

Prologue:

The Story of Psychology



The Story of Psychology

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 enralls us. Enter psychological science.

For people whose exposure to psychology comes from popular books, magazines, TV, and the Internet, 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?*

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

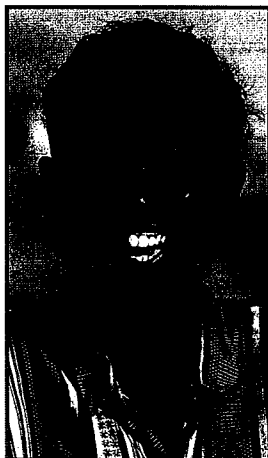
Close-Up: Tips for Studying
Psychology

"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



John Lund/Sam Diephuis/Blend Images/Corbis



Megapress/Alamy



Aniëne Van Zandt/Lonely Planet Images

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.

- 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?*
- 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?*"

Psychological Science Is Born

1: When and how did psychological science begin?

To be human is to be curious about ourselves and the world around us. Before 300 B.C., the Greek naturalist and philosopher Aristotle theorized about learning and memory, motivation and emotion, perception and personality. Today we chuckle at some of his guesses, like his suggestion that a meal makes us sleepy by causing gas and heat to collect around the source of our personality, the heart. But credit Aristotle with asking the right questions.

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* and *functionalism*, described here, and three schools

• 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. •

• 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. •

described in later chapters: Gestalt psychology (Chapter 6), behaviorism (Chapter 7), and psychoanalysis (Chapter 13).

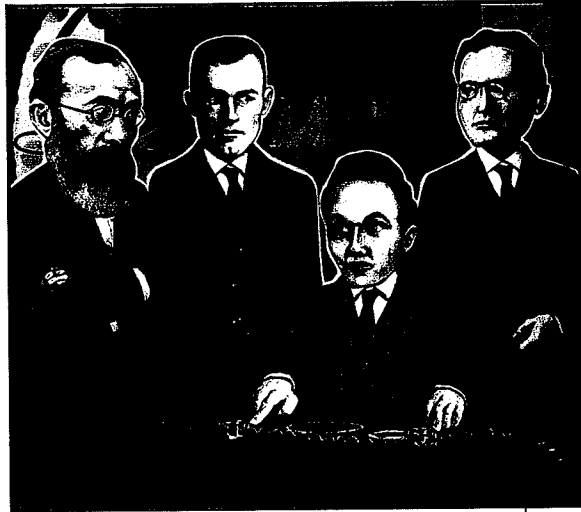
Thinking About the Mind's Structure

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

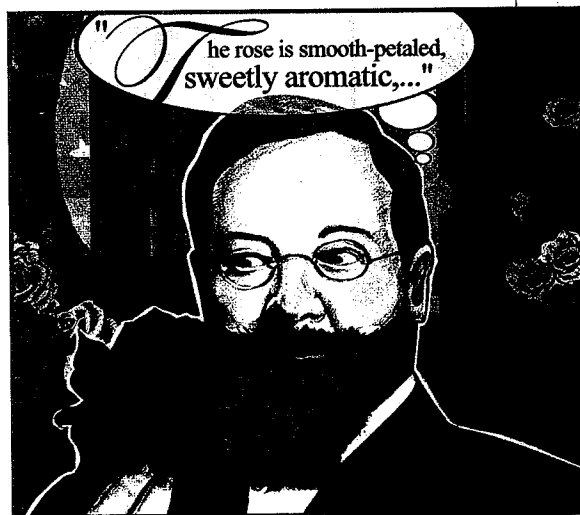
Unlike those hoping to assemble the structure of mind from simple elements—which was rather like trying to understand a car by examining its disconnected parts—philosopher-psychologist William James thought it more fruitful to consider the evolved *functions* of our thoughts and feelings. Smelling is 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.



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

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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.



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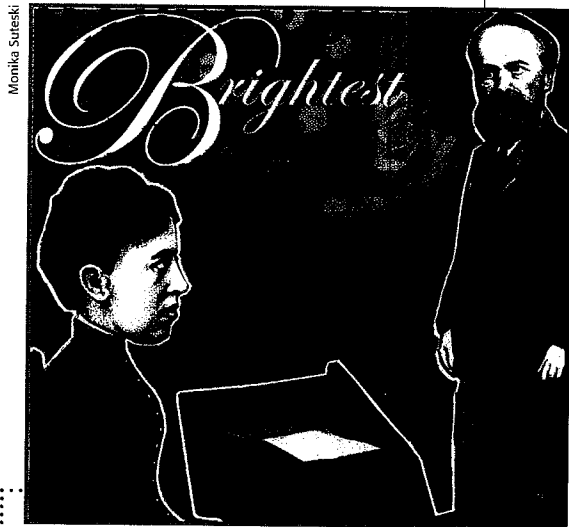
Edward Bradford Titchener Titchener used introspection to search for the mind's structural elements.

"You don't know your own mind."

Jonathan Swift,
Polite Conversation, 1738

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.



