



Key Question Chapter Outline

What Is Psychology—and What Is It *Not*?

Psychology and Critical Thinking
What Do Psychologists Do?

What Are Psychology's Historical Roots?

Structuralism: Focus on Structure—
and the Founding of Scientific
Psychology

Functionalism: Focus on Function

Gestalt Psychology: Focus on the
Whole Instead of the Parts

Behaviorism: Eliminate the Mind and
Focus on Behavior

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Unconscious Mind

What Are the Perspectives Psychologists Use Today?

Biological View

Developmental View

Cognitive View

Psychodynamic View

Humanistic View

Behavioral View

Sociocultural View

Evolutionary/Sociobiological View

Trait View



CORE CONCEPTS



Psychology is a broad field with many specialties, but fundamentally, psychology is the scientific study of behavior and mental processes.



Modern psychology developed from several conflicting traditions, including structuralism, functionalism, Gestalt psychology, behaviorism, and psychoanalysis.



Nine main perspectives characterize modern psychology: the biological, developmental, cognitive, psychodynamic, humanistic, behavioral, sociocultural, evolutionary/sociobiological and trait views.



Psychology in Your Life

Knowing the Difference between a Psychologist and a Psychiatrist

Psychologists are not always therapists—nor are they physicians.

An Introspective Look at the Necker Cube

This famous figure changes only in your mind.

Psychology as a Major

To call yourself a psychologist, you'll need graduate training.

USING PSYCHOLOGY TO LEARN PSYCHOLOGY:
Studying with Key Questions and Core Concepts

Introduction and History of Psychology

PEOPLE REFERRED TO HIM as Clever Hans because, to all appearances, he was exceptionally smart. But another characteristic made his case truly remarkable: Hans was a horse. His celebrity grew from public demonstrations in which he apparently solved math problems. “What is 12 plus 7?” a bystander might ask, and Hans would tap 19 times with his hoof. He wasn’t *always* right, mind you, but most of the time Hans gave correct answers to problems involving simple addition, subtraction, multiplication, and division—even square roots. Nor were his presumed talents limited to math: When presented with questions written on large cards, Hans would spell out answers by tapping the ground to indicate letters on an alphabet board.

As Hans’s fame spread throughout Europe and America, he became the world’s most famous animal. But the scientific community, as you might expect, had its skeptics. Could a horse think and reason? Surely not. But then, how could they explain Hans’s apparent talents?

One fall day in 1904, a committee of scientists, assembled by Carl Stumpf, director of the Berlin Psychological Institute, paid a visit to Hans’s owner, Wilhelm von Osten, to investigate the matter. The group brought a variety of backgrounds to the task, including psychology, zoology, and veterinary medicine. For good measure, Stumpf also brought along a circus animal trainer and a prominent politician. For his part, Mr. Von Osten obligingly put Hans through his intellectual paces, while the committee observed. Their initial skepticism soon gave way to fascination at the horse’s performance. More





● Clever Hans

important for the committee's mission, they found no hint that von Osten was cheating.

Nevertheless, one of the committee members, psychologist Oskar Pfungst, remained suspicious. He wondered whether the horse might be responding to cues unconsciously given by von Osten. Dr. Pfungst, therefore, proposed a more controlled test of Hans's abilities. Could the horse correctly answer questions when its owner Osten did not know the answer or was out of sight? Sure enough, when von Osten was not allowed to see the written questions, Hans failed the test. Likewise, when von Osten could see the questions but was required to stand behind a curtain or otherwise outside the horse's field of vision, Hans could not answer.

Von Osten was deeply disappointed with the results. But, to his credit, he cooperated with Pfungst to find out exactly what sorts of cues the horse had been sensing. A slight lean forward served as the signal for Hans to start tapping. The "stop" sign could be a subtle straightening of von Osten's posture, a rise of his eyebrows, or even a flaring of his nostrils. Hans, it turned out, was a clever horse, indeed—clever at reading almost imperceptible physical cues. When it came to verbal and math skills, however, his abilities were just average . . . for a horse.



WHAT IS PSYCHOLOGY—AND WHAT IS IT NOT?

In a generic sense, everyone is a psychologist. We all study people, analyze their behavior, try to understand what they are thinking and feeling, and attempt to predict what they will do next. But there is a real difference between the commonsense psychology your Uncle Felix or Aunt Ethel uses in everyday life and the psychology you will learn about in the following pages. We have already glimpsed the latter in Dr. Pfungst's skeptical "show-me-the-evidence" approach. More specifically, the working definition of psychology that we will use throughout this book is a part of our Core Concept for this section of the chapter:



Psychology is a broad field with many specialties, but fundamentally, psychology is the scientific study of behavior and mental processes.

We can find the original meaning of **psychology** in the Greek roots of the word. *Psyche* means "mind"—which the ancient Greeks believed to be separate and distinct from the physical body—and the suffix *-ology* means "a field of study." Therefore, *psychology* literally means "the study of the mind." Psychologists today, however, use the broader definition that we included in our Core Concept: Psychology includes not only *mental processes* but also *behaviors*. That is to say, psychology's domain extends across both directly observable behaviors (talking, smiling, and crying, for example) and the internal mental processes that can be only indirectly observed (such as thinking, feeling, and desiring). Psychologists have not always agreed on these boundaries for their field—particularly on whether subjective mental processes could be explored by a discipline that claims to be a science.

The other important part of our definition, then, involves this scientific aspect of psychology. In brief, the *science* of psychology is based on objective, verifiable evidence obtained with the same care used by Pfungst in his study of Clever Hans.

■ **Psychology** The scientific study of behavior and mental processes.

Psychologists have set the standard for the methodology and scientific study of behaviors and mental processes. By making the **empirical approach** the standard for all psychological research, psychologists have been able to conduct studies that have changed the way we think. Giving you a more complete explanation of what we mean by the science of psychology will occupy much of the rest of the chapter.

For the moment, we want to focus on a point that is only implied in our definition of psychology: the notion that psychology is *not* mere speculation about human nature, nor is it a body of folk wisdom about people that “everybody knows” to be true. Throughout this book you will find many examples of such “commonsense” ideas that psychological science has shown to be false.

■ **Empirical approach** A study conducted via careful observations and scientifically based research.

DO IT YOURSELF!

Is It Psychological Science or Psychobabble?

“Show me the evidence!” is the rallying cry of critical thinking. This rule has not penetrated our popular culture, where books tell us that men are from Mars and women are from Venus and that some people think with the “left brain” and others with the “right brain.” In fact, much that is called psychology by the popular press and on TV is not based on science at all. Likewise, it is a good bet that you will find many volumes in the “Psychology and Self-Help” section of your local bookstore that are based on nothing more than speculation, exaggeration, or misunderstanding—what we call *pseudopsychology* and psychologist Carol Tavris (2000) more scathingly labels *psychobabble*. Whichever term you prefer, your authors hope that this book will help you spot bogus psychology for what it is.

Now, let’s put a sampling of your psychological beliefs to the test. Some of the following statements are true, and some are false. Don’t worry if you get a few—or all—of the items wrong: You will have lots of company. The point is that what so-called common sense teaches us about psychological processes may not withstand the scrutiny of a scientific test. Mark each of the following statements as “true” or “false.” (The answers are given at the end.)

- _____ 1. It is a myth that most people use only about 10% of their brains.
- _____ 2. During your most vivid dreams, your body may be paralyzed.
- _____ 3. Psychological stress can cause physical illness.
- _____ 4. The color red exists only as a sensation in the brain. There is no “red” in the world outside the brain.
- _____ 5. Bipolar (manic–depressive) disorder is caused by a conflict in the unconscious mind.
- _____ 6. The newborn child’s mind is essentially a “blank slate” on which

everything he or she will know is “written” (learned) by experience.

- _____ 7. Everything that happens to us leaves a permanent record in memory.
- _____ 8. You were born with all the brain cells that you will ever have.
- _____ 9. Intelligence is a nearly pure genetic trait that is fixed at the same level throughout a person’s life.
- _____ 10. Polygraph (“lie detector”) devices are remarkably accurate in detecting physical responses that, in the eye of a trained examiner, reliably indicate when a suspect is lying.

Answers: The first four items are true; the rest are false. Below you will find some brief explanations for each item; you will find more detail in the chapters indicated in parentheses.

