

Psychology's History and Approaches

Harvard astronomer Owen Gingerich (2006) reports that there are more than 100 billion galaxies. Just one of these, our own relative speck of a galaxy, has some 200 billion stars, many of which, like our Sun-star, are circled by planets. On the scale of outer space, we are less than a single grain of sand on all the oceans' beaches, and our lifetime but a relative nanosecond.

Yet there is nothing more awe inspiring and absorbing than our own inner space. Our brain, adds Gingerich, "is by far the most complex physical object known to us in the entire cosmos" (p. 29). Our consciousness—mind somehow arising from matter—remains a profound mystery. Our thinking, emotions, and actions (and their interplay with others' thinking, emotions, and actions) fascinate us. Outer space staggers us with its enormity, but inner space enthralls us. Enter psychological science.

For people whose exposure to psychology comes from pop-culture Web sites, books, magazines, and TV, psychologists analyze personality, offer counseling, and dispense child-rearing advice. Do they? Yes, and much more. Consider some of psychology's questions that from time to time you may wonder about:

- 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 are person-to-person differences in personality predisposed by our genes? To what extent by the home and community environments?*
- Have you ever worried about how to act among people of a different culture, race, or gender? *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 later out of thin air. *What do babies actually perceive and think?*
- Have you ever wondered what leads to school and work success? Are some people just born smarter? *Does sheer intelligence explain why some people get richer, think more creatively, or relate more sensitively?*

WHAT IS PSYCHOLOGY?

Psychology's Roots

Psychological Science

Develops

CONTEMPORARY PSYCHOLOGY

Psychology's Biggest

Question

Psychology's Three Main

Levels of Analysis

Psychology's Subfields

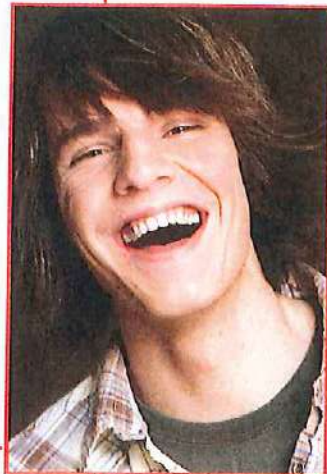
Close-Up: Tips for

Studying Psychology

"I have made a ceaseless effort not to ridicule, not to bewail, not to scorn human actions, but to understand them."

Benedict Spinoza, *A Political Treatise*, 1677

▼ **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.



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- Have you ever become depressed or anxious and wondered whether you'll ever feel "normal"? *What triggers our bad moods—and our good ones?*

Such questions provide grist for psychology's mill, because psychology is a science that seeks to answer all sorts of questions about us all—how and why we think, feel, and act as we do.

What Is Psychology?

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

- 1: 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 do our minds work? How do our bodies relate to our minds? 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

- To assist your active learning, I will periodically offer learning objectives. These will be framed as questions that you can answer as you read on.

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 eyeblink 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*). 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 view that knowledge originates in experience and that science should, therefore, rely on observation and experimentation.



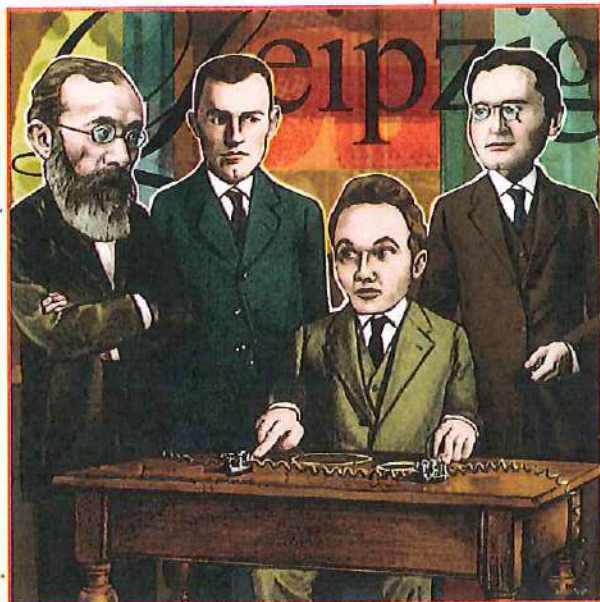
A seventeenth-century view of nerves In his *Treatise of Man*, Descartes proposed the hydraulics of a simple reflex.

