Washburn, Calkins never earned the elusive Ph.D. degree despite a successful career as a professor and researcher (Guthrie, 2004).

Women were not the only minority to make contributions in the early days of psychology. In 1920, for example, Francis Cecil Sumner became the first African American to earn a Ph.D. in psychology at Clark University. He eventually became the chair of the psychology department at Howard University and is assumed by many to be the father of African American psychology (Guthrie, 2004). Kenneth and Mamie Clark worked to show the negative effects of school segregation on African American children (Lal, 2002). In the 1940s, Hispanic psychologist George (Jorge) Sanchez conducted

functionalism
early perspective in psychology associated with William James, in which the focus of study is how the mind allows people to adapt, live, work, and play.

*heredity: the transmission of traits and characteristics from parent to offspring through the actions of genes.

research in the area of intelligence testing, focusing on the cultural biases in such tests (Tevis, 1994). Other names of noted minorities include Dr. Charles Henry Thompson, the first African American to receive a doctorate in educational psychology in 1925, Dr. Albert Sidney Beckham, senior assistant psychologist at the National Committee for Mental Hygiene at the Illinois Institute for Juvenile Research in the early 1930s; Dr. Robert Prentiss Daniel, who became president of Shaw University in North Carolina and finally the president of Virginia State College; Dr. Inez Beverly Prosser (1897–1934), who was the first African American woman to earn a Ph.D. in educational psychology; Dr. Howard Hale Long, who became dean of administration at Wilberforce State College in Ohio; and Dr. Ruth Howard, who was the first African American woman to earn a Ph.D. in psychology (not educational psychology) in 1934 from the University of Minnesota (Guthrie, 2004).

Since those early days, psychology has seen an increase in the contributions of all minorities, although the percentages are still small when compared to the population at large. The American Psychological Association's Office of Ethnic Minority Affairs features notable psychologists as part of their *Ethnicity and Health in America Series*. Their Web site provides brief biographies of ethnic minority psychologists and work or research highlights particularly related to chronic health conditions for several ethnic groups: African American, Asian American, Hispanic Latino, and Native American. For more information, visit **http://www.apa.org/pi/oema/resources/ethnicity-health/psychologists/.**

Is functionalism still an important point of view in psychology?

In the new field of psychology, functionalism offered an alternative viewpoint to the structuralists. But like so many of psychology's early ideas, it is no longer a major perspective. Instead, one can find elements of functionalism in the modern fields of *educational psychology* (studying the application of psychological concepts to education) and *industrial/organizational psychology* (studying the application of psychological concepts to businesses, organizations, and industry), as well as other areas in psychology. LINK to Learning Objective B.7. Functionalism also played a part in the development of one of the more modern perspectives, evolutionary psychology, discussed later in this chapter.

THREE INFLUENTIAL APPROACHES: GESTALT, PSYCHOANALYSIS, AND BEHAVIORISM

1.2 Summarize the basic ideas and the important people behind the early approaches known as Gestalt, psychoanalysis, and behaviorism.

While the structuralists and functionalists argued with each other and among themselves, other psychologists were looking at psychology in several other ways.

GESTALT PSYCHOLOGY: THE WHOLE IS GREATER THAN THE SUM OF ITS PARTS Max Wertheimer (VERT-hi-mer), like James, objected to the structuralist point of view, but for different reasons. Wertheimer believed that psychological events such as perceiving* and sensing** could not be broken down into any smaller elements and still be properly understood. For example, you can take a smartphone apart, but then you no longer have a smartphone—you have a pile of unconnected bits and pieces. Or, just as a melody is made up of individual notes that can only be understood if the notes are in the correct relationship to one another, so perception can only be understood as a whole, entire event. Hence the familiar slogan, "The whole is greater than the sum of its parts." Wertheimer and others believed that people naturally seek out patterns ("wholes") in the sensory information available to them.

*perceiving: becoming aware of something through the senses.
**sensing: seeing, hearing, feeling, tasting, or smelling something.

Figure 1.2 A Gestalt Perception

The eye tends to "fill in" the blanks here and see both of these figures as circles rather than as a series of dots or a broken line.

Wertheimer and others devoted their efforts to studying sensation and perception in this new perspective, **Gestalt psychology**. *Gestalt* (Gesh-TALT) is a German word meaning "an organized whole" or "configuration," which fit well with the focus on studying whole patterns rather than small pieces of them. See **Figure 1.2** for an example of Gestalt perceptual patterns. Today, Gestalt ideas are part of the study of *cognitive psychology*, a field focusing not only on perception but also on learning, memory, thought processes, and problem solving; the basic Gestalt principles of perception are still taught within this newer field (Ash, 1998; Köhler, 1925, 1992; Wertheimer, 1982). LINK to Learning Objective 3.14. The Gestalt approach has also been influential in psychological therapy, becoming the basis for a therapeutic technique called *Gestalt therapy*. LINK to Learning Objective 13.3.

SIGMUND FREUD'S THEORY OF PSYCHOANALYSIS It should be clear by now that psychology didn't start in one place and at one particular time. People of several different viewpoints were trying to promote their own perspective on the study of the human mind and behavior in different places all over the world. Up to now, this chapter has focused on the physiologists who became interested in psychology, with a focus on understanding consciousness but little else. The medical profession took a whole different approach to psychology.

What about Freud? Everybody talks about him when they talk about psychology. Are his ideas still in use?

Sigmund Freud had become a noted physician in Austria while the structuralists were arguing, the functionalists were specializing, and the Gestaltists were looking at the big picture. Freud was a neurologist, a medical doctor who specializes in disorders of the nervous system; he and his colleagues had long sought a way to understand the patients who were coming to them for help.