1. *True:* This is a myth. We use all parts of our brains every day. (See Chapter 2, “Biopsychology and the Foundations of Neuroscience.”)
2. *True:* During our most vivid dreams, which occur during rapid eye movement sleep (REM), the voluntary muscles in our body are paralyzed, with the exception of those controlling our eyes. (See Chapter 3, “States of Consciousness.”)
3. *True:* The link between mind and body can make you sick when you are under chronic stress. (See Chapter 10, “Stress, Health, and Well-Being.”)
4. *True:* Strange as it may seem, all sensations of color are created in the brain itself. Light waves do have different frequencies, but they have no color. The brain interprets the various frequencies of light as different colors. (See Chapter 4, “Sensation and Perception.”)
5. *False:* There is no evidence at all that unconscious conflicts play a role in bipolar disorder. Instead, the evidence suggests a strong biochemical component. The disorder usually responds well to certain drugs, hinting that it involves faulty brain chemistry. Research also suggests that this faulty chemistry may have a genetic basis. (See Chapter 12, “Mental Disorders,” and Chapter 13, “Therapies for Mental Disorders.”)
6. *False:* Far from being a “blank slate,” the newborn child has a large repertoire of built-in abilities and protective reflexes. The “blank slate” myth also ignores the child’s genetic potential. (See Chapter 9, “Psychological Development.”)
7. *False:* Although many details of our lives are remembered, there is no evidence that memory records all the details of our lives. In fact, we have good reason to believe that most of the information around us never reaches memory and that what does reach memory often becomes distorted. (See Chapter 7, “Cognition.”)
8. *False:* Contrary to what scientists thought just a few years ago, some parts of the brain continue to create new cells throughout life. (See Chapter 2, “Biopsychology and the Foundations of Neuroscience.”)
9. *False:* Intelligence is the result of both heredity and environment. Because it depends, in part, on environment, your level of intelligence (as measured by an IQ test) can change throughout your life. (See Chapter 7, “Cognition.”)
10. *False:* Even the most expert polygrapher can incorrectly classify a truth-teller as a liar or fail to identify someone who is lying. Objective evidence supporting the accuracy of lie detectors is meager. (See Chapter 8, “Emotion and Motivation.”)



● Fortune tellers, astrologers, and other practitioners of pseudopsychology don't bother to verify their claims with the same care that Pfungst used to test Clever Hans.

Could some of your own beliefs be among them? We challenge you to find out by taking the quiz in the box, "Do It Yourself! Is it Psychological Science or Psychobabble?"

Psychology and Critical Thinking

The Clever Hans incident occurred over one hundred years ago. Yet people today seem as eager as ever to embrace fantastic claims—especially those of mysterious powers of the mind and supernatural influences on our personalities. For evidence, we have to look no further than the horoscope in the daily newspaper. Never mind that astrology has been thoroughly debunked (Schick & Vaughn, 2001).¹ And the same goes for graphology (the bogus science of handwriting analysis), fortune telling, and the purported power of subliminal messages in the movies or on TV to persuade us to buy certain products or vote for certain politicians. All fall under the heading of **pseudopsychology**: phony, unscientific psychology masquerading as the real thing.

One of the goals your authors have for this book is to help you differentiate between psychology and pseudopsychology—that is, to *think critically* about claims made under the name of psychology. Most people, of course, think of themselves as good thinkers—just using common sense—but, as we will see over and over again in this book, what masquerades as psychological common sense has often turned out to be wrong. "Common sense," after all, has led many people to accept uncritically the polygraph (the so-called lie detector), the superiority of certain racial groups, demonic possession as a cause of mental illness, the primitive brain operation sometimes called the "lobotomy," and the notion that horrific deeds (such as the recent torture of prisoners in Iraq) are perpetrated by just a few "bad apples."

Harmful Effects of Pseudopsychology So, what's the big deal if people want to believe such things? We—your authors, Phil, Bob, Ann, and Craig—suggest that there are two sets of problems.

First, those who uncritically accept the claims of pseudoscientific psychology risk depriving themselves of some *real* psychological insights that are even more interesting and useful. To give one example, few people realize that we humans are highly susceptible to **confirmation bias**. That is, we pay attention to events that confirm our beliefs and ignore evidence that contradicts them (Halpern, 2002). Knowledge of the confirmation bias helps us understand why, for example, astrology fans usually remember those days when the horoscope seems accurate and forget the days when it misses the mark.

The second set of problems with pseudopsychology involves the potential for more serious harm. For example, unfounded psychological beliefs (*pseudopsychology*) can waste time, money, and talent—even lives—as you will see when we discuss false "recovered memories" of sexual abuse (in Chapter 7) or when the presumption of female intellectual inferiority keeps women out of "men's jobs." Some people still don't know that psychological science long ago demonstrated that memory is not always accurate and that neither sex is intellectually inferior to the other (Neisser et al., 1996).

Pseudopsychology can also provide a fertile field for fraud. This happens when people are bilked by fortune tellers, handwriting analysts (grapholo-

■ **Pseudopsychology** Erroneous assertions or practices set forth as being scientific psychology.

■ **Confirmation bias** The tendency to attend to evidence that complements and confirms our beliefs or expectations, while ignoring evidence that does not.

¹Throughout this book you will find that we use brief citations in parentheses calling your attention to a complete bibliographic reference found in the "References" section, beginning on p. R-1, near the end of this book. These brief in-text citations give the authors' last names and the publication date. With the complete reference in hand, your library can help you find the original source.

gists), or astrologists, who claim to have special knowledge of personality. Still another form of harm (of special concern to psychologists) involves diminished public support for legitimate psychological science.

Merely raising questions about accepted pseudoscientific beliefs can sometimes be dangerous. For example, in some parts of the United States only a few decades ago, those who dared to question the presumed mental and moral inferiority of African Americans were sometimes beaten, jailed, or lynched. Even today, in many regions of the world, posing critical questions about the status of women or particular racial groups still carries dire consequences.

Dangerous Therapies: The Facilitated Communication Fiasco Yet another potential harmful consequence of pseudoscientific psychology lurks in unvalidated therapies for psychological disorders. Let's consider an example involving *facilitated communication*, a widely acclaimed treatment for *autism* (a developmental disorder that can severely impair attention, language, and social functioning) that was popular in the 1990s. The treatment (which we will explain in a moment) is based on the erroneous belief that autism sufferers can have impressive verbal abilities that lie hidden by their disorder.

In brief, facilitated communication is a method by which a helper (or *facilitator*) attempts to communicate with an autistic person by asking questions and then assisting the person to respond by typing or pointing to letters on a letter board. (You can see how this is done in the accompanying photo.) You may have already identified the problem with this method: making sure that it is the autistic person who is really responding, rather than the facilitator.

Initially, the reports on facilitated communication were promising—even enthusiastic. But some psychologists were skeptical. They pointed out that the glowing reports were simply anecdotes, lacking in strict scientific controls. They also expressed concern that the helper might be consciously or unconsciously guiding the child's hand to produce the messages. (You have probably noticed the parallels with the case of Clever Hans.)

Sure enough, when studies of facilitated communication were done under controlled conditions, the results showed the skeptics' concerns to be well founded (Cabay, 1994; Wheeler et al., 1993). When the facilitator knew the questions being asked, the autistic child would seem to give sensible answers. But when "blinders" were applied—by hiding the questions from the facilitator—the answers were inaccurate or nonsensical. In fact, the experiments that demonstrated the flaws in facilitated communication employed essentially the same design that Dr. Pfungst used almost a century before to test Clever Hans.

Sadly, even though facilitated communication had extended hope to beleaguered parents and teachers, psychological research dashed those hopes. Moreover, the consequences of an uncritical belief in facilitated communication proved worse than false hopes. Not only did the use of facilitated communication mean that more effective treatments were delayed, but many parents blamed themselves when their children did not respond as expected to the treatment (Levine et al., 1994). Worst of all may have been the false accusations of sexual abuse derived from facilitated messages thought to have come from the autistic children (Bicklen, 1990; Heckler, 1994). The controlled studies left little doubt that the messages describing abuse originated wholly in the minds of the facilitators. In the wake of these findings, the American Psychological Association (2003b) denounced facilitated communication as a failure and relegated it to the junk pile of ineffective therapies.

The Skeptical Psychologist What lesson can you, as a student of psychology, draw from the facilitated communication fiasco and from the case of Clever



● When skeptical psychologists tested the claims for facilitated communication, they found that it wasn't the autistic children who were responsible for the messages.