Betman/Corbis

- Throughout the text, important concepts are boldfaced. As you study, you can find these terms with their definitions in a nearby margin and in the Glossary at the end of the book.

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

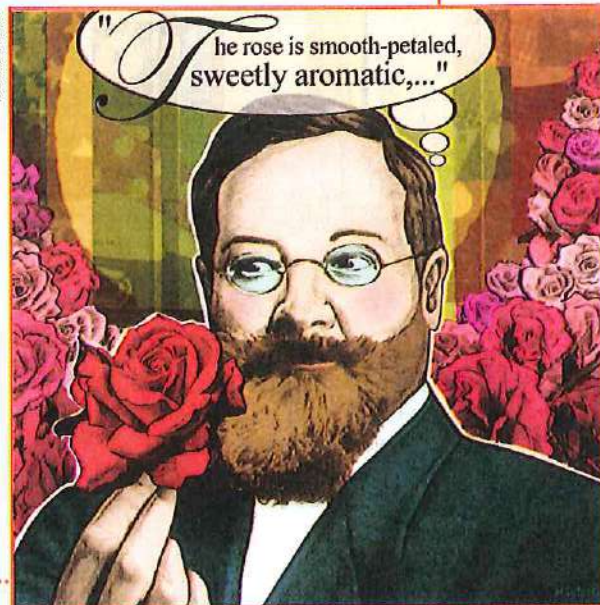
Monika Suteski



Wilhelm Wundt Wundt (far left) established the first psychology laboratory at the University of Leipzig, Germany.

• 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 style. •

Monika Suteski



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

Psychological Science Is Born

2: When and how did modern psychological science begin?

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. Thus began what many consider psychology's first experiment, launching the first psychological laboratory, staffed by Wundt and psychology's first graduate students.

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 Unit 6), and two schools described in later units: Gestalt psychology (Unit 4) and psychoanalysis (Unit 10).

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

Unlike those hoping to assemble the structure of mind from simple elements—which was rather like trying to understand a car by examining its disconnected parts—philosopher-psychologist William James thought it 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 circumstances, 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 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 American Psychological Association's (APA's) first female president in 1905.

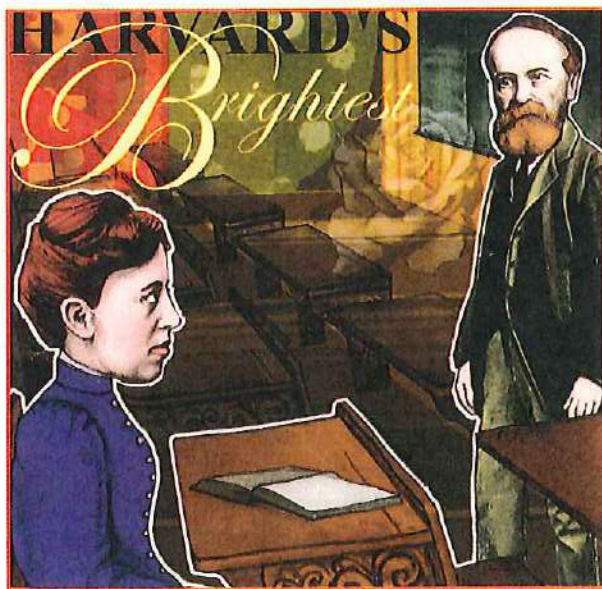
When Harvard denied Calkins the claim to being psychology's first female psychology Ph.D., that honor fell to Margaret Floy Washburn, who later wrote an influential book, *The Animal Mind*, and became the second female APA president in 1921. Although

structuralism an early school of psychology that used introspection to explore the structural elements of the human mind.

functionalism a school of psychology that focused on how our mental and behavioral processes function—how they enable us to adapt, survive, and flourish.

"You don't know your own mind."

Jonathan Swift
Polite Conversation, 1738



Monika Sureski

William James and Mary Whiton Calkins James, legendary teacher-writer, mentored Calkins, who became a pioneering memory researcher and the first woman to be president of the American Psychological Association.



