

- Have you ever wondered what fosters school and work success? *Are some people just born smarter? And does sheer intelligence explain why some people get richer, think more creatively, or relate more sensitively?*
- Have you ever become depressed or anxious and wondered whether you'll ever feel "normal"? *What triggers our bad moods—and our good ones? Where is the line between a normal mood swing and a psychological disorder for which someone should seek help?*
- Have you ever wondered how the Internet, video games, and electronic social networks affect people? *How do today's electronic media influence how we think and how we relate?*

Psychology is a science that seeks to answer such questions about us all—how and why we think, feel, and act as we do.



A smile is a smile the world around. Throughout this book, you will see examples not only of our cultural and gender diversity but also of the similarities that define our shared human nature. People in different cultures vary in when and how often they smile, but a naturally happy smile means the same thing anywhere in the world.

# Module 1

## Psychology's History

### Module Learning Objectives

- 1-1** Describe how psychology developed from its prescientific roots in early understandings of mind and body to the beginnings of modern science.
- 1-2** Describe some important milestones in psychology's early development.
- 1-3** Describe how psychology continued to develop from the 1920s through today.



WORTH

## Psychology's Roots

Once upon a time, on a planet in this neighborhood of the universe, there came to be people. Soon thereafter, these creatures became intensely interested in themselves and in one another: "Who are we? What produces our thoughts? Our feelings? Our actions? And how are we to understand and manage those around us?"

### AP® Exam Tip

To assist your active learning of psychology, Learning Objectives are grouped together at the start of each module, and then framed as questions that appear at the beginning of major sections.

### Prescientific Psychology

**11** How did psychology develop from its prescientific roots in early understandings of mind and body to the beginnings of modern science?

We can trace many of psychology's current questions back through human history. These early thinkers wondered: How does our mind work? How does our body relate to our mind? How much of what we know comes built in? How much is acquired through experience? In India, Buddha pondered how sensations and perceptions combine to form ideas. In China, Confucius stressed the power of ideas and of an educated mind. In ancient Israel, Hebrew scholars anticipated today's psychology by linking mind and emotion to the body; people were said to think with their heart and feel with their bowels.

In ancient Greece, the philosopher-teacher Socrates (469–399 B.C.E.) and his student Plato (428–348 B.C.E.) concluded that mind is separable from body and continues after the body dies, and that knowledge is innate—born within us. Unlike Socrates and Plato, who derived principles by logic, Plato's student Aristotle (384–322 B.C.E.) had a love of data. An intellectual ancestor of today's scientists, Aristotle derived principles from careful observations. Moreover, he said knowledge is *not* preexisting (sorry, Socrates and Plato); instead it grows from the experiences stored in our memories.

The next 2000 years brought few enduring new insights into human nature, but that changed in the 1600s, when modern science began to flourish. With it came new theories of human behavior, and new versions of the ancient debates. A frail but brilliant Frenchman named René Descartes (1595–1650) agreed with Socrates and Plato about the existence of innate ideas and mind's being "entirely distinct from body" and able to survive its death. Descartes' concept of mind forced him to conjecture, as people have ever since, how the immaterial mind and physical body communicate. A scientist as well as a philosopher, Descartes dissected animals and concluded that the fluid in the brain's cavities contained "animal spirits." These spirits, he surmised, flowed from the brain through what we call the nerves (which he thought were hollow) to the muscles, provoking movement. Memories formed as experiences opened pores in the brain into which the animal spirits also flowed.

Descartes was right that nerve paths are important and that they enable reflexes. Yet, genius though he was, and standing upon the knowledge accumulated from 99+ percent of our human history, he hardly had a clue of what today's average 12-year-old knows. Indeed, most of the scientific story of our self-exploration—the story told in this book—has been written in but the last historical eye-blink of human time.

Meanwhile, across the English Channel in Britain, science was taking a more down-to-earth form, centered on experiment, experience, and common sense judgment. Francis Bacon (1561–1626) became one of the founders of modern science, and his influence lingers in the experiments of today's psychological science. Bacon also was fascinated by the human mind and its failings. Anticipating what we have come to appreciate about our mind's hunger to perceive patterns even in random events, he wrote that "the human

understanding, from its peculiar nature, easily supposes a greater degree of order and equality in things than it really finds" (*Novum Organum*, 1620). He also foresaw research findings on our noticing and remembering events that confirm our beliefs: "All superstition is much the same whether it be that of astrology, dreams, omens . . . in all of which the deluded believers observe events which are fulfilled, but neglect and pass over their failure, though it be much more common."

Some 50 years after Bacon's death, John Locke (1632–1704), a British political philosopher, sat down to write a one-page essay on "our own abilities" for an upcoming discussion with friends. After 20 years and hundreds of pages, Locke had completed one of history's greatest late papers (*An Essay Concerning Human Understanding*), in which he famously argued that the mind at birth is a *tabula rasa*—a "blank slate"—on which experience writes. This idea, adding to Bacon's ideas, helped form modern **empiricism**, the idea that what we know comes from experience, and that observation and experimentation enable scientific knowledge.

**empiricism** the view that knowledge originates in experience and that science should, therefore, rely on observation and experimentation

## Psychological Science is Born

### 1-2 What are some important milestones in psychology's early development?

Philosophers' thinking about thinking continued until the birth of psychology as we know it, on a December day in 1879, in a small, third-floor room at Germany's University of Leipzig. There, two young men were helping an austere, middle-aged professor, Wilhelm Wundt, create an experimental apparatus. Their machine measured the time lag between people's hearing a ball hit a platform and their pressing a telegraph key (Hunt, 1993). Curiously, people responded in about one-tenth of a second when asked to press the key as soon as the sound occurred—and in about two tenths of a second when asked to press the key as soon as they were consciously aware of perceiving the sound. (To be aware of one's awareness takes a little longer.) Wundt was seeking to measure "atoms of the mind"—the fastest and simplest mental processes. So began the first psychological laboratory, staffed by Wundt and by psychology's first graduate students. (In 1883, Wundt's American student G. Stanley Hall went on to establish the first formal U.S. psychology laboratory, at Johns Hopkins University.)

Before long, this new science of psychology became organized into different branches, or schools of thought, each promoted by pioneering thinkers. These early schools included *structuralism*, *functionalism*, and *behaviorism* described here (with more on behaviorism in Modules 26–30), and two schools described in later modules: *Gestalt psychology* (Module 19) and *psychoanalysis* (Module 55).



**Wilhelm Wundt** Wundt established the first psychology laboratory at the University of Leipzig, Germany.

### FYI

Information sources are cited in parentheses, with name and date. Every citation can be found in the end-of-book References, with complete documentation that follows American Psychological Association (APA) style.

### AP® Exam Tip

Every question on the AP® Psychology exam will reflect the fact that psychology is a science built on the tradition of Wundt and his laboratory. Correct answers on the test are based on what research has revealed, not on "common sense."



Edward Bradford Titchener  
Titchener used introspection to search  
for the mind's structural elements.



### Thinking About the Mind's Structure

Soon after receiving his Ph.D. in 1892, Wundt's student Edward Bradford Titchener joined the Cornell University faculty and introduced **structuralism**. As physicists and chemists discerned the structure of matter, so Titchener aimed to discover the structural elements of mind. His method was to engage people in self-reflective *introspection* (looking inward), training them to report elements of their experience as they looked at a rose, listened to a metronome, smelled a scent, or tasted a substance. What were their immediate sensations, their images, their feelings? And how did these relate to one another? Titchener shared with the English essayist C. S. Lewis the view that "there is one thing, and only one in the whole universe which

we know more about than we could learn from external observation." That one thing, Lewis said, is ourselves. "We have, so to speak, inside information" (1960, pp. 18–19).

Alas, introspection required smart, verbal people. It also proved somewhat unreliable, its results varying from person to person and experience to experience. Moreover, we often just don't know why we feel what we feel and do what we do. Recent studies indicate that people's recollections frequently err. So do their self-reports about what, for example, has caused them to help or hurt another (Myers, 2002). As introspection waned, so did structuralism.

"You don't know your own mind."  
—JONATHAN SWIFT, *POLYBIBLICAL CONVERSATION*, 1738

### Thinking About the Mind's Functions

Hoping to assemble the mind's structure from simple elements was rather like trying to understand a car by examining its disconnected parts. Philosopher-psychologist William James thought it would be more fruitful to consider the evolved functions of our thoughts and feelings. Smelling is what the nose does, thinking is what the brain does. But *why* do the nose and brain do these things? Under the influence of evolutionary theorist Charles Darwin, James assumed that thinking, like smelling, developed because it was *adaptive*—it contributed to our ancestors' survival. Consciousness serves a function. It enables us to consider our past, adjust to our present, and plan our future. As a **functionalist**, James encouraged explorations of down-to-earth emotions, memories, willpower habits, and moment-to-moment streams of consciousness.

James' greatest legacy, however, came less from his laboratory than from his Harvard teaching and his writing. When not plagued by ill health and depression, James was an impish, outgoing, and joyous man, who once recalled that "the first lecture on psychology I ever heard was the first I ever gave." During one of his wise-cracking lectures, a student interrupted and asked him to get serious (Hunt, 1993). He loved his students, his family, and the world of ideas, but he tired of painstaking chores such as proofreading. "Send me no proofs!" he once told an editor. "I will return them unopened and never speak to you again" (Hunt, 1993, p. 145).