Hans? After all, you won't be able to run your own scientific test on every fantastic-sounding claim that comes along. We hope that you will develop a skeptical, critical attitude about reports of amazing new treatments, dramatic psychological "breakthroughs," and products that claim to help you develop "untapped potential." And we hope you will always pause to ask: Is there a simpler explanation? Has someone done a controlled test? Could the claims be merely the result of people's *expectations*—that is, could *confirmation bias* be at work? By doing so, you will have adopted the skeptical, show-me-the-evidence attitude of a good psychologist. This is exactly the approach that we will take on the journey through psychology that we begin in this chapter.

What Do Psychologists Do?

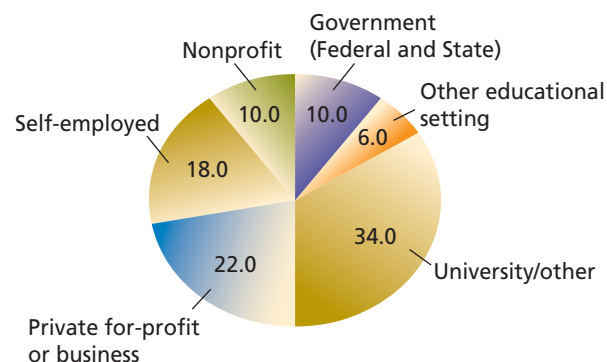
In the next few pages you will discover that psychology is a more diverse field than most people realize. Many students enroll in their first psychology course expecting that it will deal mainly with mental disorders and psychological therapies. But they soon find that psychology is also about learning, memory, perception, intelligence, personality, social interaction, thinking, emotion, and many more concepts that we will explore throughout this book. In the remainder of this section, we will first confront a stereotype about psychologists, and then we will show you three main ways to be a psychologist. After that, you will learn about some of the field's principal areas of specialization and, finally, about the difference between psychologists and psychiatrists.

Not All Psychologists Are Therapists Contrary to the popular stereotype, not all psychologists are therapists. You will find them at work almost everywhere: in education, industry, sports, prisons, government, churches, and temples, in private practice, and in the psychology departments of colleges and universities (see Figure 1.1). Psychologists also work for athletic teams, engineering firms, consulting firms, and the courts (both the judicial and the NBA variety). In these diverse settings, they perform a wide range of tasks, including teaching, research, assessment, and equipment design, as well as psychotherapy. Psychology's specialties are too numerous to cover them all here, but we can give you the flavor of the field by first dividing psychology into three broad categories.

Three Ways Of Doing Psychology Broadly speaking, we can divide psychology into three main branches or categories: *experimental psychology*, *teaching of psychology*, and *applied psychology*. **Experimental psychologists** are the workhorses who do the basic research in psychology. Most are faculty members at a college or university. This group, also called *research psychologists*, is the smallest of the three major branches of psychology (Frincke & Pate, 2004).

■ **Experimental psychologists**
Psychologists who do research on basic psychological processes—as contrasted with applied psychologists; also called *research psychologists*.

● **FIGURE 1.1** Work Settings of Psychologists
(Updated information from *Employed Doctoral Scientists and Engineers, by Sector of Employment, Broad Field of Doctorate and Sex: 2001*, National Science Foundation.)



The second category, **teachers of psychology**, overlaps with the experimentalists, because most researchers also teach classes at the colleges or universities where they do their experimental work. Increasingly, however, large numbers of psychologists are hired by high schools, colleges, and universities primarily to teach. Community colleges alone employ some 9000 psychologists in teaching positions across the United States (Johnson & Rudmann, 2004).

Applied psychologists use the knowledge developed by experimental psychologists to tackle human problems, such as training, equipment design, and psychological treatment. Applied psychologists work in a wide variety of places such as schools, clinics, factories, social service agencies, airports, hospitals, and casinos. All told, some 64% of the doctoral-level psychologists in the United States work primarily as applied psychologists, and that percentage has been steadily increasing since the 1950s (Kohout & Wicherski, 2000; Rosenzweig, 1992; Stapp et al., 1985).

Applied Psychological Specialties What, exactly, do applied psychologists do? Here are profiles of some of the most popular applied specialties:

- *Industrial and organizational psychologists* (often called *I/O psychologists*) specialize in modifying the work environment to maximize productivity and morale. Some I/O psychologists develop interview and testing procedures to help organizations select new employees; some develop programs to train and retain employees; and others specialize in market research.
- *Sports psychologists*, as you might expect, work with athletes to help them maximize their performance. They deal with enhancing motivation, controlling emotions under pressure, and planning practice sessions. Many major sports franchises have sports psychologists on staff.
- *Engineering psychologists* work at the interface between people and equipment. Some design devices, such as control panels or airplane instrument displays, for easy and reliable human use. Some do psychological detective work to discover what went wrong in accidents attributed to “human error.” Engineering psychologists are usually employed by private industry or the government and often work on a team with other scientists.
- *School psychologists* have expertise in the problems of teaching and learning. Typically, they work for a school district, where they diagnose learning and behavior problems and consult with teachers, students, and parents. School psychologists may spend a good deal of time administering, scoring, and interpreting psychological tests.
- *Rehabilitation psychologists* serve with physicians, nurses, counselors, and social workers on teams that may treat patients with both physical and mental disorders, such as stroke, spinal cord injury, alcoholism, drug abuse, or amputation. Some work in a hospital setting. Others work for social service agencies and for sheltered workshops that provide job training for people with disabilities.
- *Clinical psychologists* and *counseling psychologists* work with people who have problems with social and emotional adjustment or those who face difficult choices in relationships, careers, or education. About half of all doctoral-level psychologists list clinical or counseling psychology as their specialty (American Psychological Association, 2003c). The clinician is more likely to have a private practice involving psychological testing and long-term therapy, while the counselor is more likely to work for an agency or school and to spend fewer sessions with each client.

More information on the career possibilities in psychology can be found in *Careers in Psychology for the Twenty-First Century*, published by the American Psychological Association (2003a).

■ **Teachers of psychology**

Psychologists whose primary job is teaching, typically in high schools, colleges, and universities.

■ **Applied psychologists**

Psychologists who use the knowledge developed by experimental psychologists to solve human problems.



PSYCHOLOGY IN YOUR LIFE: KNOWING THE DIFFERENCE BETWEEN A PSYCHOLOGIST AND A PSYCHIATRIST

Students sometimes worry that their psychology professors are going to “psychoanalyze” them. Apparently, they believe that psychologists stand ever vigilant—just waiting for signs of mental disorder to appear. To put your mind at rest, this is only a stereotype: People commonly think that all psychologists are *clinical* psychologists—but you have already learned that isn’t true. In fact, many psychologists have no training at all in the diagnosis and treatment of mental disorders.

One other point of confusion blurs the public image of psychology: the distinction between *psychology* and *psychiatry*. **Psychiatry** is a medical specialty, not a part of psychology. Psychiatrists hold MD (Doctor of Medicine) degrees and have also had specialized training in the treatment of mental and behavioral problems. Therefore, psychiatrists are licensed to prescribe medicines and to perform other medical procedures. Consequently, psychiatrists tend to view patients from a *medical* perspective. In the public mind, however, psychiatry often gets confused with clinical psychology because both professions treat people suffering from mental disorders. Psychologists like to point out that, while psychiatric training emphasizes mental illness, it gives short shrift to basic *psychological* topics, such as perception, learning, psychological testing, and developmental issues.

In contrast with psychiatry, psychology is a much broader field, encompassing many different specialties. Each specialty—such as experimental, engineering, teaching, and I/O psychology—has its own focus. As we have seen, most have nothing to do with the diagnosis and treatment of mental disorders. Moreover, while psychologists typically hold doctoral degrees, their training is not in medicine. (Only a few psychologists have taken the necessary medical coursework that qualifies them to prescribe drugs for psychological problems.) Instead, graduate training in psychology focuses on training in research methods, along with advanced study in a particular psychological specialty.

So, now you can sound smarter than most people when you talk about psychology and psychiatry. But what about the difference between a psychologist and a *psychoanalyst*? We’ll look into that in the next section.

■ **Psychiatry** A medical specialty dealing with the diagnosis and treatment of mental disorders.

CHECK YOUR UNDERSTANDING

- RECALL:** Experiments showing facilitated communication to be ineffective were similar to the experiment that exposed Clever Hans. Specifically, what did both experimental procedures have in common?
 - Neither the horse nor the autistic children could see the questions.
 - Neither Von Osten nor the facilitators could see the questions.
 - Both Hans and the autistic children were given incentives for producing correct answers.
 - In both situations, correct answers were given about half the time.
 - Intentional deceit was the goal of both experiments.
- APPLICATION:** The *confirmation bias* refers to a mental process that explains, among other things, why people
 - engage in risky behavior.
 - seek help from psychiatrists.
 - believe in astrology.
 - become autistic.
 - study psychology.
- RECALL:** Which one would be considered an applied psychologist?
 - an I/O psychologist
 - a social worker
 - a psychologist doing basic research
 - a professor of psychology at the university
 - a psychiatrist

4. **APPLICATION:** Which one of the following would be most likely to do research on learning or memory?