Monika Sureski

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

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

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 historically significant perspective that emphasized the growth potential of healthy people and the individual's potential for personal growth.

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.

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 2009—when women claimed two-thirds or more of new U.S. psychology Ph.D.s and were 6 of the 13 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

3: How did psychology continue to develop from the 1920s through today?

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. Ivan Pavlov, who pioneered the study of learning, was a Russian physiologist. Sigmund Freud, who developed the influential *psychoanalytic* theory of personality, was an Austrian physician. Jean Piaget, the last century's most influential observer of children, was a Swiss biologist. This list of pioneering psychologists—"Magellans of the mind," as Morton Hunt (1993) has called them—illustrates psychology's origins in many disciplines and countries.

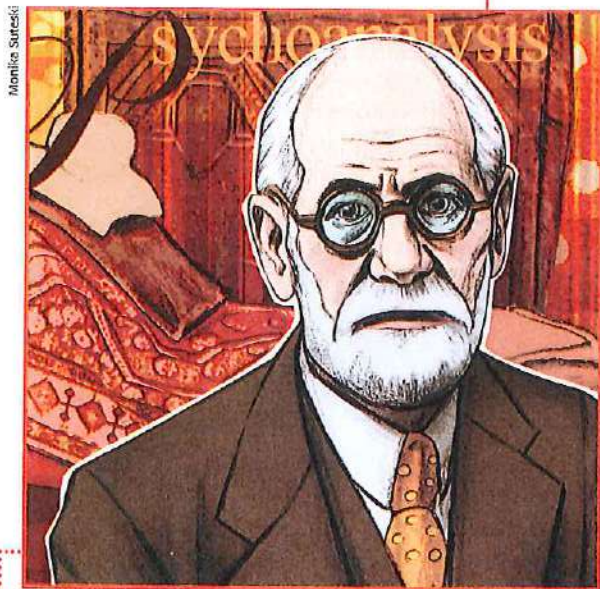
The rest of the story of psychology—the subject of this book—develops at many levels. With pursuits ranging from the study of nerve cell activity to the study of international conflicts, *psychology* is not easily defined.

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. 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."

From the 1920s into the 1960s, American psychologists, initially led by flamboyant and provocative John B. Watson and later by the equally provocative B. F. Skinner, dismissed introspection and redefined *psychology* as "the scientific study of observable behavior." After all, said these **behaviorists**, 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. (More on these psychologists in Unit 6.)

During the 1960s and beyond, **humanistic psychology** rebelled against Freudian psychology and behaviorism. Pioneers Carl Rogers and Abraham Maslow found behaviorism's focus on learned behaviors too mechanistic. Rather than focusing on the meaning of early childhood memories, as a psychoanalyst might, the humanistic psychologists emphasized the importance of current environmental influences on our growth potential, and the importance of having our needs for love and acceptance satisfied. (More on this in Unit 10.)

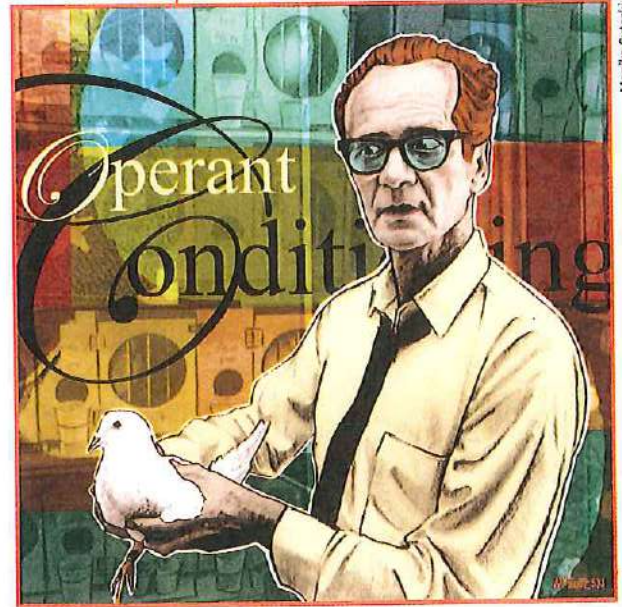
In the 1960s, another movement emerged as psychology began to recapture its initial interest in mental processes. This *cognitive revolution* supported ideas developed by



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



John B. Watson and Rosalie Rayner Working with Rayner, Watson championed psychology as the science of behavior and demonstrated conditioned responses in a baby who became famous as "Little Albert."