James displayed the same spunk in 1890, when—over the objections of Harvard's president—he admitted Mary Whiton Calkins into his graduate seminar (Scarborough & Purumoto, 1987). (In those years women lacked even the right to vote.) When Calkins joined, the other students (all men) dropped out. So James tutored her alone. Later, she finished all the requirements for a Harvard Ph.D., outscoring all the male students on the qualifying exams. Alas, Harvard denied her the degree she had earned, offering her instead a degree from Radcliffe College, its undergraduate sister school for women. Calkins resisted the unequal treatment and refused the degree. (More than a century

**structuralism** early school of thought promoted by Wundt and Titchener; used introspection to reveal the structure of the human mind.

**functionalism** early school of thought promoted by James and influenced by Darwin; explored how mental and behavioral processes function—how they enable the organism to adapt, survive, and flourish.

WORTH



**William James and Mary Whiton Calkins** James was a legendary teacher-writer who authored an important 1890 psychology text. He mentored Calkins, who became a pioneering memory researcher and the first woman to be president of the American Psychological Association (APA).

**Margaret Floy Washburn** The first woman to receive a psychology Ph.D., Washburn synthesized animal behavior research in *The Animal Mind*.

later, psychologists and psychology students were lobbying Harvard to posthumously award Calkins the Ph.D. she earned (*Feminist Psychologist*, 2002.) Calkins nevertheless went on to become a distinguished memory researcher and the APA's first female president in 1905.

When Harvard denied Calkins the claim to being psychology's first female psychology Ph.D., that honor fell to Margaret Floy Washburn, who later wrote an influential book, *The Animal Mind*, and became the second female APA president in 1921. Although Washburn's thesis was the first foreign study Wundt published in his journal, her gender meant she was barred from joining the organization of **experimental psychologists** (who explore behavior and thinking with experiments), despite its being founded by Titchener, her own graduate adviser (Johnson, 1997). What a different world from the recent past—1996 to 2013—when women claimed two-thirds or more of new U.S. psychology Ph.D.s and were 9 of the 18 elected presidents of the science-oriented Association for Psychological Science. In Canada and Europe, too, most recent psychology doctorates have been earned by women.

James' influence reached even further through his dozens of well-received articles, which moved the publisher Henry Holt to offer a contract for a textbook of the new science of psychology. James agreed and began work in 1878, with an apology for requesting two years to finish his writing. The text proved an unexpected chore and actually took him 12 years. (Why am I not surprised?) More than a century later, people still read the resulting *Principles of Psychology* and marvel at the brilliance and elegance with which James introduced psychology to the educated public.

**experimental psychology** the study of behavior and thinking using the experimental method.

## Psychological Science Develops

**1-3** How did psychology continue to develop from the 1920s through today?

In psychology's early days, Wundt and Titchener focused on inner sensations, images, and feelings. James, too, engaged in introspective examination of the stream of consciousness and of emotion. Sigmund Freud emphasized the ways emotional responses to childhood experiences and our unconscious thought processes affect our behavior. Thus, until the 1920s, psychology was defined as "the science of mental life."

### AP® Exam Tip

There are lots of important people in psychology. As you study, focus on the significance of their accomplishments. You are more likely to be tested on what a finding means than who discovered it.



**John B. Watson and Rosalie Rayner**  
Working with Rayner, Watson championed psychology as the science of behavior and demonstrated conditioned responses on a baby who became famous as "Little Albert." (More about Watson's controversial study in Module 26.)



And so it continued until the 1920s, when the first of two larger-than-life American psychologists appeared on the scene. Flamboyant and provocative John B. Watson, and later the equally provocative B. F. Skinner, dismissed introspection and redefined *psychology* as "the scientific study of observable behavior." After all, they said, science is rooted in observation. You cannot observe a sensation, a feeling, or a thought, but you *can* observe and record people's *behavior* as they respond to different situations. They further suggested that our behavior is influenced by learned associations, through a process called *conditioning*. Many agreed, and the **behaviorists** were one of two major forces in psychology well into the 1960s. (More on these psychologists in Modules 26-30.)

The other major force was *Freudian psychology*, which emphasized the ways our unconscious thought processes and our emotional responses to childhood experiences affect our behavior. (In modules to come, we'll look more closely at Sigmund Freud's teachings, including his theory of personality and his views on unconscious sexual conflicts and the mind's defenses against its own wishes and impulses. We will also study the *psychodynamic approach*, which is the updated, modern-day version of Freud's ideas.)

As the behaviorists had done in the early 1900s, two other groups rejected the definition of psychology that was current in the 1960s. The first, the **humanistic psychologists**, led by Carl Rogers and Abraham Maslow, found both Freudian psychology and behaviorism too limiting. Rather than focusing on the meaning of early childhood memories or the learning of conditioned responses, the humanistic psychologists drew attention to ways that current environmental influences can nurture or limit our growth potential, and to the importance of having our needs for love and acceptance satisfied. (More on this in Module 57.)

**behaviorism** the view that psychology (1) should be an objective science that (2) studies behavior without reference to mental processes. Most research psychologists today agree with (1) but not with (2).

**humanistic psychology** a historically significant perspective that emphasized the growth potential of healthy people.



**B. F. Skinner** A leading behaviorist, Skinner rejected introspection and studied how consequences shape behavior.



**Sigmund Freud** The controversial ideas of this famed personality theorist and theorist have influenced humanity's self-understanding.

The rebellion of a second group of psychologists during the 1960s is now known as the *cognitive revolution*, and it led the field back to its early interest in mental processes, such as the importance of how our mind processes and retains information. Cognitive psychology scientifically explores the ways we perceive, process, and remember information. **Cognitive neuroscience**, an interdisciplinary study, has enriched our understanding of the brain activity underlying mental activity. The cognitive approach has given us new ways to understand ourselves and to treat disorders such as depression, as we shall see in Module 71.

To encompass psychology's concern with observable behavior *and* with inner thoughts and feelings, today we define **psychology** as the *science of behavior and mental processes*. Let's unpack this definition. *Behavior* is anything an organism *does*—any action we can observe and record. Yelling, smiling, blinking, sweating, talking, and questionnaire marking are all observable behaviors. *Mental processes* are the internal, subjective experiences we infer from behavior—sensations, perceptions, dreams, thoughts, beliefs, and feelings.

The key word in psychology's definition is *science*. Psychology, as I will emphasize throughout this book, is less a set of findings than a way of asking and answering questions. My aim, then, is not merely to report results but also to show you how psychologists play their game. You will see how researchers evaluate conflicting opinions and ideas. And you will learn how all of us, whether scientists or simply curious people, can think smarter when describing and explaining the events of our lives.

**cognitive neuroscience** the interdisciplinary study of the brain activity linked with cognition (including perception, thinking, memory, and language)

**psychology** the science of behavior and mental processes

#### AP® Exam Tip

Memory research reveals a *testing effect*: We retain information much better if we actively retrieve it by self-testing and rehearsing. (More on this in the Close-Up box at the end of Module 2.) To bolster your learning and memory, take advantage of all the self-testing opportunities you'll find throughout this text. These "Before You Move On" sections will appear at the end of each main section of text. The *Ask Yourself* questions will help you make the material more meaningful to your own life (and therefore more memorable). You can check your answers to the *Test Yourself* review questions in Appendix E at the end of the book.

### Before You Move On

#### ▶ ASK YOURSELF

How do you think psychology might change as more and more women contribute their ideas to the field?

#### ▶ TEST YOURSELF

What event defined the founding of modern scientific psychology?

Answers to the *Test Yourself* questions can be found in Appendix E at the end of the book.

## Module 1 Review

**1-1** How did psychology develop from its prescientific roots in early understandings of mind and body to the beginnings of modern science?

- Psychology traces its roots back through recorded history to India, China, the Middle East, and Europe. Buddha and Confucius focused on the power and origin of ideas. The ancient Hebrews, Socrates, Plato, and Aristotle pondered whether mind and body are connected or distinct, and whether human ideas are innate or result from experience.
- Descartes and Locke reengaged those ancient debates, with Locke offering his famous description of the mind as a "blank slate" on which experience writes. The ideas of Bacon and Locke contributed to the development of modern *empiricism*.

**1-2** What are some important milestones in psychology's early development?

- Wilhelm Wundt established the first psychological laboratory in 1879 in Germany.
- Two early schools of psychology were *structuralism* and *functionalism*.
- Structuralism, promoted by Wundt and Titchener, used self-reflection to learn about the mind's structure. Functionalism, promoted by James, explored how behavior and thinking function.

**1-3** How did psychology continue to develop from the 1920s through today?

- Early researchers defined *psychology* as a "science of mental life."

- In the 1920s, under the influence of John B. Watson and the *behaviorists*, the field's focus changed to the "scientific study of observable behavior."
- In the 1960s, the *humanistic psychologists* and the *cognitive psychologists* revived interest in the study of mental processes.
- Psychology is now defined as the science of behavior and mental processes.