- a. an applied psychologist
- b. a psychiatrist
- c. an I/O psychologist
- d. a professor of psychology at the university
- e. an experimental psychologist

5. **UNDERSTANDING THE CORE CONCEPT:** Psychology is different from other disciplines, such as psychiatry, that deal with people because

- a. psychology focuses on mental disorder.
- b. psychology is a broader field, covering all aspects of behavior and mental processes.
- c. psychologists must have doctoral degrees.
- d. psychologists do research.
- e. psychology focuses only on animal research.

ANSWERS: 1. b 2. c 3. a 4. e 5. b

WHAT ARE PSYCHOLOGY'S HISTORICAL ROOTS?



People have probably always speculated about human behavior and mental processes. Written records, dating back some 25 centuries to the Greek philosophers Socrates, Plato, and Aristotle, include ideas about consciousness and madness. They observed that emotions can distort thinking and that our perceptions are merely interpretations of the external world. Most people today would probably agree with many of these ancient ideas—and so would modern psychology.

Throughout history, people have been interested in the causes of behavior. Psychology's roots can be traced back to the work and ideas of the ancient Greek philosophers. Having a strong background in the origin of these ideas will make the study of psychology much easier to understand.

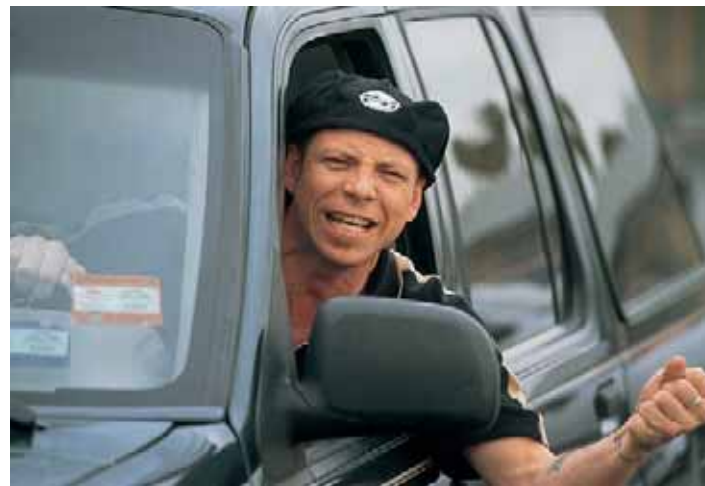
There is endless debate about the beginnings of the study of human behavior. Oftentimes the approaches of the ancient Greeks have been oversimplified and accorded only a passing mention. However, the basis for the development of Western thought has its beginnings in ancient Greece. And although there was no formal study of psychology during this time, the issues and ideas raised by the Greeks are quite similar to theories we still discuss today.

The first real glimpse of how classical philosophy became a precursor to modern psychology can be seen in the study of the philosopher Plato. Some have described Plato's quest for knowledge and understanding as the quest for perfect knowledge. Delving into areas like cognition, he was the first philosopher credited with the study of gaining knowledge (Plato, 380 B.C.)!

After Plato, the philosopher Aristotle developed theories of sensation, perception, cognition, memory, problem solving, and ethics. His approach to learning defined science until the advent of empiricism (Aristotle).

On the other hand, the Greeks also came up with some psychological notions that now seem quaint or amusing. They believed, for example, that emotions flow from the heart, the liver, and the spleen and that mental disorder could be caused by excessive bile. Following their lead, we still use the metaphor of "heartfelt" emotions, and we may "vent the spleen" when we are angry.

But we can give the Greeks only partial credit for laying the historical foundations for psychology. At roughly the same time, Asian and African societies were developing their own psychological ideas. In Asia, Yoga and Buddhism were exploring consciousness, which they attempted to control with



● The ancient Greeks believed that anger, such as we see in this enraged driver, comes from the spleen, but it never occurred to them to put their theories to a controlled test.

meditation. Meanwhile, in Africa, other explanations for personality and mental disorder were emerging from traditional spiritual beliefs (Berry et al., 1992). Based on these *folk psychologies*, shamans (healers) developed therapies rivaling in effectiveness the treatments used in Western psychology and psychiatry today (Lambo, 1978). It was, however, the Greek tradition and, later, the Roman Catholic Church that most influenced the development of Western psychology as a science.

Oddly—and significantly—it never occurred to any of the ancient thinkers to put their speculations to a test, in the same way that Pfungst tested his suspicions about Clever Hans. In the Greek mind, truth came from casual observation, logic, and the authority of experts. Then, a few hundred years later, when the medieval Church gained control of Europe, clerics sought to minimize inquiry into human nature because they had little interest in the “world of the flesh.” In fact, the Church taught that the mind and soul operate completely outside the natural laws that govern worldly objects and events. For medieval Christians, the human mind—like the mind of God—presented an unsolvable mystery.

This view prevailed until the 17th century, when French philosopher René Descartes (*Day-CART*) dared to assert that human sensations and behaviors are based on activity in the nervous system. His idea fit well with exciting new discoveries about the biology of nerve circuits in animals. For example, science had just shown how the sense organs convert stimulation into the nerve impulses and muscular responses. This discovery allowed scientists, for the first time, to see that there were biological processes (rather than mysterious spiritual forces) behind sensation and simple reflexive behaviors. Yet despite these major advances, psychology itself would not become a distinct scientific discipline for another two centuries after Descartes. As we will see, it took two revolutionary ideas to make a science of psychology possible.

Before we get to that, however, let’s take a moment to state our Core Concept for this section, which emphasizes five of the competing viewpoints that emerged in the early days of psychology, as the field struggled to become a science:



Modern psychology developed from several conflicting traditions, including structuralism, functionalism, Gestalt psychology, behaviorism, and psychoanalysis.

After you have studied this section, you should be able to explain the basic assumptions of each tradition and the issues on which they were in conflict.

Why Study the History of Psychology? The history of psychology, although it may seem like not much happened before Wundt in 1879, is rich. Knowing the philosophy that shaped the early psychologists helps us understand why they thought the way they did. In addition, it enables all of us who are students of psychology to understand how and why psychology grew into the field that it is today. Before this text, you may not have considered how Plato and Aristotle are connected to modern thought. Studying the history of psychology is important, because knowing where psychology came from gives us a better idea of where it is going.

Structuralism: Focus on Structure—and the Founding of Scientific Psychology

One of the two revolutionary ideas to shape the early development of psychology emerged in the mid-1800s. In his book *On the Origin of Species* (1859), Charles Darwin suggested a biological kinship between humans and animals.

For psychologists this would mean that discoveries about animal biology and behavior could be applied (with caution, of course) to people. So, for example, Helmholtz's pioneering research on nerve impulses in frogs helped psychologists understand human reflexes. Likewise, Darwin's insight meant that Pavlov's later work on learning in dogs could also throw light on human learning—as we shall see in Chapter 6.

The second big idea that shaped the early science of psychology arose in chemistry, where scientists had noticed patterns in properties of the chemical elements that led them to develop the *periodic table*. At one stroke, the periodic table made the processes underlying chemical reactions clear. This achievement particularly intrigued one Wilhelm Wundt, a German scientist (who, incidentally, became the first person to call himself a “psychologist”). Wundt wondered: Could a similar approach simplify our understanding of the mind? Could he discover “the elements of conscious experience”? Wundt's quest for the elements of consciousness became known as **structuralism**, because it focused on revealing the most basic “structures” or components of the mind (Fancher, 1979), rather than what consciousness (of the mind) could do.

To pursue his dream of establishing a science of consciousness, in 1879 Wundt established an institute for psychological research at the University of Leipzig. There, in a new laboratory, Wundt and his students began to conduct studies on what they supposed to be the “elements” of consciousness: sensation and perception, memory, attention, emotion, cognition, learning, and language. All our mental activity, they asserted, consisted of combinations of such basic processes. In their experiments, they presented trained volunteers with a variety of simple stimuli and asked them to respond with the press of a lever or a description of their sensations—a technique called **introspection**.