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

earlier psychologists, such as the importance of how our mind processes and retains information. But cognitive psychology and more recently **cognitive neuroscience** (the study of brain activity linked with mental activity) have expanded upon those ideas to explore scientifically the ways we perceive, process, and remember information. This approach has been especially beneficial in helping to develop new ways to understand and treat disorders such as depression, as we shall see in Units 12 and 13.

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 people from non-Western countries contribute their ideas to the field?

➤ TEST YOURSELF 1

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.

• 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). If you can answer the *Test Yourself* questions, which will provide a review of the key points of the previous section, you are, indeed, ready to move on! You can check your answers to the Test Yourself Questions in Appendix E at the end of the book. •

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.

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.

Contemporary Psychology

LIKE ITS PIONEERS, TODAY'S PSYCHOLOGISTS are citizens of many lands. The International Union of Psychological Science has 69 member nations, from Albania to Zimbabwe. Nearly everywhere, membership in psychological societies is mushrooming—from 4183 American Psychological Association members and affiliates in 1945 to nearly 150,000 today, with similarly rapid growth in the British Psychological Society (from 1100 to 45,000). In China, the first university psychology department began in 1978; by 2008 there were 200 (Tversky, 2008). Worldwide, some 500,000 people have been trained as psychologists, and 130,000 of them belong to European psychological organizations (Tikkanen, 2001). Moreover, thanks to international publications, joint meetings, and the Internet, collaboration and communication cross borders now more than ever. "We are moving rapidly toward a single world of psychological science," reports Robert Bjork (2000). Psychology is growing and it is globalizing.

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

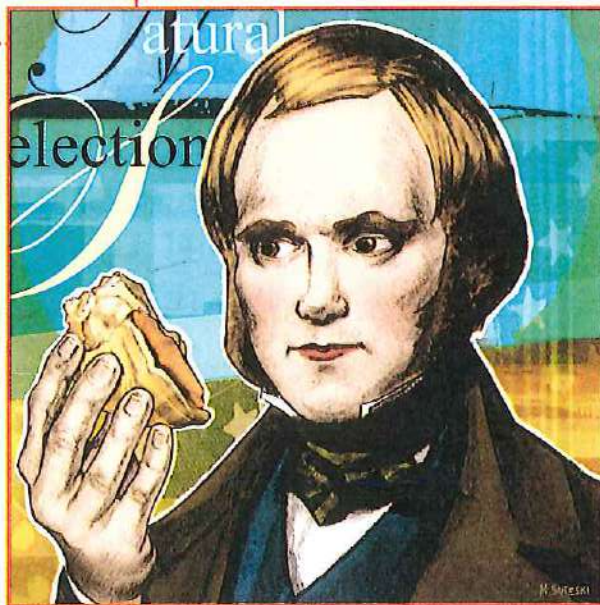
4: What is psychology's historic big issue?

During its short history, psychology has wrestled with some issues that will reappear throughout this book. The biggest and most persistent is the **nature-nurture issue**—the controversy over the relative contributions of biology and experience. As we have seen, the origins of this debate are ancient. Do our human traits develop through experience, or are we born with them? The ancient Greeks debated this, with Plato assuming that character and intelligence are largely inherited 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 in-born ideas, suggesting that the mind is a blank slate on which experience writes.

Descartes disagreed, believing that some ideas are innate.