Freud's patients suffered from nervous disorders for which he and other doctors could find no physical cause. Therefore, it was thought, the cause must be in the mind, and that is where Freud began to explore. He proposed that there is an *unconscious* (unaware) mind into which we push, or *repress*, all of our threatening urges and desires. He believed that these repressed urges, in trying to surface, created the nervous disorders in his patients (Freud et al., 1990). LINK to Learning Objective 11.2.

Freud stressed the importance of early childhood experiences, believing that personality was formed in the first 6 years of life; if there were significant problems, those problems must have begun in the early years.

Some of his well-known followers were Alfred Adler, Carl Jung, Karen Horney, and his own daughter, Anna Freud. Anna Freud began what became known as the ego movement in psychology, which produced one of the best-known psychologists in the study of personality development, Erik Erikson. LINK to Learning Objective 8.8.

Freud's ideas are still influential today, although in a somewhat modified form. He had a number of followers in addition to those already named, many of whom became famous by altering Freud's theory to fit their own viewpoints, but his basic ideas are still discussed and debated. LINK to Learning Objective 11.4.

While some might think that Sigmund Freud was the first person to deal with people suffering from various mental disorders, the truth is that mental illness has a fairly long (and not very pretty) history. For more on the history of mental illness, see the LINK to Learning Objective 12.1.

Freudian **psychoanalysis**, the theory and therapy based on Freud's ideas, has been the basis of much modern *psychotherapy* (a process in which a trained psychological professional helps a person gain insight into and change his or her behavior), but another major and competing viewpoint has actually been more influential in the field of psychology as a whole.

Gestalt psychology
early perspective in psychology focusing on perception and sensation, particularly the perception of patterns and whole figures.

psychoanalysis
an insight therapy based on the theory of Freud, emphasizing the revealing of unconscious conflicts; Freud's term for both the theory of personality and the therapy based on it.

PAVLOV, WATSON, AND THE DAWN OF BEHAVIORISM Ivan Pavlov, like Freud, was not a psychologist. He was a Russian physiologist who showed that a *reflex* (an involuntary reaction) could be caused to occur in response to a formerly unrelated stimulus. While working with dogs, Pavlov observed that the salivation reflex (which is normally produced by actually having food in one's mouth) could be caused to occur in response to a totally new stimulus, in this case, the sound of a ticking metronome. At the onset of his experiment, Pavlov would turn on the metronome and give the dogs food, and they would salivate. After several repetitions, the dogs would salivate to the sound of the metronome *before* the food was presented—a learned (or "conditioned") reflexive response (Klein & Mowrer, 1989). This process was called *conditioning*. LINK to Learning Objective 5.2.

By the early 1900s, psychologist John B. Watson had tired of the arguing among the structuralists; he challenged the functionalist viewpoint, as well as psychoanalysis, with his own "science of behavior," or **behaviorism** (Watson, 1924). Watson wanted to bring psychology back to a focus on scientific inquiry, and he felt that the only way to do that was to ignore the whole consciousness issue and focus only on *observable behavior*—something that could be directly seen and measured. He had read of Pavlov's work and thought that conditioning could form the basis of his new perspective of behaviorism.

Watson was certainly aware of Freud's work and his views on unconscious repression. Freud believed that all behavior stems from unconscious motivation, whereas Watson believed that all behavior is learned. Freud had stated that a *phobia*, an irrational fear, is really a symptom of an underlying, repressed conflict and cannot be "cured" without years of psychoanalysis to uncover and understand the repressed material.

Watson believed that phobias are learned through the process of conditioning and set out to prove it. Along with his colleague Rosalie Rayner, he took a baby, known as "Albert B." or "Little Albert," and taught him to fear a white rat by making a loud, scary noise every time the infant saw the rat until finally just seeing the rat caused the infant to cry and become fearful (Watson & Rayner, 1920). Even though "Little Albert" was not afraid of the rat at the start, the experiment worked very well—in fact, he later appeared to be afraid of other fuzzy things including a rabbit, a dog, and a sealskin coat. LINK to Learning Objective 5.3.

This sounds really bizarre—what does scaring a baby have to do with the science of psychology?

Watson wanted to prove that all behavior was a result of a stimulus–response relationship such as that described by Pavlov. Because Freud and his ideas about unconscious motivation were becoming a dominant force, Watson felt the need to show the world that a much simpler explanation could be found. Although scaring a baby sounds a little cruel, he felt that the advancement of the science of behavior was worth the baby's relatively brief discomfort.

A graduate student of Watson's named Mary Cover Jones later decided to repeat Watson and Rayner's study but added training that would "cancel out" the phobic reaction of the baby to the white rat. She duplicated the "Little Albert" study with another child, "Little Peter," successfully conditioning Peter to be afraid of a white rabbit (Jones, 1924). She then began a process of *counterconditioning*, in which Peter was exposed to the white rabbit from a distance while eating a food that he really liked. The pleasure of the food outweighed the fear of the faraway rabbit. Day by day, the situation was repeated with the rabbit being brought closer each time, until Peter was no longer afraid of the rabbit. Jones went on to become one of the early pioneers of behavior therapy. Behaviorism is still a major perspective in psychology today. It has also influenced the development of other perspectives, such as *cognitive psychology*.

American psychologist John Watson is known as the father of behaviorism. Behaviorism focuses only on observable behavior.

Mary Cover Jones, one of the early pioneers of behavioral therapy, earned her master's degree under the supervision of John Watson. Her long and distinguished career also included the publication in 1952 of the first educational television course in child development (Rutherford, 2000).

behaviorism
the science of behavior that focuses on observable behavior only.