### Multiple-Choice Questions\*

- By seeking to measure "atoms of the mind," who established the first psychology laboratory?
  - Sigmund Freud
  - John B. Watson
  - Wilhelm Wundt
  - C. Stanley Hall
  - William James
- Which philosopher proposed that nerve pathways allowed for reflexes?
  - Socrates
  - René Descartes
  - John Locke
  - Aristotle
  - Plato
- Who coined the term "tabula rasa" (blank slate) to help explain the impact experience has on shaping an individual?
  - Francis Bacon
  - René Descartes
  - John B. Watson
  - Sigmund Freud
  - John Locke
- Which of the following best describes research typical of Wilhelm Wundt's first psychology laboratory?
  - Examining the unconscious to determine behavior motivation
  - Using a brain-scanning device to determine the impact events have on brain function
  - Measuring the reaction time between hearing a sound and pressing a button
  - Studying helping behavior, based on the premise that people are good
  - Examining how collective life experiences combine to create individuality
- With which of the following statements would John B. Watson most likely agree?
  - Psychology should study the growth potential in all people.
  - Psychology should study the unconscious.
  - Psychology should focus on observable behavior.
  - Psychology should study mental thought processes.
  - Psychology should study how culture and beliefs impact an individual.

### Practice FRQs\*\*

- The definition of psychology changed as the field evolved during the early years. Why did John B. Watson object to the definition preferred by Wundt, Titchener, and James? What group of psychologists did Watson's ideas influence? How did Watson redefine psychology?

#### Answer

*1 point:* Watson objected to the "science of mental life" because he felt it was impossible to be scientific without observation.

*1 point:* Watson's ideas influenced the behaviorists.

*1 point:* Watson preferred limiting psychology to behavior, because behavior could be observed and scientifically analyzed.

- Identify the founder of structuralism, and explain structuralism's four foundational concepts.

*(6 points)*

*\*Note: If you are a student using these Multiple-Choice Questions for self-testing, please consult with your teacher to check your answers.*

*\*\* "FRQ" stands for "Free-Response Question." The AP® exam contains two of these essay-style questions, which count for one-third of your final score. The actual FRQs will be complex, requiring you to integrate knowledge from across multiple modules, like the practice questions you will find at the end of each unit in this text. These simpler "Practice FRQs" that appear at the end of each module, along with a sample grading rubric, will help you get started practicing this skill.*



# Module 2

## Psychology's Big Issues and Approaches

### Module Learning Objectives

- 2-1** Summarize the nature–nurture debate in psychology.
- 2-2** Describe psychology's three main levels of analysis and related perspectives.
- 2-3** Identify psychology's main subfields.
- 2-4** Explain how psychological principles can help you learn and remember, and do better on the AP® exam.



The young science of psychology developed from the more established fields of philosophy and biology. Wundt was both a philosopher and a physiologist. James was an American philosopher. Freud was an Austrian physician. Ivan Pavlov, who pioneered the study of learning (Module 26), was a Russian physiologist. Jean Piaget, the last century's most influential observer of children (Module 47), was a Swiss biologist. These “Magellians of the mind,” as Morton Hunt (1995) has called them, illustrate psychology's origins in many disciplines and many countries.

Like those early pioneers, today's psychologists are citizens of many lands. The International Union of Psychological Science has 71 member nations, from Albania to Zimbabwe. In China, the first university psychology department began in 1978; by 2008 there were nearly 200 (Han, 2008; Tversky, 2008). Moreover, thanks to international publications, joint meetings, and the Internet, collaboration and communication now cross borders. Psychology is *growing* and it is *globalizing*. The story of psychology—the subject of this book—continues to develop in many places, at many levels, with interests ranging from the study of nerve cell activity to the study of international conflicts.

Across the world, psychologists are debating enduring issues, viewing behavior from the differing perspectives offered by the subfields in which they teach, work, and do research.

### Psychology's Biggest Question

- 2-1** What is psychology's historic big issue?

Are our human traits present at birth, or do they develop through experience? This has been psychology's biggest and most persistent issue. As we have seen, the debate over the **nature–nurture issue** is ancient. The ancient Greeks debated this, with Plato assuming that we

#### AP® Exam Tip

Pay close attention to what David Myers, your author, is emphasizing as he tells the story of psychology. When he says the nature–nurture issue is the *biggest question in psychology* (that's a sign it's a safe bet that this concept will be covered on the AP® exam).

**nature–nurture issue** the longstanding controversy over the relative contributions that genes and experience make to the development of psychological traits and behaviors. Today's science sees traits and behaviors arising from the interaction of nature and nurture.



**Charles Darwin** Darwin argued that natural selection shapes behaviors as well as bodies.

**natural selection** the principle that, among the range of inherited trait variations, those contributing to reproduction and survival will most likely be passed on to succeeding generations.

**A nature-made nature-nurture experiment** Because identical twins have the same genes, they are ideal participants in studies designed to shed light on hereditary and environmental influences on intelligence, personality, and other traits. Studies of identical and fraternal twins provide a rich array of findings—described in later modules—that underscore the importance of both nature and nurture.

inherit character and intelligence and that certain ideas are also inborn, and Aristotle countering that there is nothing in the mind that does not first come in from the external world through the senses.

In the 1600s, philosophers rekindled the debate. Locke rejected the notion of inborn ideas, suggesting that the mind is a blank slate on which experience writes. Descartes disagreed, believing that some ideas are innate. Descartes' views gained support from a curious naturalist two centuries later. In 1831, an indifferent student but ardent collector of beetles, mollusks, and shells set sail on a historic round-the-world journey. The 22-year-old voyager, Charles Darwin, pondered the incredible species variation he encountered, including tortoises on one island that differed from those on nearby islands. Darwin's 1859 *On the Origin of Species* explained this diversity by proposing the evolutionary process of **natural selection**: From among chance variations, nature selects traits that best enable an organism to survive and reproduce in a particular environment. Darwin's principle of natural selection—what philosopher Daniel Dennett (1996) has called “the single best idea anyone has ever had”—is still with us 150+ years later as biology's organizing principle. Evolution also has become an important principle for twenty-first-century psychology. This would surely have pleased Darwin, for he believed his theory explained not only animal structures (such as a polar bear's white coat) but also animal behaviors (such as the emotional expressions associated with human lust and rage).

The nature-nurture issue recurs throughout this text as today's psychologists explore the relative contributions of biology and experience, asking, for example, how we humans are alike (because of our common biology and evolutionary history) and diverse (because of our differing environments). Are gender differences biologically predisposed or socially constructed? Is children's grammar mostly innate or formed by experience? How are intelligence and personality differences influenced by heredity and by environment? Are sexual behaviors more “pushed” by inner biology or “pulled” by external incentives? Should we treat psychological disorders—depression, for example—as disorders of the brain, disorders of thought, or both?

Such debates continue. Yet over and over again we will see that in contemporary science the nature-nurture tension dissolves: *Nurture works on what nature endows*. Our species is biologically endowed with an enormous capacity to learn and adapt. Moreover, every psychological event (every thought, every emotion) is simultaneously a biological event. Thus, depression can be both a brain disorder and a thought disorder.



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## Psychology's Three Main Levels of Analysis

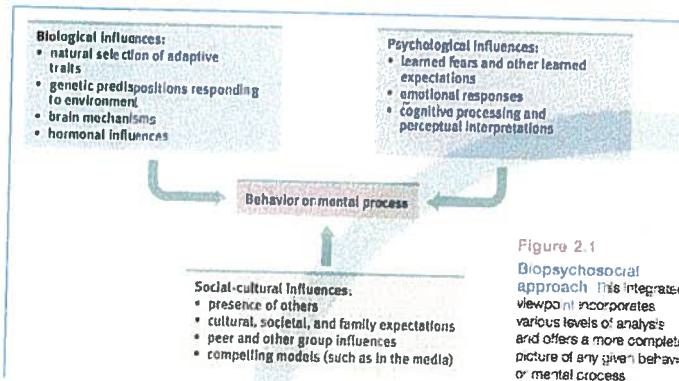
### 2.2 What are psychology's levels of analysis and related perspectives?

Each of us is a complex system that is part of a larger social system. But each of us is also composed of smaller systems, such as our nervous system and body organs, which are composed of still smaller systems—cells, molecules, and atoms.

These tiered systems suggest different **levels of analysis**, which offer complementary outlooks. It's like explaining why horrific school shootings have occurred. Is it because the shooters have brain disorders or genetic tendencies that cause them to be violent? Because they have been rewarded for violent behavior? Because we, in the United States, live in a gun-promoting society that accepts violence? Such perspectives are complementary because "everything is related to everything else" (Brewer, 1996). Together, different levels of analysis form an integrated **biopsychosocial approach**, which considers the influences of biological, psychological, and social-cultural factors (FIGURE 2.1).

**levels of analysis** the differing complementary views, from biological to psychological to social-cultural, for analyzing any given phenomenon.

**biopsychosocial approach** an integrated approach that incorporates biological, psychological, and social-cultural levels of analysis.



#### AP® Exam Tip

You will see versions of Figure 2.1 throughout the text. Spend some time right now familiarizing yourself with how the figure's three corners might contribute to behavior or mental processes: the very stuff of psychology.