Two centuries later, Descartes' views gained support from a curious naturalist. In 1831, an indifferent student but ardent collector of beetles, mollusks, and shells set sail on what was to prove a historic round-the-world journey. The 22-year-old voyager was Charles Darwin, and for some time afterward, he pondered the incredible species variation he had encountered, including tortoises on one island that differed from those on other islands of the region. Darwin's 1859 *On the Origin of Species* explained this diversity of life by proposing the evolutionary process of **natural selection**: From among chance variations, nature selects the traits that best enable an organism to survive and

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



Montika Sureski

reproduce in a particular environment. Darwin's principle of natural selection—"the single best idea anyone has ever had," says philosopher Daniel Dennett (1996)—is still with us 150 years later as an organizing principle of biology. 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 debate weaves a thread from the ancient Greeks' time to our own. Today's psychologists explore the issue by asking, for example:

- How are we humans 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 differences in intelligence and personality 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.



Bluemoon Images/Photolibrary



Veer Mani/Place

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 units—that underscore the importance of both nature and nurture.

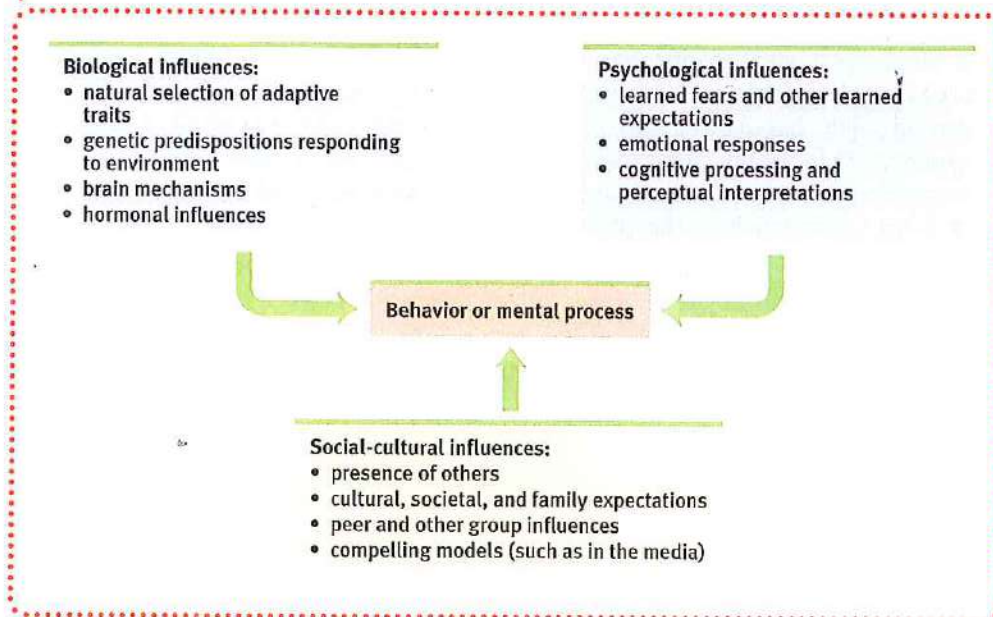
Psychology's Three Main Levels of Analysis

5: 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.

► FIGURE 1.1

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



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.

biological psychology a branch of psychology that studies the links between biological (including neuroscience and behavior genetics) and psychological processes.

evolutionary psychology the study of the roots of behavior and mental processes using the 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.

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

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

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

These tiered systems suggest different **levels of analysis**, which offer complementary outlooks. It's like explaining why grizzly bears hibernate. Is it because hibernation helped their ancestors to survive and reproduce? Because their inner physiology drives them to do so? Because cold environments hinder food gathering during winter? 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 1.1).

Each level provides a valuable vantage point for looking at behavior, 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 1.1 complement one another. Consider, for example, how they shed light on anger.

- 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 **evolutionary** perspective might analyze how anger facilitated the survival of our ancestors' genes.
- Someone working from the **psychodynamic** perspective might view an outburst as an outlet for unconscious hostility.
- Someone working from the **behavioral** perspective might attempt to determine which external stimuli trigger angry responses or aggressive acts.
- 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 *humanistic perspective* (a historically important approach) might have been interested in understanding how angry feelings affect a person's potential for growth and personal fulfillment.
- Someone working from the **social-cultural** perspective might explore how expressions of anger vary across cultural contexts.