From the outset, structuralism was a magnet for critics, who attacked and ridiculed Wundt from all sides. In particular, many objected to his introspective method as being too subjective. After all, they said, how can we judge the accuracy of people's descriptions of their thoughts and feelings?

But Wundt has had the last laugh—even though structuralism no longer exists as a recognized “school” of psychology. Psychologists still rely on his introspective method for obtaining dream reports and evidence of perceptual changes, such as those you will experience in the Necker cube demonstration in the upcoming “Psychology in Your Life” section. And there is one more reason why Wundt, if he were alive today, would still be laughing: The topics that he and his students first identified and explored can be found as chapter headings in every introductory psychology text, including this one.

Functionalism: Focus on Function

One of the most vocal of Wundt's critics, the American psychologist William James, argued that structuralism's approach was far too narrow. (He also said that it was boring—which didn't help his already strained relationship with Wundt [Fancher, 1979].) James argued that psychology should include the *function* of consciousness, not just its *structure*. In a famous metaphor, he pictured



● In 1879, Wilhelm Wundt (1832–1920) founded the first formal laboratory devoted to experimental psychology. He's shown here (center) in his laboratory in Leipzig in 1912.

■ **Structuralism** A historical school of psychology devoted to uncovering the basic structures that make up mind and thought. Structuralists sought the “elements” of conscious experience.

■ **Introspection** The process of reporting on one's own conscious mental experiences.

■ **Functionalism** A historical school of psychology that believed mental processes could best be understood in terms of their adaptive purpose and function.

■ **Gestalt psychology** A historical school of psychology that sought to understand how the brain works by studying perception and perceptual learning. Gestalt psychologists believed that percepts consist of meaningful wholes (in German, *Gestalts*).

■ **Behaviorism** A historical school (as well as a modern perspective) that has sought to make psychology an objective science focused only on behavior—to the exclusion of mental processes.

a “stream of consciousness” as a mental process that had no static structure but was continually flowing, changing, and interacting with the environment. Appropriately, James’s brand of psychology became known as **functionalism**.

James found Charles Darwin’s ideas much more interesting than Wundt’s. In particular, he liked Darwin’s emphasis on organisms *adapting* to their environments. James therefore proposed that psychology should explain how people adapt—or fail to adapt—to the everyday world outside the laboratory. Recurring bouts of depression probably added to his concern with problems of everyday living (Ross, 1991).

Where did this approach lead the functionalists? Much of their work had a practical bent: They were the first *applied* psychologists. James wrote extensively on the development of learned “habits,” emotions, the psychology of religion, and teaching. Appropriately, one of his followers, John Dewey, founded the “progressive education” movement, which emphasized learning by *doing*, rather than by merely listening to lectures and memorizing facts.

Gestalt Psychology: Focus on the Whole Instead of the Parts

Another challenge to Wundt’s structuralism came from a rebellious group in his native Germany. In some respects, their approach, known as **Gestalt psychology**, was exactly the opposite of the structuralists’: The Gestalt psychologists were interested in how we construct “perceptual wholes” (or *Gestalts*, in German), such as our perception of a face, rather than just a conglomeration of lines, colors, and textures. (The structuralists, you will remember, focused on the parts, or elements of consciousness, not on the whole.) But for Gestalt psychology, understanding perception was merely the means to the even more important end of understanding how the brain works. Like both the structuralists and the functionalists, psychologists of the Gestalt “school” (or philosophical approach) relied on introspection.

Prominent Gestalt psychologists include Max Wertheimer, who studied visual illusions and ambiguous figures, such as the Necker cube, which you will see in a moment (page 14). Another psychologist, Wolfgang Köhler, extended the reach of Gestalt psychology to *insight learning*, an overlooked form of learning marked by sudden “Aha!” experiences. We will see much more of the Gestaltists in our study of perception (Chapter 4).

Behaviorism: Eliminate the Mind and Focus on Behavior

A particularly feisty group, known as the *behaviorists*, disagreed with nearly everyone. Most notably, they proposed the novel idea that consciousness should not be a part of psychology at all! John B. Watson, the leader of the behavioral movement, argued that a true and objective science of psychology should deal solely with observable events: *stimuli* from the environment and the organism’s *responses*. **Behaviorism**, said Watson, should be the science of *behavior*—not of the mind.

In general, behaviorism rejected any psychology of subjective mental processes. But, in particular, behaviorists objected to *introspection*, the practice of asking people to report on their mental experiences—a technique that the structuralists, functionalists, and Gestalt psychologists all used. Watson and his behaviorist followers cared nothing about what people were *thinking*. Instead, they wanted to know how people would *act* (for example, whether a child would respond with fear to a rabbit that, on an earlier presentation, had been accompanied by a sudden loud noise).

CONNECTION: CHAPTER 6

John Watson and his colleague *Rosalie Rayner* performed a notorious study in which they taught a young boy, *Albert*, to fear furry objects.



● Sigmund Freud (1856–1939), shown here in the office of his Vienna home, developed the psychodynamic approach to behavior.

We will encounter behaviorism again in the next section of the chapter because it is one of the ancestral lines of psychology that continues to live on in the present day.

Psychoanalysis: Focus on the Unconscious Mind

Yet another objection to Wundt’s approach to psychology came from medicine—specifically from the Viennese physician Sigmund Freud and his disciples, who were pioneering the *psychoanalytic method* of treating mental disorders. Their conceptual approach, called **psychoanalysis**, asserted that mental disorders arise from conflicts in the *unconscious* mind. Accordingly, they maintained that the definition of psychology should be expanded to include the unconscious.

Because psychoanalytic theory remains a force in modern psychology, we will talk more about Freud and his ideas later in the chapter. But for now, you should know that psychoanalysis and behaviorism outlasted structuralism, functionalism, and Gestalt psychology. Today, few would call themselves structuralists, functionalists, or Gestaltists. Yet—and this is the important point—the legacies of these early approaches, along with those of behaviorism and psychoanalytic theory, can be found woven through the fabric of modern psychology. We will return for a big-picture overview of modern psychology, a field still marked by multiple viewpoints, right after we show you how a famous image makes two profound points.

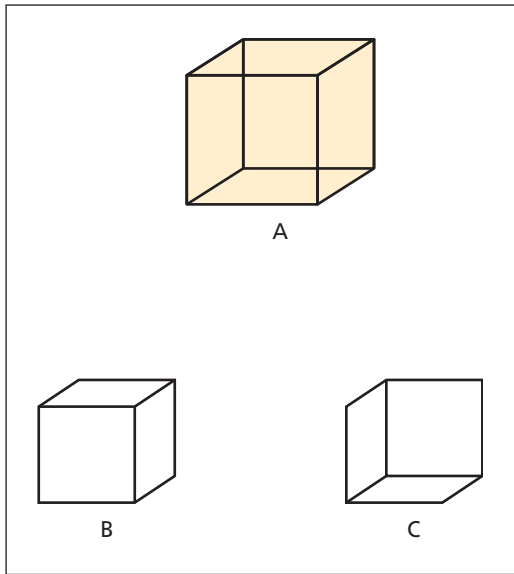
■ **Psychoanalysis** An approach to psychology based on Sigmund Freud’s assertions, which emphasize unconscious processes. The term is used to refer broadly both to Freud’s psychoanalytic theory and to his psychoanalytic treatment method.



PSYCHOLOGY IN YOUR LIFE: AN INTROSPECTIVE LOOK AT THE NECKER CUBE

The cube in Figure 1.2A will trick your eye—or, more accurately, it will trick your brain. If you look at it for a few moments, it will suddenly seem to change perspectives. For a time you may see it as if from the upper right (Figure 1.2B), and then it will abruptly shift and appear as though you were seeing it from the lower left (Figure 1.2C).

It may take a few moments to see the shift. But once you see it change, you won’t be able to prevent it from alternating back and forth, seemingly at random. Try showing the cube to a few friends and asking them what they see.



● **FIGURE 1.2** The Necker Cube Perspective

CONNECTION: CHAPTER 4

Gestalt psychologists intensely studied how individuals perceive ambiguous objects.

We feel compelled to confess that the alternating-cube phenomenon was not discovered by a psychologist. Rather, it was first noticed by Swiss geologist Louis Necker in 1832, while he was looking at cube-shaped crystals under a microscope. Since that time, it has been known in his honor as the Necker cube. For our purposes, Necker’s amazing cube illustrates two important points.