**Figure 2.1**  
Biopsychosocial approach This integrated viewpoint incorporates various levels of analysis and offers a more complete picture of any given behavior or mental process.

Each level provides a valuable vantage point for looking at a behavior or mental process, yet each by itself is incomplete. Like different academic disciplines, psychology's varied approaches, or perspectives, ask different questions and have their own limits. One perspective may stress the biological, psychological, or social-cultural level more than another, but the different perspectives described in TABLE 2.1 on the next page complement one another. Consider, for example, how they shed light on anger.



**Views of anger** How would each of psychology's levels of analysis explain what's going on here?



Table 2.1 Psychology's Approaches

Perspective	Focus	Sample Questions
<i>Behavioral</i>	How we learn observable responses	How do we learn to fear particular objects or situations? What is the most effective way to alter our behavior, say, to lose weight?
<i>Biological</i>	How the body and brain enable emotions, memories, and sensory experiences; how genes combine with environment to influence individual differences	How do pain messages travel from the hand to the brain? How is blood chemistry linked with moods and motives? To what extent are traits such as intelligence, personality, sexual orientation, and depression attributable to our genes? To our environment?
<i>Cognitive</i>	How we encode, process, store, and retrieve information	How do we use information in remembering? Reasoning? Solving problems?
<i>Evolutionary</i>	How the natural selection of traits has promoted the survival of genes	How does evolution influence behavior tendencies?
<i>Humanistic</i>	How we meet our needs for love and acceptance and achieve self-fulfillment	How can we work toward fulfilling our potential? How can we overcome barriers to our personal growth?
<i>Psychodynamic</i>	How behavior springs from unconscious drives and conflicts	How can someone's personality traits and disorders be explained by unfulfilled wishes and childhood traumas?
<i>Social-cultural</i>	How behavior and thinking vary across situations and cultures	How are we alike as members of one human family? How do we differ as products of our environment?

**AP® Exam Tip**

These perspectives will come up again and again throughout your AP® Psychology course, and they will be on the exam. You need to become very comfortable with the meaning of terms like cognitive, behavioral, and psychodynamic. Ask your teacher for clarification if you are the least bit unclear about what the perspectives mean.

**behavioral psychology** the scientific study of observable behavior, and its explanation by principles of learning

**biological psychology** the scientific study of the links between biological (genetic, neural, hormonal) and psychological processes. (Some biological psychologists call themselves *behavioral neuroscientists*, *neuropsychologists*, *behavior geneticists*, *physiological psychologists*, or *biopsychologists*.)

- Someone working from the **behavioral** perspective might attempt to determine which external stimuli trigger angry responses or aggressive acts.
- Someone working from a **biological** perspective might study brain circuits that cause us to be “red in the face” and “hot under the collar,” or how heredity and experience influence our individual differences in temperament.
- Someone working from the **cognitive** perspective might study how our interpretation of a situation affects our anger and how our anger affects our thinking.
- Someone working from the **evolutionary** perspective might analyze how anger facilitated the survival of our ancestors' genes.
- Someone working from the **humanistic** perspective (a historically important approach) might have been interested in understanding how angry feelings affect a person's potential for growth. As we will see, modern-day *positive psychology* incorporates humanistic psychology's emphasis on human flourishing.
- Someone working from the **psychodynamic** perspective (which evolved from Freud's psychoanalysis) might view an outburst as an outlet for unconscious hostility.
- Someone working from the **social-cultural** perspective might explore how expressions of anger vary across cultural contexts.

*The point to remember:* Like two-dimensional views of a three-dimensional object, each of psychology's perspectives is helpful. But each by itself fails to reveal the whole picture.

## Psychology's Subfields

### 2-3 What are psychology's main subfields?

Picturing a chemist at work, you probably envision a white-coated scientist surrounded by glassware and high-tech equipment. Picture a psychologist at work and you would be right to envision

- a white-coated scientist probing a rat's brain.
- an intelligence researcher measuring how quickly an infant shows boredom by looking away from a familiar picture.
- an executive evaluating a new "healthy life-styles" training program for employees.
- someone at a computer analyzing data on whether adopted teens' temperaments more closely resemble those of their adoptive parents or their biological parents.
- a therapist listening carefully to a client's depressed thoughts.
- a researcher visiting another culture and collecting data on variations in human values and behaviors.
- a teacher or writer sharing the joy of psychology with others.

The cluster of subfields we call psychology is a meeting ground for different disciplines. "Psychology is a hub scientific discipline," said Association for Psychological Science president John Cacioppo (2007). Thus, it's a perfect home for those with wide-ranging interests. In its diverse activities, from biological experimentation to cultural comparisons, the tribe of psychology is united by a common quest: *describing and explaining behavior and the mind underlying it*. There is even a branch of psychology devoted to studying the measurement of our abilities, attitudes, and traits: **psychometrics**.



*"I'm a social scientist, Michael. That means I can't explain electricity or anything like that, but if you ever want to know about people I'm your man."*

© The New Yorker Collection. From J.G. Henderson. From *Animals* with All Rights Reserved.

**cognitive psychology** the scientific study of all the mental activities associated with thinking, knowing, remembering, and communicating.

**evolutionary psychology** the study of the evolution of behavior and mind, using principles of natural selection.

**psychodynamic psychology** a branch of psychology that studies how unconscious drives and conflicts influence behavior, and uses that information to treat people with psychological disorders.

**social-cultural psychology** the study of how situations and cultures affect our behavior and thinking.

**psychometrics** the scientific study of the measurement of human abilities, attitudes, and traits.



**I see you!** A biological psychologist might view this child's delighted response as evidence of brain maturation. A cognitive psychologist might see it as a demonstration of the baby's growing knowledge of his surroundings. For a social-cultural psychologist, the role of grandparents in different societies might be the issue of interest. As you will see throughout this book, these and other perspectives offer complementary views of behavior.





**Psychology: A science and a profession** Psychologists experiment with, observe, test, and treat behavior. Here we see psychologists testing a child, measuring emotion-related physiology, and doing group therapy.

**basic research** pure science that aims to increase the scientific knowledge base.

**developmental psychology** a branch of psychology that studies physical, cognitive, and social change throughout the life span.

**educational psychology** the study of how psychological processes affect and can enhance teaching and learning.

**personality psychology** the study of an individual's characteristic pattern of thinking, feeling, and acting.

**social psychology** the scientific study of how we think about, influence, and relate to one another.

#### AP® Exam Tip

Take careful note of the fact that psychiatry is a medical specialty and not a part of psychology. Can you summarize the similarities and differences among counseling psychologists, clinical psychologists, and psychiatrists?

Some psychologists conduct **basic research** that builds psychology's knowledge base. In the pages that follow we will meet a wide variety of such researchers, including

- **biological psychologists** exploring the links between brain and mind.
- **developmental psychologists** studying our changing abilities from womb to tomb.
- **cognitive psychologists** experimenting with how we perceive, think, and solve problems.
- **educational psychologists** studying influences on teaching and learning.
- **personality psychologists** investigating our persistent traits
- **social psychologists** exploring how we view and affect one another.

(Read on to the next module for a more complete list of what psychologists in various professions do and where they work.)

These and other psychologists also may conduct **applied research**, tackling practical problems. **Industrial-organizational (I/O) psychologists**, for example, use psychology's concepts and methods in the workplace to help organizations and companies select and train employees, boost morale and productivity, design products, and implement systems. Within that domain, **human factors psychologists** focus on the interaction of people, machines, and physical environments. (More on this subject in Enrichment Module 82.)

Although most psychology textbooks focus on psychological science, psychology is also a helping profession devoted to such practical issues as how to have a happy marriage, how to overcome anxiety or depression, and how to raise thriving children. As a science, psychology at its best bases such interventions on *evidence of effectiveness*. **Counseling psychologists** help people to cope with challenges and crises (including academic, vocational, and marital issues) and to improve their personal and social functioning. **Clinical psychologists** assess and treat mental, emotional, and behavior disorders. Both counseling and clinical psychologists administer and interpret tests, provide counseling and therapy, and sometimes conduct basic and applied research. By contrast, **psychiatrists**, who also may provide psychotherapy, are medical doctors licensed to prescribe drugs and otherwise treat physical causes of psychological disorders.

We will study the history of therapy, including the role of pioneering Dorothea Dix, in the Therapy unit. Reformers such as Dix and Philippe Pinel led the way to humane treatment of those with psychological disorders.

To balance historic psychology's focus on human problems, Martin Seligman and others (2002, 2005, 2011) have called for more research on human strengths and human flourishing.



Their **positive psychology** scientifically explores “positive emotions, positive character traits, and enabling institutions.” What, they ask, can psychology contribute to a “good life” that engages one’s skills, and a “meaningful life” that points beyond oneself?

Rather than seeking to change people to fit their environment, **community psychologists** work to create social and physical environments that are healthy for all (Bradshaw et al., 2009; Trickett, 2009). For example, if school bullying is a problem, some psychologists will seek to change the bullies. Knowing that many students struggle with the transition from elementary to middle school, they might train individual kids how to cope. Community psychologists instead seek ways to adapt the school experience to early adolescent needs.

To prevent bullying, they might study how the school and neighborhood foster bullying.