TABLE 1.1

PSYCHOLOGY'S APPROACHES

Approach	Focus	Sample Questions
Biological	How the body and brain enable emotions, memories, and sensory experiences; how genes combine with environment to influence individual differences	How are messages transmitted within the body? 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?
Evolutionary	How the natural selection of traits promoted the survival of genes	How does evolution influence behavior tendencies?
Psychodynamic	How behavior springs from unconscious drives and conflicts	How can someone's personality traits and disorders be explained in terms of sexual and aggressive drives or as the disguised effects of unfulfilled wishes and childhood traumas?
Behavioral	How we learn observable responses	How do we learn to fear particular objects or situations? What is the best way to alter our behavior, say, to lose weight or stop smoking?
Cognitive	How we encode, process, store, and retrieve information	How do we use information in remembering? Reasoning? Solving problems?
Humanistic	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?
Social-cultural	How behavior and thinking vary across situations and cultures	How are we humans alike as members of one human family? As products of different environmental contexts, how do we differ?

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.

So 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?" Instead, expect that psychology will help you understand why people think, feel, and act as they do. Then you should find the study of psychology fascinating and useful.



Radius Images/Alamy

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

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

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

developmental psychology the scientific study of 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.

applied research scientific study that aims to solve practical problems.

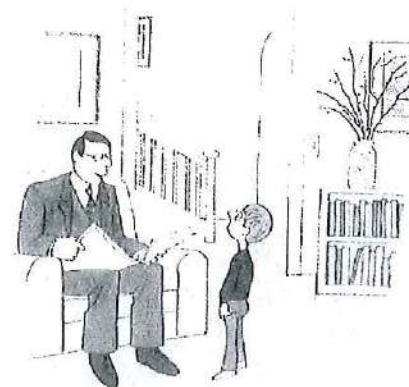
industrial-organizational (I/O) psychology the application of psychological concepts and methods to optimizing human behavior in workplaces.

Psychology's Subfields

6: 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.



"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 cluster of subfields we call psychology has less unity than most other sciences. But there is a payoff: 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 their 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 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 cross-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.



Laurea Dwight

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.

(For a more complete list of the major subfields of psychology, see Appendix A at the end of this text.)

These psychologists also may conduct **applied research** that tackles practical problems. So do other psychologists, including **industrial-organizational psychologists**, who 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 Appendix B.)

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 (APA, 2003). 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 often provide psychotherapy, are medical doctors licensed to prescribe drugs and otherwise treat physical causes of psychological disorders. Some clinical psychologists are lobbying for a similar right to prescribe mental-health-related drugs, and in 2002 and 2004 New Mexico and Louisiana became the first states to grant that right to specially trained and licensed psychologists.

human factors psychology the study of how people and machines interact and the design of safe and easily used machines and environments.

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 often provide medical (for example, drug) treatments as well as psychological therapy.

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 face-to-face therapy.

Michael Newman/Photo Edit



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Bob Daemich/The Image Works



With perspectives ranging from the biological to the social, and with settings from the laboratory to the clinic, psychology relates to many fields, ranging from mathematics to biology to sociology to philosophy. And more and more, psychology's methods and findings aid other disciplines. 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 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," notes Morton Hunt (1990, p. 206), "knowledge has modified attitudes,

¹Confession: I wrote the last part of this sentence on April Fools' Day.

CLOSE-UP

Tips for Studying Psychology

7: How can psychological principles help you as a student?

The investment you are making in studying psychology should enrich your life and enlarge your vision. 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 enrich us, by renewing our sense of mystery about "things too wonderful" for us yet to understand. Your study of psychology can also help teach you *how to ask and answer important questions*—how to think critically as you evaluate competing ideas and claims.

Having your life enriched and your vision enlarged (and getting a decent grade) requires effective study. As you will see in Unit 7A, 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 review and rehearse it again.

The **SQ3R** study method incorporates these principles (Robinson, 1970). SQ3R is an acronym for its five steps: Survey, Question, Read, Rehearse, Review.

To study a unit in this text, first *survey*, taking a bird's-eye view. Scan the headings, and notice how the unit is organized.

As you prepare to read each section, use its heading or numbered objective question to form a *question* you should answer. For this section, you might have asked, "How can I most effectively and efficiently master the information in this book?"