First, it illustrates the much-maligned process of *introspection*, pioneered by Wundt and his students. Please note that the only way we can demonstrate that the Necker cube changes perspectives in our minds is by having people look at it and report what they see. And why is this important to psychology? Only the hardest of the hard-core behaviorists would deny that something happens mentally within a person looking at the cube. Moreover, whatever it is involves more than simply seeing lines on a page. In fact, the Necker cube demonstrates that we add *meaning* to our sensations—a process called *perception*, which will be a main focus of a later chapter. *The take-away message is that we don’t simply sense the world as it “really” is, but we perceive it by adding our own interpretations.*

The second important point is this: The Necker cube can serve as a metaphor for the multiple perspectives in psychology. Just as there is no single right way to see the cube, there is no single perspective in psychology that gives us one right understanding of behavior and mental processes. Put another way, to understand psychology fully, we must alternately shift our viewpoints among multiple perspectives. And what are those perspectives? We will explore seven of the most important ones in the next section.

C H E C K Y O U R U N D E R S T A N D I N G

- RECALL:** The ancient Greeks’ approach to psychology was not scientific because they
 - failed to check their opinions against controlled observations.
 - were more interested in art and music than in truth.
 - believed that all truth was revealed in sacred texts given by their gods.
 - lived in an age before precise measuring instruments had been developed.
 - did not publish their results.
- RECALL:** René Descartes made a science of psychology possible when he suggested that
 - science should be based entirely on common sense rather than on religion.
 - replicability of results was essential.
 - the elements of conscious experience could be arranged into a periodic table.
 - psychology should be a branch of philosophy.
 - sensations and perceptions are the result of activity in the nervous system.
- RECALL:** One of the roots of cognitive psychology sought to identify the “elements of conscious experience.” Adherents to this viewpoint were called
 - structuralists.
 - functionalists.
 - Gestalt psychologists.
 - behaviorists.
 - psychoanalysts.
- APPLICATION:** Which of the following is a method you would use to tell whether a friend had experienced a perceptual shift while viewing the Necker cube?
 - behaviorism
 - introspection
 - structuralism
 - sensation
 - perception
- UNDERSTANDING THE CORE CONCEPT:** Modern psychology has strong roots in all of the following traditions except
 - Greek philosophy.
 - biology.
 - astrology.
 - functionalism.
 - structuralism.

ANSWERS: 1.a 2.e 3.a 4.b 5.c

WHAT ARE THE PERSPECTIVES PSYCHOLOGISTS USE TODAY?



During the past century, the picture of psychology was both enriched and complicated by ideas borrowed from many sources. The result is a field that resembles a slightly dysfunctional family, with a few common interests and lots of family squabbles. In our Core Concept we simplify this family portrait by focusing on nine especially important viewpoints:

Nine main perspectives characterize modern psychology: the biological, developmental, cognitive, psychodynamic, humanistic, behavioral, sociocultural, evolutionary/sociobiological, and trait views.



The champions of each view see behavior and mental processes in a slightly different way—much like nine artists portraying the same scene from different vantage points. You are likely to find experimental psychologists and teachers of psychology holding any of these viewpoints. Among applied psychologists who do counseling, therapy, and personnel selection work, however, the trait and clinical views predominate. As you read the following pages, you should focus on the important ideas that distinguish each view from the others.

The Biological View

The **biological view** emphasizes how our physical makeup and the operation of our brains influence our personality, preferences, behavior patterns, and abilities. More specifically, psychologists taking the biological approach search for the causes of behavior in heredity, in the nervous system and the endocrine (hormone) system, and in the effects of environmental insults such as disease (*not* insults of the other kind). As you might imagine, the biological view has strong roots in medicine and biological science. Often, the enterprise of biological psychology, along with biology, neurology, and other disciplines interested in brain processes, is referred to as **neuroscience**.

Neuroscience is a “hot” area at the moment. Thanks to spectacular advances in computers and brain-imaging techniques, neuroscientists have made amazing strides in understanding the brain during the past decade. Among their achievements, they have begun to unravel the mystery of how our eyes and brain convert light waves into vision. They have also learned how damage to certain parts of the brain can destroy specific abilities, such as speech, social skills, or memory. And they have discovered brain wave patterns associated with the hidden world of sleep and dreams.

One important variation on the biological view again draws on the ideas originally proposed by the famous British scholar and naturalist Charles Darwin. **Evolutionary psychology** suggests that many human traits arise from hereditary characteristics established in our remote ancestral past. In this view, our genetic makeup—including our most deeply ingrained behaviors—were shaped by the conditions our ancestors faced thousands of years ago.

All through the history of the species, environmental forces have pruned the human family tree, favoring the survival and reproduction of those individuals with the most adaptive mental and physical characteristics. Charles Darwin called this *natural selection*. Through this process, the physical characteristics of a species evolve (change) in the direction of characteristics that give the fittest organisms a competitive advantage.



● The biological view led to the discovery that certain patterns of brain waves are associated with the hidden world of dreams.

■ **Biological view** The psychological perspective that searches for the causes of behavior in the functioning of genes, the brain and nervous system, and the endocrine (hormone) system.

■ **Neuroscience** The field devoted to understanding how the brain creates thoughts, feelings, motives, consciousness, memories, and other mental processes.

■ **Evolutionary psychology** A relatively new specialty in psychology that sees behavior and mental processes in terms of their genetic adaptations for survival and reproduction.

Proponents of evolutionary psychology say that virtually all human behavior—even the most destructive behavior, such as warfare, homicide, and racial discrimination—has grown out of genetic tendencies that once may have helped humans adapt and survive. This approach has also suggested some highly controversial explanations for certain gender differences—why, for instance, men typically have more sexual partners than do women.

The Developmental View

Change may be the only constant in our lives. In the **developmental view**, psychological change results from an interaction between the *heredity* programmed in our genes and the experiences presented by our *environment*. A big question, however, involves the relative contributions made by our genes and by our surroundings in shaping who we become: Which counts more heavily, heredity or environment, *nature* or *nurture*?

Developmental psychologists also study how we change as we grow older and how we change by developing social skills, learning language, and assimilating the expectations of our culture. Much of their research has focused on *child* development. Increasingly, however, developmental psychologists have begun to look at how development unfolds in teens and adults. In the developmental chapter of this book, we will explore the sweeping patterns of psychological change seen across the lifespan, from before birth to old age.

The Cognitive View

The next of psychology's multiple modern perspectives suggests that our thoughts and actions arise from the way we *interpret* our experiences. From this viewpoint, understanding ourselves requires that we look in our minds, as well as at our biology.

In the **cognitive view**, our actions are profoundly influenced by the way we process information streaming in from our environment. Cognitive psychologists study all sorts of mental processes, or **cognitions**—thoughts, expectations, perceptions, and memories, as well as states of consciousness. You might think of them as the heirs to the best of the structuralist, functionalist, and Gestalt traditions.

Modern cognitive psychologists have also borrowed from linguistics the idea that our most basic language abilities are wired into our brains at birth (Pinker, 2002). From computer science they have borrowed the metaphor of the brain as a biological computer—designed as a processor of information (Gardner, 1985; Gazzaniga, 1998a; Sperry, 1988). And from medicine they have borrowed the technology that now allows visualizing the activity of the brain and connecting it to mental processes. Cognitive psychologists who are especially interested in the connections among mind, brain, and behavior have pioneered a hybrid field called **cognitive neuroscience**.

A special interest in mental health and mental disorder characterizes the **clinical view**. Most commonly, you will find its adherents practicing counseling or psychotherapy. But the two main groups that this perspective includes—*psychodynamic psychology* and *humanistic psychology*—have taken that interest in different directions.

The Psychodynamic View

The term *psychodynamic* comes from the belief that the mind (psyche) is a reservoir of energy (dynamics). Accordingly, **psychodynamic psychology** says that we are motivated primarily by the energy of irrational desires generated in our unconscious minds (Murray et al., 2000). This approach has been especially

■ Developmental view

The psychological perspective emphasizing changes that occur across the lifespan.

■ **Cognitive view** The psychological perspective emphasizing mental processes, such as learning, memory, perception, and thinking, as forms of information processing.

■ **Cognitions** Mental processes, such as thinking, memory, sensation, and perception.

■ Cognitive neuroscience

An interdisciplinary field emphasizing brain activity as information processing; involves cognitive psychology, neurology, biology, computer science, linguistics, and specialists from other fields who are interested in the connection between mental processes and the brain.

■ **Clinical view** The psychological perspective emphasizing mental health and mental illness. Psychodynamic and humanistic psychology are variations on the clinical view.