With perspectives ranging from the biological to the social, and with settings from the laboratory to the clinic, psychology relates to many fields. As we will see in Module 3, psychologists teach in medical schools, law schools, and high schools, and they work in hospitals, factories, and corporate offices. They engage in interdisciplinary studies, such as psychohistory (the psychological analysis of historical characters), psycholinguistics (the study of language and thinking), and psychoceramics (the study of crackpots).

Psychology also influences modern culture. Knowledge transforms us. Learning about the solar system and the germ theory of disease alters the way people think and act. Learning about psychology’s findings also changes people: They less often judge psychological disorders as moral failings, treatable by punishment and ostracism. They less often regard and treat women as men’s mental inferiors. They less often view and rear children as ignorant, willful beasts in need of taming. “In each case,” noted Morton Hunt (1990, p. 206), “knowledge has modified attitudes, and, through them, behavior.” Once aware of psychology’s well-researched ideas—about how body and mind connect, how a child’s mind grows, how we construct our perceptions, how we remember (and misremember) our experiences, how people across the world differ (and are alike)—your mind may never again be quite the same.

But bear in mind psychology’s limits. Don’t expect it to answer the ultimate questions, such as those posed by Russian novelist Leo Tolstoy (1904): “Why should I live? Why should I do anything? Is there in life any purpose which the inevitable death that awaits me does not undo and destroy?”

Although many of life’s significant questions are beyond psychology, some very important ones are illuminated by even a first psychology course. Through painstaking research, psychologists have gained insights into brain and mind, dreams and memories, depression and joy. Even the unanswered questions can renew our sense of mystery about “things too wonderful” for us yet to understand. And, as you will see in Modules 4–8, your study of psychology can help teach you how to ask and answer important questions—how to think critically as you evaluate competing ideas and claims.

Psychology deepens our appreciation for how we humans perceive, think, feel, and act. By so doing, it can indeed enrich our lives and enlarge our vision. Throughout this book I hope to help guide you toward that end. As educator Charles Eliot said a century ago: “Books are the quietest and most constant of friends, and the most patient of teachers.”



Dorothea Dix (1802–1887)

“I . . . call your attention to the state of the Insane Parsons confined within this Commonwealth, in cages”

**applied research** scientific study that aims to solve practical problems.

**industrial-organizational (I/O) psychology** the application of psychological concepts and methods to optimizing human behavior in work places.

**human factors psychology** an I/O psychology subfield that explores how people and machines interact and how machines and physical environments can be made safe and easy to use.

**counseling psychology** a branch of psychology that assists people with problems in living (often related to school, work, or marriage) and in achieving greater well-being.

**clinical psychology** a branch of psychology that studies, assesses, and treats people with psychological disorders.

**psychiatry** a branch of medicine dealing with psychological disorders; practiced by physicians who sometimes provide medical (for example, drug) treatments as well as psychological therapy.

**positive psychology** the scientific study of human functioning, with the goals of describing and promoting strengths and virtues that help individuals and communities to thrive.

**community psychology** a branch of psychology that studies how people interact with their social environments and how social institutions affect individuals and groups.

“Once expanded to the dimensions of a larger idea, [the mind] never returns to its original size.” —Oscar Wilde, *House of the Gods*, 1878–1894

Confession: I wrote the last part of this sentence on April Fools Day.

## Close-up

## Improve Your Retention—and Your Grades!

**2-4** How can psychological principles help you learn and remember, and do better on the AP<sup>®</sup> exam?

Do you, like most students, assume that the way to cement your new learning is to reread? What helps even more—and what this book therefore encourages—is repeated self-testing and rehearsal of previously studied material. Memory researchers Henry Roediger and Jeffrey Karpicke (2006) call this phenomenon the **testing effect**. They note that “testing is a powerful means of improving learning, not just assessing it. In one of their studies, students recalled the meaning of 40 previously learned Swahili words much better if tested repeatedly than if they spent the same time rereading the words (Karpicke & Roediger, 2008).

As you will see in Modules 31–33, to master information you must **actively process** it. Your mind is not like your stomach; something to be filled passively, it is more like a muscle that grows stronger with exercise. Countless experiments reveal that people learn and remember best when they put material in their own words, rehearse it, and then retrieve and review it again.

The **SQ3R** study method incorporates these principles (McDaniel et al., 2008; Robinson, 1970). **SQ3R** is an acronym for its five steps: Survey, Question, Read, Retrieve, Review.

To study a module, first **survey**, taking a bird’s-eye view. Scan the headings, and notice how the module is organized.

Before you read each main section, try to answer its numbered Learning Objective Question (for this box: “How can psychological principles help you learn and remember, and do better on the AP<sup>®</sup> exam?”). Roediger and Bridgid Finn (2010) have found that “trying and failing to retrieve the answer is actually helpful to learning.” Those who test their understanding before reading, and discover what they don’t yet know, will learn and remember better.

Then **read**, actively searching for the answer to the question. At each sitting, read only as much of the module (usually a single main section) as you can absorb without tiring. Read actively and critically. Ask questions. Take notes. Make the ideas your own: How does what you’ve read relate to your own life? Does it support or challenge your assumptions? How convincing is the evidence?

Having read a section, **retrieve** its main ideas. **Test yourself**. This will not only help you figure out what you know; the testing itself will help you learn and retain the information more effectively. Even better, test yourself repeatedly. To facilitate this, I offer self-testing opportunities in each module—for example,

\*Also sometimes called “recite.”

in the *Before You Move On* sections. After answering the *Test Yourself* questions there, you can check your answers in Appendix E at the end of this text and reread as needed.

Finally, **review**: Read over any notes you have taken, again, with an eye on the module’s organization, and quickly review the whole module. Write or say what a concept is before rereading to check your understanding.

Survey, question, read, retrieve, review. I have organized this book’s modules to facilitate your use of the SQ3R study system. Each module begins with a list of objectives that aid your survey. Headings and the numbered Learning Objective Questions at the beginning of main sections suggest issues and concepts you should consider as you read. The material is organized into sections of readable length. At the end of main sections is a “Before You Move On” box with Ask Yourself and Test Yourself questions that help you retrieve what you know. The Module Review provides answers to the learning objective questions along with helpful review questions. The Unit Review offers a list of Key Terms and Key Contributors, along with AP<sup>®</sup> Exam Practice Questions. Appendix C, Psychological Science’s Key Contributors, at the end of the text will also be an important review tool—especially in preparing for the AP<sup>®</sup> exam. In addition to learning psychology’s key concepts and key people, you will also need to learn the style of writing that is required for success on the exam. The sample grading rubrics provided for some of the *Free-Response Questions* (essay-style questions) in the Module and Unit Reviews will help get you started.

Five additional study tips may further boost your learning:

**Distribute your study time.** One of psychology’s oldest findings is that **spaced practice** promotes better retention than **massed practice**. You’ll remember material better if you space your time over several study periods—perhaps one hour a day, six days a week—rather than cram it into one long study blitz. For example, rather than trying to read an entire module in a single sitting, read just one main section and then turn to something else. **Interleaving** your study of psychology with your study of other subjects boosts long-term retention and protects against overconfidence (Kornell & Bjork, 2008; Taylor & Rohrer, 2010).

Spacing your study sessions requires a disciplined approach to managing your time (Richard O. Straub explains time management in a helpful preface at the beginning of this text.)

**Testing effect** enhanced memory after retrieving, rather than simply rereading, information. Also sometimes referred to as a **retrieval practice effect** or **test-enhanced learning**.

**SQ3R** a study method incorporating five steps: Survey, Question, Read, Retrieve, Review.



**Close-up** (continued)

**Learn to think critically.** Whether you are reading or in class, note people's assumptions and values. What perspective or bias underlies an argument? Evaluate evidence. Is it anecdotal? Or is it based on informative experiments? (More on this in Module 6.) Assess conclusions. Are there alternative explanations?

**Process class information actively.** Listen for the main ideas and sub-ideas of a lesson. *Write them down.* Ask questions during and after class. In class, as with your homework, process the information actively and you will understand and retain it better. As psychologist William James urged a century ago, "No reception without reaction, no impression without expression." Make the information your own. Take notes in your own words. Relate what you read to what you already know. Tell someone else about it. (As any teacher will confirm, to teach is to remember.)

**Overlearn.** Psychology tells us that overlearning improves retention. We are prone to overestimating how much we know. You may understand a module as you read it, but that feeling of familiarity can be deceptively comforting. By devoting extra study time to testing yourself, you may retain your new knowledge much more effectively.

**Be a smart test-taker.** If a test contains both multiple-choice questions and an essay question, turn first to the essay. Read the question carefully, noting exactly what the teacher is asking. On the back of a page, pencil in a list of points you'd like to make and then organize them. Before writing, put aside the essay and work through the multiple-choice questions. (As you do so, your mind may continue to mull over the essay question. Sometimes the multiple-choice questions will bring pertinent thoughts to mind.) Then reread the essay question, rethink your answer, and start writing. When you finish, proofread your answer to eliminate spelling and grammatical errors that make you look less competent than you are.