Then *read*, actively searching for the answer. At each sitting, read only as much of the unit (usually a single main section) as you can absorb without tiring. Read actively and critically. Ask questions. Make notes. Consider implications: 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, *rehearse* in your own words what you read. Test yourself by trying to answer your question, rehearsing what you can recall, then glancing back over what you can't recall.

Finally, *review*: Read over any notes you have taken, again with an eye on the unit's organization, and quickly review the whole unit.

Survey, question, read, rehearse, review. I have organized this book's units to facilitate your use of the SQ3R study system. Each unit begins with an outline that aids your *survey*. Headings and learning objective *questions* suggest issues and concepts you should consider as you *read*. The material is organized into sections of readable length. At the end of each section is a "Before you move on . . ." box with "Ask Yourself" and "Test Yourself" questions that help you *rehearse* what you know. The Unit Review provides answers to the learning objective questions, and the list of key terms helps you check your mastery of important concepts. Survey, question, read . . .

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.

BEFORE YOU MOVE ON . . .

➤ ASK YOURSELF

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

➤ TEST YOURSELF 2

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.

"Once expanded to the dimensions of a larger idea, [the mind] never returns to its original size."

Oliver Wendell Holmes, 1809–1894

• Want to learn more? See Appendix A, *Careers in Psychology*, at the end of this book for more information about psychology's subfields and to learn about the many interesting options available to those with bachelor's, master's, and doctoral degrees in psychology. •

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 work 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 unit in a single sitting, read just one main section and then turn to something else.

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 supported by reliable science? Assess conclusions. Are there alternative explanations?

In class, listen 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.*"

Overlearn. Psychology tells us that overlearning improves retention. We are prone to overestimating how much we know. You may understand a unit as you read it, but by devoting extra study time to testing yourself and reviewing what you think you know, you will retain your new knowledge long into the future.

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.

While exploring psychology, you will learn much more than effective study techniques. 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. Through 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."

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

UNIT REVIEW: Psychology's History and Approaches

What Is Psychology?

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 powers 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*.

2: When and how did modern psychological science begin?

Psychological science had its modern beginning with the first psychological laboratory, founded in 1879 by German philosopher and physiologist Wilhelm Wundt, and from the later work of other scholars from several disciplines and many countries.

3: How did psychology continue to develop from the 1920s through today?

Having begun as a "science of mental life," psychology evolved in the 1920s into the "scientific study of observable behavior." After rediscovering the mind, *psychology* since the 1960s has been widely defined as the *science of behavior and mental processes*.

Contemporary Psychology

4: What is psychology's historic big issue?

Psychology's biggest and most enduring issue concerns the relative contributions and interplay between the influences of *nature* (genes) and *nurture* (all other influences, from conception

to death). Today's science emphasizes the interaction of genes and experiences in specific environments.

5: What are psychology's levels of analysis and related perspectives?

The *biopsychosocial approach* integrates information from the biological, psychological, and social-cultural *levels of analysis*. Psychologists study human behaviors and mental processes from many different perspectives (including the *biological, evolutionary, psychodynamic, behavioral, cognitive, and social-cultural perspectives*, and the historically influential *humanistic approach*).

6: What are psychology's main subfields?

Psychology's subfields encompass *basic research* (often done by biological, *developmental*, cognitive, *educational*, *personality*, and *social psychologists*), *applied research* (sometimes conducted by *industrial-organizational* and *human factors psychologists*), and clinical science and applications (the work of *counseling psychologists* and *clinical psychologists*). *Psychometric* psychologists study measurement methods. Clinical psychologists study, assess, and treat (with psychotherapy) people with psychological disorders. *Psychiatrists* also study, assess, and treat people with disorders, but as medical doctors, they may prescribe drugs in addition to psychotherapy.

7: How can psychological principles help you as a student?

Research has shown that learning and memory are enhanced by active study. The SQ3R study method—survey, question, read, rehearse, and review—applies the principles derived from this research.