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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 Suteski

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

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 was reportedly one of the first American professors to solicit end-of-course student evaluations of his teaching. 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 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 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 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 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

2: 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 Russ-

ian physiologist. Sigmund Freud, who developed an influential 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.

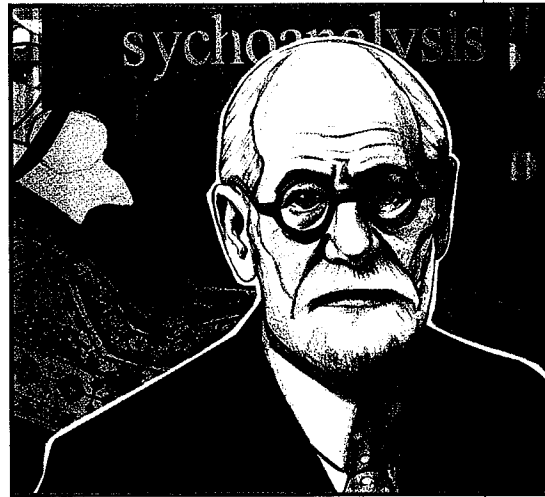
The rest of the story of psychology—the subject of this book—develops at many levels. With activities ranging from the study of nerve cell activity to the study of international conflicts, *psychology* is not easily defined.

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 Chapter 7.)

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 Chapter 13.)

In the 1960s, another movement emerged as psychology began to recapture its initial interest in mental processes. This *cognitive revolution* supported ideas developed by 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 Chapters 14 and 15.



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



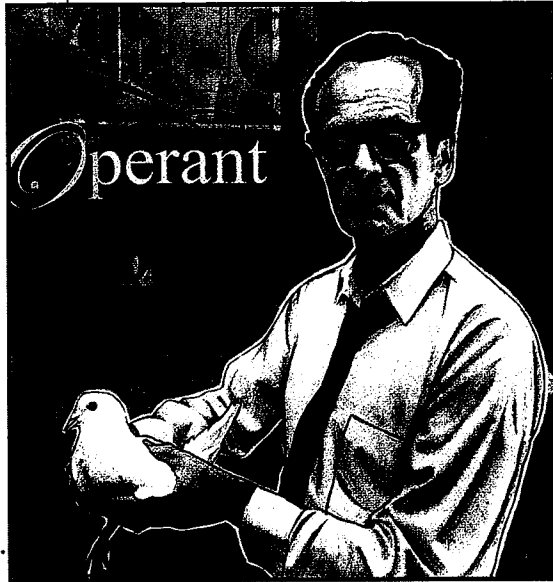
John B. Watson and Rosalie Rayner: Working with Rayner, Watson championed psychology as the science of behavior and demonstrated conditioned responses on a baby who became famous as "Little Albert." ▲

::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).

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

⊗ 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 B at the end of the book. ⊗

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 scientific psychology?

Answers to the Test Yourself Questions can be found in Appendix B at the end of the book.

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; in 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

3: 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 (and the focus of Chapter 4) is the **nature-nurture issue**—the controversy over the relative contributions of biology and experience. The origins of this debate are ancient. Do our human traits develop through experience, or are we born with them? The Greek philosopher Plato (428–348 B.C.) assumed that character and intelligence are largely inherited and that certain ideas are inborn. Aristotle (384–322 B.C.) countered that there is nothing in the mind that does not first come in from the external world through the senses. In the 1600s, European philosophers rekindled the debate. John Locke rejected the notion of inborn ideas, suggesting that the mind is a blank sheet on which experience writes. René 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 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 nearly 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



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

:: psychology the science of behavior and mental processes.

:: 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.

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



Mich Diamond/Alamy



Gary Parker/Photo Researchers Inc.

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

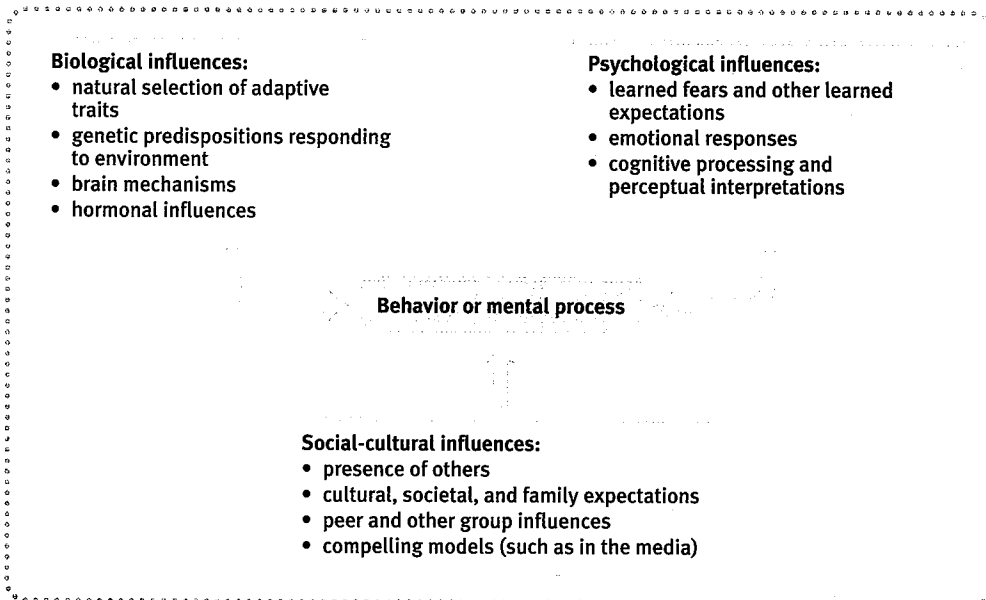
4: What are psychology's levels of analysis and related perspectives?