When reading multiple-choice questions, don't confuse yourself by trying to imagine how each choice might be the right one. Instead, try to answer each question as if it were a fill-in-the-blank question. First cover the answers and form a sentence in your mind, recalling what you know to complete the sentence. Then read the answers on the test and find the alternative that best matches your own answer.

Memory experts Elizabeth Bjork and Robert Bjork (2011, p. 63) offer the bottom line for how to improve your retention and your grades:

*Spend less time on the input side and more time on the output side, such as summarizing what you have read from memory or getting together with friends and asking each other questions. Any activities that involve testing yourself—that is, activities that require you to retrieve or generate information rather than just representing information to yourself—will make your learning both more durable and flexible.*

**Before You Move On**▶ **ASK YOURSELF**

When you signed up for this course, what did you think psychology would be all about?

▶ **TEST YOURSELF**

What are psychology's major levels of analysis?

Answers to the Test Yourself questions can be found in Appendix E at the end of the book.



## Module 2 Review

### 2-1 What is psychology's historic big issue?

- Psychology's biggest and most enduring issue has been the *nature-nurture issue*, which focuses on the relative contributions of genes and experience.
- Charles Darwin's view that *natural selection* shapes behaviors as well as bodies is an important principle in contemporary psychology.
- Today's science emphasizes the interaction of genes and experiences in specific environments.

### 2-2 What are psychology's levels of analysis and related perspectives?

- The *biopsychosocial approach* integrates information from three differing but complementary levels of analysis: the biological, psychological, and social-cultural.
- This approach offers a more complete understanding than could usually be reached by relying on only one of psychology's current perspectives (*biological, evolutionary, psychodynamic, behavioral, cognitive, and social-cultural*) or historically influential perspectives (such as the *humanistic* approach).

### 2-3 What are psychology's main subfields?

- Within the science of psychology, researchers may conduct *basic research* to increase the field's knowledge base (often in *biological, developmental, cognitive, educational, personality, and social psychology*) or *applied research* to

solve practical problems (in *industrial-organizational and human factors psychology*).

- *Psychometric* psychologists study measurement methods.
- Those who engage in psychology as a helping profession may assist people as *counseling psychologists* (helping people with problems in living or achieving greater well-being) or as *clinical psychologists*, studying and assessing people with psychological disorders and treating them with psychotherapy. (*Psychiatrists* also study, assess, and treat people with disorders, but as medical doctors, they may prescribe drugs in addition to psychotherapy.)
- *Positive psychology* attempts to discover and promote traits that help people to thrive.
- *Community psychologists* work to create healthy social and physical environments.

### 2-4 How can psychological principles help you learn and remember, and do better on the AP® exam?

- The *testing effect* shows that learning and memory are enhanced by actively retrieving, rather than simply rereading, previously studied material.
- The SQ3R study method—survey, question, read, retrieve, and review—applies the principles derived from memory research.
- Five additional tips are (1) distribute your study time; (2) learn to think critically; (3) process class information actively; (4) overlearn; (5) be a smart test-taker.

## Multiple-Choice Questions

- Which of the following perspectives is most likely to address how the encoding, storing, and retrieval of information might alter our thoughts?
  - Behavioral
  - Psychodynamic
  - Humanistic
  - Cognitive
  - Biological
- Who among the following would most likely study the interaction of people, machines, and physical environments?
  - Human factors psychologist
  - Personality psychologist
  - Industrial-organizational psychologist
  - Counseling psychologist
  - Experimental psychologist

3. Psychiatrists differ from psychologists in that they
  - a. help people cope with challenges and crises.
  - b. conduct research.
  - c. explore how we view and affect one another.
  - d. experiment with how people perceive, think, and solve problems.
  - e. are medical doctors licensed to prescribe medication.
4. A humanistic psychologist working with some poets might ask which of the following questions?
  - a. How can we get them to reach their highest potential?
  - b. How did their childhood experiences impact their current behavior?
  - c. How have rewards and punishments shaped their behavior?
  - d. How do society's attitudes affect their writing topics?
  - e. How do their brains differ from those of other successful people?
5. Betsy works in a human resources department. She plans training sessions, recruits people to work for the company, and implements techniques to boost morale around the office. Of the following, Betsy is most likely a(n)
  - a. developmental psychologist.
  - b. personality psychologist.
  - c. counseling psychologist.
  - d. educational psychologist.
  - e. industrial-organizational psychologist.

### Practice FRQs

1. George is said to have an "easy-going" personality. How might the biopsychosocial approach be used to explain an easy-going personality?

Answer

*1 point:* Biological factors would include George's genetic, physiological, and chemical makeup. For instance, George's easy-going manner may be the result of brain chemistry.

*1 point:* Psychological factors would include a discussion of how George learned that an easy-going personality makes people want to spend time with him. In response, he keeps anxiety and negative feelings to himself. He has the perception that others do not want to deal with his stress and anxiety.

*1 point:* Social-cultural factors would include George's family or cultural upbringing and expectations. If those who surround George expect him to be relaxed and laid-back, and this is what is supported in his community, George will be likely to act accordingly.

2. Six months ago, Carlos emigrated from Spain to the United States. Although fluent in English and an honor student in Spain, Carlos has had difficulty completing his assignments since moving to the United States. His parents don't understand why he is not succeeding like he did in his last school. Carlos has quit participating in family traditions.

Explain how each of the following psychological perspectives might explain Carlos' behavior.

- Psychodynamic
- Cognitive

(2 points)

# Module 3

## Careers in Psychology

### Module Learning Objective

- 3-1** Describe what psychologists in various professions do and where they work.



*This module was written by Jennifer Zwolinski, Associate Professor of Psychology at the University of San Diego.*

- 3-1** What do psychologists in various professions do, and where do they work?

**W**hat can you do with a college degree in psychology? Lots!

### AP® Exam Tip

You are about to read about a lot of career possibilities in psychology. Note the division between basic subfields and applied subfields. The work of some of these specialties is pretty obvious (it's not that hard to figure out in general what an educational psychologist or a health psychologist might do). Devote extra attention to those specialties that may be unfamiliar to you.

If you major in psychology, you will graduate with a scientific mind-set and an awareness of basic principles of human behavior (biological mechanisms, development, cognition, psychological disorders, social interaction). This background will prepare you for success in many areas, including business, the helping professions, health services, marketing, law, sales, and teaching. You may even go on to graduate school for specialized training to become a psychology professional. This module describes psychology's specialized subfields. Appendix D, *Preparing for Further Psychology Studies*, provides tips for preparing to earn a bachelor's, master's, or doctoral degree in psychology, with information about the career options that become available at those varying levels of education.

If you are like most students, you may be unaware of the wide variety of specialties and work settings available in psychology (Terre & Stoddart, 2000). To date, the American Psychological Association (APA) has formed 56 divisions. Let's look at some of the basic research, applied research, and helping profession careers (arranged alphabetically) in the main specialty areas of psychology, most of which require a graduate degree in psychology.

### Basic Research Subfields

**COGNITIVE PSYCHOLOGISTS** study thought processes and focus on such topics as perception, language, attention, problem solving, memory, judgment and decision making, forgetting, and intelligence. Research interests include designing computer based models of thought processes and identifying biological correlates of cognition. As a cognitive psychologist, you might work as a professor, industrial consultant, or human factors specialist in an educational or business setting.



**Consulting psychologist** Cognitive psychologists may advise businesses on how to operate more effectively by understanding the human factors involved.

WORTH



**DEVELOPMENTAL PSYCHOLOGISTS** conduct research on age-related behavioral changes and apply their scientific knowledge to educational, child-care, policy, and related settings. As a developmental psychologist, you would investigate change across a broad range of topics, including the biological, psychological, cognitive, and social aspects of development. Developmental psychology informs a number of applied fields, including educational psychology, school psychology, child psychopathology, and gerontology. The field also informs public policy in areas such as education and child-care reform, maternal and child health, and attachment and adoption. You would probably specialize in a specific stage of the life span, such as infancy, childhood, adolescence, or middle or late adulthood. Your work setting could be an educational institution, day-care center, youth group program, or senior center.

**EDUCATIONAL PSYCHOLOGISTS** are interested in the psychological processes involved in learning. They study the relationship between learning and physical and social environments, and they develop strategies for enhancing the learning process. As an educational psychologist, working in a university psychology department or school of education, you might conduct basic research on topics related to learning or develop innovative methods of teaching to enhance the learning process. You might design effective tests, including measures of aptitude and achievement. You might be employed by a school or government agency or charged with designing and implementing effective employee-training programs in a business setting.

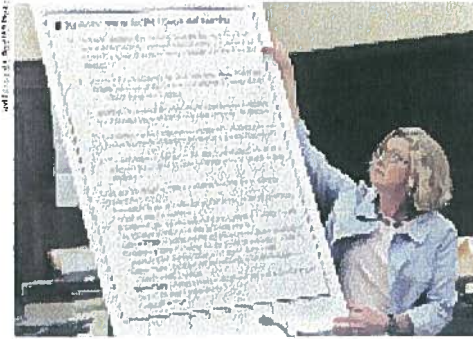
**EXPERIMENTAL PSYCHOLOGISTS** are a diverse group of scientists who investigate a variety of basic behavioral processes in humans and other animals. Prominent areas of experimental research include comparative methods of science, motivation, learning, thought, attention, memory, perception, and language. Most experimental psychologists identify with a particular subfield, such as cognitive psychology, depending on their interests and training. It is important to note that experimental research methods are not limited to the field of experimental psychology; many other subfields rely on experimental methodology to conduct studies. As an experimental psychologist, you would most likely work in an academic setting, teaching courses and supervising students' research in addition to conducting your own research. Or you might be employed by a research institution, zoo, business, or government agency.