Terms and Concepts to Remember

empiricism, p. 3
structuralism, p. 4
functionalism, p. 5
experimental psychology, p. 6
behaviorism, p. 6
humanistic psychology, p. 6
cognitive neuroscience, p. 7
psychology, p. 7
nature-nurture issue, p. 8
natural selection, p. 8
levels of analysis, p. 10

biopsychosocial approach, p. 10
biological psychology, p. 10
evolutionary psychology, p. 10
psychodynamic psychology, p. 10
behavioral psychology, p. 10
cognitive psychology, p. 10
social-cultural psychology, p. 10
psychometrics, p. 12
basic research, p. 13
developmental psychology, p. 13
educational psychology, p. 13

personality psychology, p. 13
social psychology, p. 13
applied research, p. 13
industrial-organizational (I/O) psychology, p. 13
human factors psychology, p. 13
counseling psychology, p. 13
clinical psychology, p. 13
psychiatry, p. 13
SQ3R, p. 14

AP* Practice Test Questions

Multiple-Choice Questions

1. Which perspective would most likely explain anger as "an outlet for unconscious hostility"?
 - a. Social-cultural
 - b. Psychodynamic
 - c. Behavioral
 - d. Functionalist
 - e. Biological
2. The debate on the relative contributions of biology and experience to human development is most often referred to as
 - a. evolutionary analysis.
 - b. behaviorism.
 - c. the cognitive revolution.
 - d. the nature-nurture issue.
 - e. natural selection.
3. Which of the following professionals is also a medical doctor?
 - a. Psychiatrist
 - b. Psychologist
 - c. Clinician
 - d. Counselor
 - e. Biologist
4. SQ3R is an acronym for a study method that includes survey, question, read, rehearse, and
 - a. rigor.
 - b. recite.
 - c. response.
 - d. review.
 - e. reserve.
5. Which of the following psychologists would most likely explore how we view and affect each other?
 - a. Developmental
 - b. Biological
 - c. Social
 - d. Cognitive
 - e. Personality
6. For behaviorists, psychological science is rooted in
 - a. introspection.
 - b. observation.
 - c. cultural influences.
 - d. growth potential.
 - e. basic needs.
7. Which of the following psychologists would most likely conduct psychotherapy?
 - a. Biological
 - b. Clinical
 - c. Industrial-organizational
 - d. Cognitive
 - e. Evolutionary
8. The study of mental activity linked with brain activity best describes
 - a. humanistic psychology.
 - b. Gestalt psychology.
 - c. cognitive neuroscience.
 - d. the psychodynamic perspective.
 - e. the evolutionary perspective.
9. The first psychological laboratory, opened in 1879, belonged to
 - a. Charles Darwin.
 - b. Sigmund Freud.
 - c. René Descartes.
 - d. Wilhelm Wundt.
 - e. William James.
10. The _____ school of psychology focused on how mental and behavioral processes enable us to adapt and flourish.
 - a. Functionalist
 - b. Structuralist
 - c. Behavioral
 - d. Humanistic
 - e. Psychodynamic
11. The study of current environmental influences and the importance of satisfying the needs for love and acceptance best describe which school of psychology?
 - a. Humanistic
 - b. Behavioral
 - c. Psychodynamic
 - d. Structuralist
 - e. Functionalist
12. Which of the following is the best example of applied research?
 - a. Investigating basic human traits.
 - b. Using psychological concepts to boost morale and productivity.
 - c. Experimenting with how we perceive stimuli.
 - d. Studying the changing abilities of a child from age 2 to age 5.
 - e. Exploring the mind-brain connections in adolescents.
13. Self-reflective introspection (looking inward) to discern the elements of experience best describes a technique used by
 - a. Darwinists.
 - b. empiricists.
 - c. structuralists.
 - d. behaviorists.
 - e. ancient Greek philosophers.
14. Which perspective would most look at how our *interpretation* of a situation affects how we react to it?
 - a. Psychodynamic
 - b. Cognitive
 - c. Biological
 - d. Social-cultural
 - e. Evolutionary
15. The science of behavior and mental processes best defines
 - a. philosophy.
 - b. cognitive neuroscience.
 - c. basic research.
 - d. applied research.
 - e. psychology.

Free-Response Question

Psychology has a variety of complementary yet incomplete perspectives that help us understand behavior. How might each of the following perspectives explain aggression?

- Biological
- Cognitive
- Evolutionary
- Social-cultural

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