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 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).

► **FIGURE 1**

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



Each level provides a valuable vantage point for looking at behavior, yet each by itself is incomplete. Like different academic disciplines, psychology's varied 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 complement one another. Consider, for example, how they shed light on anger.

- Someone working from a *neuroscience perspective* might study brain circuits that cause us to be “red in the face” and “hot under the collar.”
- Someone working from the *evolutionary perspective* might analyze how anger facilitated the survival of our ancestors' genes.
- Someone working from the *behavior genetics perspective* might study how heredity and experience influence our individual differences in temperament.
- 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 *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.

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

::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.



David Madison/Corbis

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



TABLE 1

PSYCHOLOGY'S CURRENT PERSPECTIVES

Perspective	Focus	Sample Questions
Neuroscience	How the body and brain enable emotions, memories, and sensory experiences	How are messages transmitted within the body? How is blood chemistry linked with moods and motives?
Evolutionary	How the natural selection of traits promoted the survival of genes	How does evolution influence behavior tendencies?
Behavior genetics	How much our genes and our environment influence our individual differences	To what extent are psychological traits such as intelligence, personality, sexual orientation, and vulnerability to depression attributable to our genes? To our environment?
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 most effective 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?
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?

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"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."

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

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.

Psychology's Subfields

5: 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 keyboard 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 traveler 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 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.

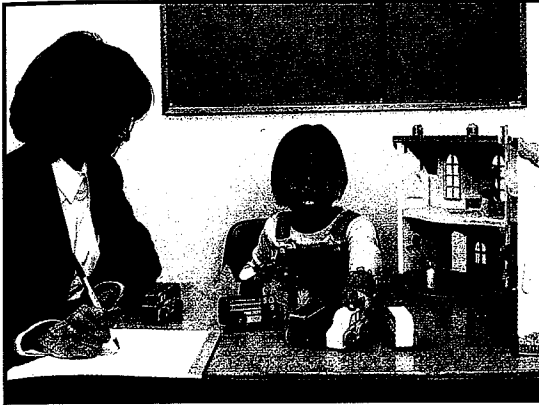
Some psychologists conduct **basic research** that builds psychology's knowledge base. In the pages that follow we will meet a wide variety of such researchers, including

- *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.
- *personality psychologists* investigating our persistent traits.
- *social psychologists* exploring how we view and affect one another.

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.

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 adminis-

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ter 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.)

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 theological seminaries, 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, 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 B at the end of the book.

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

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.

◉ **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.** ◉

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

Oliver Wendell Holmes, 1809–1894

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

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

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

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

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

CLOSE-UP

Tips for Studying Psychology

6: 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 Chapter 8, 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 chapter, first *survey*, taking a bird's-eye view. Scan the headings, and notice how the chapter is organized.

As you prepare to read each section, use its heading or learning objective 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 chapter (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 chapter's organization, and quickly review the whole chapter.

Survey, question, read, rehearse, review. I have organized this book's chapters to facilitate your use of the SQ3R study system. Each chapter begins with a chapter 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 chapter *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 . . .

Five additional study tips may further boost your learning:

Distribute your study time. One of psychology's oldest findings is that *spaced practice* promotes better retention than *massed practice*. You'll remember material better if you space your time over several study periods—perhaps one hour a day, six days a week—rather than cram it into one long study blitz. For example, rather than trying to read an entire chapter in a single sitting, read just one main section and then turn to something else.

Spacing your study sessions requires a disciplined approach to managing your time. (Richard O. Straub explains time management in the helpful *Study Guide* that accompanies this text.)

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? Correlational? Experimental? Assess conclusions. Are there alternative explanations?

In class, listen actively. Listen for the main ideas and subideas of a lecture. *Write them down*. Ask questions during and after class. In class, as in your private study, 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 chapter 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 instructor 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 objective 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.

CHAPTER REVIEW: The Story of Psychology

What Is Psychology?

1: When and how did 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.

2: 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

3: 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.

4: 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 neuroscientific, evolutionary, behavior genetics, psychodynamic, behavioral, cognitive, and social-cultural perspectives).

5: What are psychology’s main subfields?

Psychology’s subfields encompass *basic research* (often done by biological, developmental, cognitive, personality, and social psychologists), *applied research* (sometimes conducted by industrial/organizational psychologists), and clinical science and applications (the work of *counseling psychologists* and *clinical psychologists*). 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.

6: 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

structuralism, p. 3
 functionalism, p. 3
 behaviorism, p. 5
 humanistic psychology, p. 5
 cognitive neuroscience, p. 5
 psychology, p. 6

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