**PSYCHOMETRIC AND QUANTITATIVE PSYCHOLOGISTS** study the methods and techniques used to acquire psychological knowledge. A psychometrician may update existing neurocognitive or personality tests or devise new tests for use in clinical and school settings or in business and industry. These psychologists also administer, score, and interpret such tests. Quantitative psychologists collaborate with researchers to design, analyze, and interpret the results of research programs. As a psychometric or quantitative psychologist, you will need to be well trained in research methods, statistics, and computer technology. You will most likely be employed by a university or college, testing company, private research firm, or government agency.

**SOCIAL PSYCHOLOGISTS** are interested in our interactions with others. Social psychologists study how our beliefs, feelings, and behaviors are affected by and influence other people. They study topics such as attitudes, aggression, prejudice, interpersonal attraction, group behavior, and leadership. As a social psychologist, you would probably be a college or university faculty member. You might also work in organizational consultation, market research, or other applied psychology fields, including social neuroscience. Some social psychologists work for hospitals, federal agencies, or businesses performing applied research.

#### AP® Exam Tip

*Educational psychologists apply psychology's findings in an effort to improve learning, and school psychologists assess and assist individual schoolchildren.*



**Psychology in court** Forensic psychologists apply psychology's principles and methods in the criminal justice system. They may assess witness credibility or testify in court on a defendant's state of mind and future risk.

## Applied Research Subfields

**FORENSIC PSYCHOLOGISTS** apply psychological principles to legal issues. They conduct research on the interface of law and psychology, help to create public policies related to mental health, help law-enforcement agencies in criminal investigations, or consult on jury selection and deliberation processes. They also provide assessment to assist the legal community. Although most forensic psychologists are clinical psychologists, they might have expertise in other areas of psychology, such as social or cognitive psychology. Some also hold law degrees. As a forensic psychologist, you might work in a university psychology department, law school, research organization, community mental health agency, law-enforcement agency, court, or correctional setting.

**HEALTH PSYCHOLOGISTS** are researchers and practitioners concerned with psychology's contribution to promoting health and preventing disease. As applied psychologists or clinicians, they may help individuals lead healthier lives by designing, conducting, and evaluating programs to stop smoking, lose weight, improve sleep, manage pain, prevent the spread of sexually transmitted infections, or treat psychosocial problems associated with chronic and terminal illnesses. As researchers and clinicians, they identify conditions and practices associated with health and illness to help create effective interventions. In public service, health psychologists study and work to improve government policies and health care systems. As a health psychologist, you could be employed in a hospital, medical school, rehabilitation center, public health agency, college or university, or, if you are also a clinical psychologist, in private practice.

**INDUSTRIAL-ORGANIZATIONAL (I/O) PSYCHOLOGISTS** study the relationship between people and their working environments. They may develop new ways to increase productivity, improve personnel selection, or promote job satisfaction in an organizational setting. Their interests include organizational structure and change, consumer behavior, and personnel selection and training. As an I/O psychologist, you might conduct workplace training or provide organizational analysis and development. You may find yourself working in business, industry, the government, or a college or university. Or you may be self-employed as a consultant or work for a management consulting firm.

**NEUROPSYCHOLOGISTS** investigate the relationship between neurological processes (structure and function of the nervous system) and behavior. As a neuropsychologist you might assess, diagnose, or treat central nervous system disorders, such as Alzheimer's disease or stroke. You might also evaluate individuals for evidence of head injuries, learning and developmental disabilities, such as autism spectrum disorder, and other psychiatric disorders, such as attention-deficit/hyperactivity disorder (ADHD). If you are a clinical neuropsychologist, you might work in a hospital's neurology, neurosurgery, or psychiatric unit. Neuropsychologists also work in academic settings, where they conduct research and teach.

**REHABILITATION PSYCHOLOGISTS** are researchers and practitioners who work with people who have lost optimal functioning after an accident, illness, or other event. As a rehabilitation psychologist, you would probably work in a medical rehabilitation institution or hospital. You might also work in a medical school, university, state or federal vocational rehabilitation agency, or in private practice serving people with physical disabilities.



**SCHOOL PSYCHOLOGISTS** are involved in the assessment of and intervention for children in educational settings. They diagnose and treat cognitive, social, and emotional problems that may negatively influence children's learning or overall functioning at school. As a school psychologist, you would collaborate with teachers, parents, and administrators, making recommendations to improve student learning. You could work in an academic setting, a federal or state government agency, a child guidance center, or a behavioral research laboratory.



**Class counselor** School psychologists, who have their master's degree in psychology, may find themselves working with students individually or in groups, as well as in a consultative role for their school's administrators.

**SPORT PSYCHOLOGISTS** study the psychological factors that influence, and are influenced by, participation in sports and other physical activities. Their professional activities include coach education and athlete preparation, as well as research and teaching. Sport psychologists who also have a clinical or counseling degree can apply those skills to working with individuals with psychological problems, such as anxiety or substance abuse, that might interfere with optimal performance. As a sport psychologist, if you were not working in an academic or research setting, you would most likely work as part of a team or organization, or in a private capacity.



**Athlete assistance** Sport psychologists often work directly with athletes to help them improve their performance.

### The Helping Professions

**CLINICAL PSYCHOLOGISTS** promote psychological health in individuals, groups, and organizations. Some clinical psychologists specialize in specific psychological disorders. Others treat a range of disorders, from adjustment difficulties to severe psychopathology. Clinical psychologists might engage in research, teaching, assessment, and consultation. Some hold workshops and lectures on psychological issues for other professionals or for the public. Clinical psychologists work in a variety of settings, including private practice, mental health service organizations, schools, universities, industries, legal systems, medical systems, counseling centers, government agencies, and military services.

To become a clinical psychologist, you will need to earn a doctorate from a clinical psychology program. The APA sets the standards for clinical psychology graduate programs, offering accreditation (official recognition) to those who meet their standards. In all U.S. states, clinical psychologists working in independent practice must obtain a license to offer services such as therapy and testing.

**COMMUNITY PSYCHOLOGISTS** move beyond focusing on specific individuals or families and deal with broad problems of mental health in community settings. These psychologists believe that human behavior is powerfully influenced by the interaction between people and their physical, social, political, and economic environments. They seek to promote psychological health by enhancing environmental settings, focusing on preventive measures and crisis intervention, with special attention to the problems of underserved groups and ethnic minorities. Given the shared emphasis on prevention, some community psychologists collaborate with

WORTH



**Coping with disaster** After Haiti's disastrous 2010 earthquake, this community psychologist helped survivors cope with the loss of their homes and, for many, the death of family members and friends.

professionals in other areas, such as public health. As a community psychologist, your work settings could include federal, state, and local departments of mental health, corrections, and welfare. You might conduct research or help evaluate research in health service settings, serve as an independent consultant for a private or government agency, or teach and consult as a college or university faculty member.

**COUNSELING PSYCHOLOGISTS** help people adjust to life transitions or make lifestyle changes. Although similar to clinical psychologists, counseling psychologists typically help people with adjustment problems rather than severe psychopathology. Like clinical psychologists, counseling psychologists conduct therapy and provide assessments to individuals and groups. As a counseling psychologist, you would emphasize your clients' strengths, helping them to use their own skills, interests, and abilities to cope during transitions. You might find yourself working in an academic setting as a faculty member or administrator or in a university counseling center, community mental health center, business, or private practice. As with clinical psychology, if you plan to work in independent practice you will need to obtain a state license to provide counseling services to the public.

So, the next time someone asks you what you could do with a psychology degree, tell them you will have a lot of options. You might use your acquired skills and understanding to get a job and succeed in any number of fields, or you might pursue graduate school and then career opportunities in associated professions. In any case, what you have learned about behavior and mental processes will surely enrich your life (Hammer, 2003).

### Before You Move On

#### ▶ ASK YOURSELF

Which of psychology's specialties were you aware of before taking this course? Which seem most interesting to you?

#### ▶ TEST YOURSELF

Name the subfields that focus on a) people and their work environments, b) how people change over the life span, c) the human thinking involved in perceiving, remembering, speaking, and decision making, and d) diagnosing and treating psychological disorders.

Answers to the Test Yourself questions can be found in Appendix E at the end of the book.

## Module 3 Review

### What do psychologists in various professions do, and where do they work?

- The APA has formed 56 divisions.
- Psychology's specialties include the basic research subfields (cognitive, developmental, educational, experimental, psychometric and quantitative, and social psychology); the applied research subfields (forensic, health, industrial-organizational, neuropsychology, rehabilitation, school, and sport psychology); and the helping professions (clinical, community, and counseling).
- Work settings for psychologists include a wide range of government agencies, industrial and business settings, clinics and counseling centers, health care institutions, schools, universities, and research organizations.