■ Psychodynamic psychology

A clinical viewpoint emphasizing the understanding of mental disorders in terms of unconscious needs, desires, memories, and conflicts.

attractive to practitioners who specialize in psychotherapy. As a result, the psychodynamic perspective has emphasized the treatment of mental disorders over scientific research.

The best-known representative of the psychodynamic approach was Sigmund Freud, who founded *psychoanalysis* (and whom we met earlier in our tour of psychology's historical "schools"). Originally a medical technique devised to treat mental disorders, psychoanalysis portrays the mind as a sort of mental boiler that holds the rising pressure of unconscious sexual and destructive desires, along with memories of traumatic events. Even today, most psychoanalysts are medical doctors with a specialty in psychiatry and advanced training in Freudian methods. (And now you know the difference between a *psychologist* and a *psychoanalyst*.)

The Humanistic View

The other main variation on the clinical view is called **humanistic psychology**. According to this perspective, our actions are hugely influenced by our self-concept and by our need for personal growth and fulfillment. Far more than the psychoanalysts, humanistic therapists emphasize the positive side of our nature: human ability, growth, and potential.

Led by the likes of Abraham Maslow (1968, 1970, 1971) and Carl Rogers (1951, 1961, 1977), humanistic psychologists have also rejected what they saw as the cold, mechanical approach of scientific psychology. In its place, they have offered a model of human nature emphasizing the free will people have to make choices affecting their lives. They have also pressed psychology to take a greater interest in feelings and the self-concept (Cushman, 1990). As you might have suspected, humanistic psychologists have not produced a great deal of scientific research, although their voluminous writings have had a major impact on the practice of counseling and psychotherapy.

The Behavioral View

A wholly different approach harks back to John Watson and the early days of psychology. *Behaviorism* says we should look for the causes of behavior in our environment rather than in our biology or our minds (Murray et al., 2000). This **behavioral view**, then, calls attention to the ways rewards and punishments shape how we act.

As we saw a few pages ago, in our discussion of psychology's historical roots, behaviorism first emerged as a revolution against the subjective methods used by Wundt, James, and others in the structuralist and functionalist traditions. In brief, the behaviorists totally reject a science of inner experience. Instead, they choose to study the person entirely from the outside, focusing only on what they can observe directly: the effects of people, objects, and events on behavior. And this is still the approach taken by hard-core behaviorists (although we will see in Chapter 6 that some renegades, calling themselves *cognitive behaviorists*, have opened behaviorism's door to mental processes). The behaviorists have made their greatest contribution by giving us a detailed understanding of how the environment affects learning—especially through rewards and punishments.

B. F. Skinner, the most influential American behaviorist, argued that the concept of "mind" has led psychology in circles, chasing something so subjective that it cannot even be proved to exist (Skinner, 1987, 1989, 1990). (Think about it: Can you prove that you have a mind?) As Skinner noted wryly, "The crucial age-old mistake is the belief that . . . what we feel as we behave is the cause of our behaving" (Skinner, 1989, p. 17).

CONNECTION: CHAPTER 10

Freud's *theory of personality* emphasized the unconscious causes of everyday behavior, as well as mental disorder.



● Humanistic psychologists are interested in discovering how self-actualizing individuals, such as Martin Luther King, Jr., are able to unleash their potential for leadership and creativity.

■ **Humanistic psychology** A clinical viewpoint emphasizing human ability, growth, potential, and free will.

■ **Behavioral view** A psychological perspective that finds the source of our actions in environmental stimuli, rather than in inner mental processes.

■ **Sociocultural view** A psychological perspective emphasizing the importance of social interaction, social learning, and a cultural perspective.

■ **Culture** A complex blend of language, beliefs, customs, values, and traditions developed by a group of people and shared with others in the same environment.

The Sociocultural View

Who could deny that people exert powerful influences on each other? The **sociocultural view** makes this idea of *social influence* the focus of psychology. Social psychologists have used this perspective to probe the mysteries of liking, loving, prejudice, aggression, obedience, and conformity.

And speaking of culture (as we were a moment ago), even social psychologists overlooked the effects of the larger social context called **culture** until recently. As a complex blend of human language, beliefs, customs, values, and traditions, culture exerts profound influences on all of us—as we can readily see by comparing people in, say, the California-Mexican culture of San Diego with the Scandinavian-based culture of Minnesota. Psychology’s blindness to culture was due, in part, to the beginnings of scientific psychology in Europe and North America, where most psychologists lived and worked under similar cultural conditions (Lonner & Malpass, 1994; Segall et al., 1998).

Now the perspective has begun to broaden. Although nearly half of the world’s half-million psychologists still live and work in the United States, it is encouraging to note that interest in psychology is also growing in countries outside of Europe and North America (Pawlik & d’Ydewalle, 1996; Rosenzweig, 1992, 1999). Even so, most of our psychological knowledge still has a North American/European flavor (Cushman, 1990). Recognizing this bias, cross-cultural psychologists have begun the long task of reexamining the “laws” of psychology across cultural and ethnic boundaries (Fowers & Richardson, 1996; Gergen et al., 1996; Segall et al., 1998; Triandis, 1994, 1995).

The Evolutionary/Sociobiological View

Do you think your ancestors 150 years ago behaved similarly to the way you and your family behave today? Did they face the same survival challenges we face in the modern world? The evolutionary/sociobiological approach to psychology examines individual behavior through the lens of natural selection. This method looks at behavior as both adaptive and hereditary. At its most basic level, this approach applies the evolutionary theories of Charles Darwin to individual behavior. In this way psychologists can trace the development of behaviors unique to specific animals, or even species-specific behavior patterns, and show how they have adaptively evolved over time. Studying the species-specific behavior patterns of animals helps us understand human behavior patterns. One key component of the evolutionary approach is that these theorists look at genetics not as the key to what makes people different, but as the means by which we have evolved, and continue to evolve, into the thinking beings we are today. Indeed, it is possible to think of evolutionary psychology as an approach, rather than a specific field of study, such as behavioral genetics.

The Trait View

The Greeks, who seem to have had their hands in almost everything, proclaimed that our personalities are ruled by four body *humors* (fluids): blood, phlegm, melancholy, and yellow bile. Depending on which fluid is most abundant, the individual’s personality might be sanguine (dominated by blood), slow and deliberate (phlegm), melancholy (melancholy), or angry and aggressive (yellow bile).



● Cross-cultural psychologists, such as this researcher in Kenya, furnish important data for checking the validity of psychological knowledge.

We no longer buy into the ancient Greeks' typology, of course, but their idea of personality traits lives on in modern psychology, especially among psychologists interested in personality and personality testing. *Traits*, to a psychologist, are long-lasting personality characteristics, such as introversion or extraversion—as contrasted with temporary mood states. This **trait view** is common among psychologists who do mental testing, including clinical, counseling, and I/O psychologists.

The trait view is widely embraced by experimentalists and teachers of psychology, especially among those who are interested in the field of personality. We will see later in the book that proponents of this trait perspective have identified five major personality dimensions, cleverly named the *Big Five*. Significantly, these dimensions have proved to be valid for classifying people living in virtually any culture around the world.

To summarize the perspectives we have just covered, please have a look at Table 1.1. There you will find an overview of the main viewpoints that make

CONNECTION: CHAPTER 10

People's personalities differ on five major trait dimensions, cleverly called the *Big Five*.

■ Trait view A psychological perspective that views behavior and personality as the products of enduring psychological characteristics.

