Unit I

Psychology's History and Approaches

Modules

1 Psychology's History
2 Psychology's Big Issues and Approaches
3 Careers in Psychology

For people whose exposure to psychology comes from news stories and TV, psychologists seem to analyze personality, offer counseling, dispense child-raising advice, examine crime scenes, and testify in court. Do they? Yes, and much more. Consider some of psychology's research questions, which you will be learning more about in this text.

- Have you ever found yourself reacting to something as one of your biological parents would—perhaps in a way you vowed you never would—and then wondered how much of your personality you inherited? To what extent do genes predispose our person-to-person differences in personality? To what extent do home and community environments shape us?

- Have you ever worried about how to act among people of a different culture, race, gender, or sexual orientation? In what ways are we alike as members of the human family? How do we differ?

- Have you ever awakened from a nightmare and, with a wave of relief, wondered why you had such a crazy dream? How often, and why, do we dream?

- Have you ever played peekaboo with a 6-month-old and wondered why the baby finds the game so delightful? The infant reacts as though, when you momentarily move behind a door, you actually disappear—only to reappear out of thin air. What do babies actually perceive and think?
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 Through 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.
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?”

Prescientific Psychology

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.

**Psychological Science Is Born**

**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).
Edward Bradford 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.

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. 149).

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 & Furumoto, 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
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.

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.
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.

**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.”

**AP® Exam Tip**

Memory research reveals a testing effect. We retain information much better if we actively retrieve it by self-testing and relearning. (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.
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 “Magellans of the mind,” as Morton Hunt (1993) 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
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.
Psychology's Three Main Levels of Analysis

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).

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**Biological influences:**
- natural selection of adaptive traits
- genetic predispositions responding to environment
- brain mechanisms
- hormonal influences

**Psychological influences:**
- learned fears and other learned expectations
- emotional responses
- cognitive processing and perceptual interpretations

**Social-cultural influences:**
- presence of others
- cultural, societal, and family expectations
- peer and other group influences
- compelling models (such as in the media)

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**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.

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**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.

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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.

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Views of anger How would each of psychology’s levels of analysis explain what’s going on here?
Table 2.1  Psychology’s Approaches

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

**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.

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**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 biologists.)

- 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

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 lifestyles” 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.

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.

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).\(^1\)

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.”

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\(^1\)Confession: I wrote the last part of this sentence on April Fools’ Day.
Improve Your Retention—and Your Grades!

2-4

How can psychological principles help you learn and remember, and do better on the AP® 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 restudying 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., 2009; 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® 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, 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 re-reading 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® 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® 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 block. 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.)

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2 Also sometimes called “Recite.”

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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.
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, proof-read 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.*