### Multiple-Choice Questions

1. Which of the following psychologists most strongly emphasize that human behavior is powerfully influenced by the interaction between people and their physical, social, political, and economic environments?
  - a. Community
  - b. Clinical
  - c. Counseling
  - d. Industrial-organizational
  - e. Rehabilitation
2. Which of the following psychologists would be most likely to investigate biological, psychological, cognitive, and social changes over time?
  - a. Educational
  - b. Experimental
  - c. Social
  - d. Cognitive
  - e. Developmental
3. A psychologist investigates the methods teachers use to enhance student learning. With which of the following subfields is the psychologist most likely aligned?
  - a. Educational psychology
  - b. Experimental psychology
  - c. School psychology
  - d. Social psychology
  - e. Forensic psychology
4. A psychologist works with children whose parents are divorcing. She helps them develop skills they need to cope with the situation. Of the following, what kind of psychologist is most likely helping these children?
  - a. Industrial-organizational
  - b. Social
  - c. Research
  - d. Counseling
  - e. Community
5. Dwayne is interested in helping people make good decisions regarding their physical well-being. Dwayne should consider a career as a
  - a. community psychologist.
  - b. social psychologist.
  - c. forensic psychologist.
  - d. industrial-organizational psychologist.
  - e. health psychologist.

### Practice FRQs

1. Anisha, a high school junior, has been struggling recently in many areas of her life. She is overweight and spends several hours a day watching television. She is having trouble keeping up in her classes and says she cannot seem to keep her focus. She also is having trouble making friends and "fitting in" at school. Explain how the following applied psychologists might attempt to help Anisha's current situation.
  - Health psychologists
  - Social psychologists
  - Counseling psychologists

**Answer**

*1 point:* A health psychologist might attempt to find ways to encourage Anisha to lead a more active lifestyle and focus on improving her diet and creating an exercise program. This should help her to lose some weight and become healthier in her daily habits.

*1 point:* A school psychologist might work with Anisha's parents, teachers, and counselors to determine why she is struggling in her classes and make recommendations for improving her classroom performance.

*1 point:* A counseling psychologist might work with Anisha to find out why she has recently found numerous aspects of her life more challenging and might work on strategies for helping Anisha cope with challenging situations, such as how to make friends.

2. Hurricane Katrina hit New Orleans in 2005, causing a staggering loss of life and cultural heritage and billions of dollars in damage. How might each of the following have contributed to making life better in New Orleans following the hurricane?
  - Clinical psychologists
  - Social psychologists

*(2 points)*

## Unit I Review

### Key Terms and Concepts to Remember

empiricism, p. 3	behavioral psychology, p. 12	applied research, p. 14
structuralism, p. 4	biological psychology, p. 12	industrial-organizational (I/O) psychology, p. 14
functionalism, p. 4	cognitive psychology, p. 12	human factors psychology, p. 14
experimental psychology, p. 5	evolutionary psychology, p. 12	counseling psychology, p. 14
behaviorism, p. 6	psychodynamic psychology, p. 12	clinical psychology, p. 14
humanistic psychology, p. 6	social-cultural psychology, p. 12	psychiatry, p. 14
cognitive neuroscience, p. 7	psychometrics, p. 13	positive psychology, p. 15
psychology, p. 7	basic research, p. 14	community psychology, p. 15
nature-nurture issue, p. 9	developmental psychology, p. 14	testing effect, p. 16
natural selection, p. 10	educational psychology, p. 14	SQ3R, p. 16
levels of analysis, p. 11	personality psychology, p. 14	
biopsychosocial approach, p. 11	social psychology, p. 14	

### Key Contributors to Remember

Wilhelm Wundt, p. 3	Sigmund Freud, p. 5	Jean Piaget, p. 9
G. Stanley Hall, p. 3	John B. Watson, p. 6	Charles Darwin, p. 10
William James, p. 4	B. F. Skinner, p. 6	Dorothea Dix, p. 14
Mary Whiton Calkins, p. 4	Carl Rogers, p. 6	
Margaret Floy Washburn, p. 5	Ivan Pavlov, p. 9	

For more information, see Appendix C, *Psychological Science's Key Contributors*, at the end of this text.

## AP<sup>®</sup> Exam Practice Questions

### Multiple-Choice Questions

- Which perspective would be most useful when explaining how people from different countries express anger?
  - Social-cultural
  - Psychodynamic
  - Behavioral
  - Functionalist
  - Biological
- The debate about the relative contributions of biology and experience to human development is most often referred to as what?
  - Evolutionary analysis
  - Behaviorism
  - The cognitive revolution
  - The nature-nurture issue
  - Natural selection
- Which of the following professionals is required to have a medical degree?
  - Psychiatrist
  - Psychologist
  - Clinician
  - Counselor
  - Psychotherapist
- Which psychological principle best explains why studying an hour a day for a week is more effective than one 7-hour study session?
  - Testing effect
  - Distributed practice
  - SQ3R
  - Retrieval practice effect
  - Psychometrics



5. Which of the following kinds of psychologists would most likely explore how we process and remember information?
- Developmental
  - Biological
  - Social
  - Cognitive
  - Personality
6. According to the behaviorist perspective, psychological science should be rooted in what?
- Introspection
  - Observation
  - Cultural influences
  - Growth potential
  - Basic needs
7. Which of the following psychologists would most likely conduct psychotherapy?
- Biological
  - Clinical
  - Industrial-organizational
  - Cognitive
  - Evolutionary
8. Which field of psychology is most interested in studying the link between mental activity and brain activity?
- Humanistic psychology
  - Gestalt psychology
  - Cognitive neuroscience
  - Psychodynamic perspective
  - Evolutionary perspective
9. What was the main difference between the psychological thinking of Wilhelm Wundt and earlier philosophers who were also interested in thinking and behavior?
- Wundt was European, earlier philosophers were American.
  - Wundt was the first professor from a major university interested in psychology.
  - Wundt was the first scholar to call himself a psychologist.
  - Wundt used psychotherapy techniques established by Freud to examine the thinking and behavior of healthy individuals.
  - Wundt and his students gathered data about human thinking and behavior in a laboratory setting.
10. Which school of psychology focused on the adaptive nature of thinking and how our consciousness evolves to meet our needs?
- Functionalist
  - Structuralist
  - Behavioral
  - Humanistic
  - Psychodynamic
11. The study of the importance of satisfying love and acceptance needs best describes which school of psychology?
- Behavioral
  - Functionalist
  - Humanistic
  - Psychodynamic
  - Structuralist
12. Which of the following statements is the best example of applied research?
- Investigating personality traits
  - Using psychological concepts to boost worker productivity
  - Experimenting with how people perceive different stimuli
  - Studying the changing abilities of children from ages 2 to 5
  - Exploring the neural changes that occur during adolescence
13. Self-reflective introspection about the elements of experience best describes a technique used by which school of psychology?
- Darwinists
  - Empiricists
  - Structuralists
  - Behaviorists
  - Psychiatrists
14. Which psychological perspective is most likely to focus on how our interpretation of a situation affects how we react to it?
- Psychodynamic
  - Biological
  - Social-cultural
  - Evolutionary
  - Cognitive
15. The science of behavior and mental processes is the definition of which field of study?
- Philosophy
  - Cognitive neuroscience
  - Basic research
  - Psychology
  - Applied research

## Free-Response Questions

1. Arianna is nervous around large crowds, and often leaves social situations like school dances and parties because she feels like she might have a panic attack. Her father died when she was a young girl, but she still often has nightmares about his death. Arianna enjoys school, and because she generally receives good grades, she appreciates the positive feedback from her teachers that encourages her to improve her academic skills.

Using the seven major modern approaches to psychology, explain how each approach might explain Arianna's behavior.

2. In thinking of the question of nature versus nurture, explain how each of the following schools of psychology would address this debate.

- Behaviorism
- Biological perspective
- Personality psychologists
- Developmental psychologists

(4 points)

Multiple-choice self-tests and more may be found at [www.worthpublishers.com/MyersAP2e](http://www.worthpublishers.com/MyersAP2e)

## Rubric for Free-Response Question 1

**1 point:** The *biological approach* would likely attribute Arianna's nervousness to brain chemistry, hormones, or genetic influences. (Page 12)

**1 point:** The *evolutionary approach* would explore how avoiding social crowds might have been a survival advantage for early humans, such as by reducing exposure to germs and violence. (Page 12)

**1 point:** The *psychodynamic approach* would examine Arianna's early life and how she dealt with losing her father, focusing on Arianna's childhood experiences and unconscious anxieties. (Page 12)

**1 point:** The *behavioral approach* would look at how Arianna has learned in the past through rewards and punishments. She may have had a negative experience in a large group in the past and as a result has learned to avoid social gatherings. (Page 12)

**1 point:** The *cognitive approach* would focus on examining how Arianna perceives situations. Her interpretation of social situations may impact the outcome. (Page 12)

**1 point:** The *humanistic approach* would look at how Arianna's environment may have hindered her growth and self-fulfillment. (Page 12)

**1 point:** The *social-cultural approach* would examine how interactions within the cultures Arianna belongs to influence her expectations about social situations. If her family or other cultural influences encourage her to attend social functions, that might influence her to continue to try attending those kinds of events. (Page 12)