TABLE 1.1 Nine Major Perspectives in Modern Psychology			
Perspective	Overview	What Determines Behavior?	Problems and Questions for Study
Biological	We are essentially complex biological systems that respond to both hereditary and environmental influences. This view includes <i>evolutionary psychology</i> .	Behavior is determined by brain structure and chemicals, and by inborn responses to external cues for survival and reproduction.	How do heredity, the nervous system, and the endocrine system produce behavior and mental processes? Evolutionary psychologists seek to learn how behaviors may be linked to evolutionary changes that conferred a survival or reproductive advantage on our ancestors.
Developmental	People undergo predictable patterns of change throughout their lives.	Behavior is determined by the interaction of nature and nurture (heredity and environment).	What are the patterns that characterize developmental change? What are the genetic and environmental influences underlying these patterns?
Cognitive	People are information-processing systems.	Behavior is the result of our mental interpretations of our experience.	How do mental processes, including sensation, perception, learning, memory, and language, influence behavior?
Psychodynamic	<i>Psychodynamic psychology</i> emphasizes dark forces in the unconscious.	Psychodynamic theory sees behavior as arising from unconscious needs, conflicts, repressed memories, and childhood experiences.	How does the energy generated in the unconscious mind motivate our actions and account for mental disorders?
Humanistic	<i>Humanistic psychology</i> emphasizes human growth and potential.	Humanistic theory focuses on the influence of self-concept, perceptions, and interpersonal relationships, and on need for personal growth.	How can humanistic theory be applied to enhance mental health through counseling and therapy?
Behavioral	Our behavior is primarily shaped by learning.	In accordance with the laws of behavioral learning, we respond to stimulus cues and to our history of rewards and punishments.	What are the “laws” that associate our responses with stimulus conditions? How can they be applied to improve the human condition?
Sociocultural	People are social animals, so human behavior must be interpreted in its social context.	Behavior is heavily influenced by culture, by social norms and expectations, and by social learning.	Under what conditions is the social and cultural situation predictive of behavior? How are social influences different across cultures?
Evolutionary/Sociobiological	Behavior has developed and adapted over time.	Behavior is determined by natural selection.	How do behavior and individual differences develop and change?
Trait	Individual differences result from differences in our underlying patterns of stable characteristics (traits).	Behavior results from each person's unique combination of traits.	How many fundamental traits are there? How can we use trait patterns to predict behavior?

up the spectrum of modern psychology. A few moments taken to fix these perspectives in your mind will pay big dividends in your understanding of the chapters that follow, where we will refer to them often.

The Changing Face of Psychology

Modern psychology is a field in flux. Over the last several decades, the biological, cognitive, and developmental perspectives have become dominant. And among psychologists espousing a sociocultural perspective, those who put the emphasis on culture are gaining ascendancy. Meanwhile, the behavioral camp seems to be losing ground, as are the Freudian folk, among those holding the clinical perspective. We also call your attention to an especially noteworthy trend among psychologists who are women and members of minority groups.

Ethnic minorities—especially Asians, African Americans, and Latinos—are becoming psychologists in increasing numbers (Kohout, 2001). Even more striking is the new majority status of women in psychology. In 1906, only 12% of American psychologists were women, according to a listing in *American Men of Science* (named with no irony intended). By 1921 the proportion had risen above 20%. And now, women receive approximately two-thirds of the new doctorates awarded in psychology each year (Kohout, 2001).

Although psychology has always included a higher proportion of women than any of the other sciences, women have too often found gender-related biases in their psychological career paths (Furumoto & Scarborough, 1986). For example, G. Stanley Hall, one of the pioneers of American psychology, maintained that academic work would ruin a woman's health and cause deterioration of her reproductive organs. Nevertheless, as early as 1905 the American Psychological Association elected its first female president, Mary Whiton Calkins (Furumoto, 1991). Calkins had earlier been denied a doctorate by Harvard University because of her gender, even though she had completed all the requirements. In these early days of psychology, as in all fields of science, women were pressured to choose between marriage and career. Amazingly, even those who managed a career were usually limited to teaching at women's colleges, positions with less prestige. Still, they made important contributions to their developing field, as you can see in a sampling presented in Table 1.2.

TABLE 1.2 Early Contributions Made by Women in Psychology

	Research Area	Institutional Affiliation
Christine Ladd Franklin	logic and color vision	Johns Hopkins University
Kate Gordon	memory and attention	Mt. Holyoke, Carnegie Tech.
Julia Gulliver	dreams and the subconscious self	Rockford University
Alice Hinman	attention and distraction	University of Nebraska
Lillien Martin	psychophysics	Wellesley College
Anna McKeag	pain	Bardwell School
Naomi Norsworthy	abilities of the child	Columbia Teachers College
Millicent Shinn	child development	unaffiliated
Helen Thompson	mental traits	Mt. Holyoke College
Margaret Washburn	perception	Vassar College
Mabel Williams	visual illusions	unaffiliated

Source: The 1906 edition of *American Men of Science*.



PSYCHOLOGY IN YOUR LIFE: PSYCHOLOGY AS A MAJOR

Becoming a full-fledged psychologist requires substantial training beyond the bachelor's degree. The psychology graduate student takes advanced classes in one or more specialized areas and develops skills as a scholar, researcher, or even practitioner. Upon completion of the program, the student receives a master's or doctor's degree, typically a PhD (Doctor of Philosophy), an EdD (Doctor of Education), or a PsyD (Doctor of Psychology).

Satisfying careers are available, however, at various levels of education in psychology. In most states, a license to practice psychology requires a graduate degree (usually a doctorate) and a supervised internship. Most college and university teaching or research jobs in psychology also require a doctorate.

A master's degree, typically requiring two years of study beyond the bachelor's level, may qualify you for employment as a psychology instructor at the high school level or as an applied psychologist in certain specialties, such as counseling. Master's-level psychologists are common in human service agencies, as well as in private practice (although many states do not allow them to advertise themselves as "psychologists"). In addition, many practitioners with master's degrees in the related field of social work offer therapy for emotional problems.

Holders of associate degrees and bachelor's degrees in psychology or related human services fields may find jobs as psychological aides and technicians in agencies, hospitals, nursing homes, and rehabilitation centers. If this is your goal, however, you should know that salaries at this level are relatively low (Kohout, 2000). A bachelor's degree in psychology, coupled with training in business or education, can also lead to interesting careers in personnel management or education.

Aside from studying to be a psychologist, some students aspire to be psychiatrists. To become a psychiatrist, a student must graduate from college, go to medical school for an MD (Doctor of Medicine), and then complete an extensive residency and training program. It takes about the same amount of time to become a psychiatrist as to become a psychologist, but psychiatrists and psychologists serve different purposes. Only psychiatrists can engage in "true" psychoanalysis or prescribe medication.

If you would like further information about job prospects and salary levels for psychologists, the U.S. Department of Labor's *Occupational Outlook Handbook* is a good place to start. Your high school's career or counseling center probably has a copy.

CHECK YOUR UNDERSTANDING

- APPLICATION:** Which of the following approaches to psychology would say that the differences between the behavior of males and females are the result of different survival and reproduction issues faced by the two sexes?
 - psychoanalytic theory
 - evolutionary/sociobiological psychology
 - the trait view
 - the sociocultural perspective
 - the biological view
- RECALL:** Mental processes such as perception, thinking, and remembering are sometimes called
 - social cues.
 - affective events.
 - neural nets.
 - dependent variables.
 - cognition.

(continues)

3. **APPLICATION:** If you were a teacher trying to understand how students learn, which of the following viewpoints would be most helpful?

- a. the cognitive view
- b. psychoanalytic theory
- c. evolutionary psychology
- d. the trait view
- e. the developmental view

4. **UNDERSTANDING THE CORE CONCEPT:** In which one of the following sets are *all* factors associated with the perspective indicated?

- a. memory, personality, environment: the behavioral perspective
- b. changes through the lifespan, changes as the result of mental disorders, changes as a result of social pressure: the developmental perspective
- c. mental health, mental disorder, mental imagery: the trait perspective
- d. neuroscience, evolutionary psychology, genetics: the biological perspective
- e. sensation, perception, memory: the psychoanalytic perspective

ANSWERS: 1. b 2. e 3. a 4. d

USING PSYCHOLOGY TO LEARN PSYCHOLOGY

Studying with Key Questions and Core Concepts

In this book, your authors have attempted to help you find meaningful patterns that will aid you in making a mental map (sometimes called a *cognitive map*) of every chapter. To do so, we have built in many learning devices. Among the most important are the Key Questions and the Core Concepts. Let us show you how using these features can make your study of psychology easier.

The Key Questions, which take the place of the familiar section headings in each chapter, give you a “heads up” by signaling what to watch for as you read. For example, one of the Key Questions from this chapter asked, “What are the perspectives psychologists use today?” It alerted you to the idea that psychologists have some special ways of looking at mind and behavior that are different from those used in the past. You are much more likely to remember these new concepts if you approach them with an appropriate question in mind (Bransford et al., 1986; Brown & Campione, 1986; Glaser, 1984). You can also use the Key Question as a review-check of your understanding of each section before the next test. If you have a study partner, try asking each other to give detailed answers to the key questions.

You can think of Core Concepts as brief responses to the Key Questions. They also highlight the central idea in each chapter section—as previews of coming attractions. It is important to realize that a Core Concept is not a complete answer but a capsule summary

of ideas to be fleshed out. As you come to understand the meaning of a Core Concept, you will see that the details of the section—the terms, names, and important research—will fall easily into place. And to reinforce your understanding, it is a good idea to revisit the Core Concept after you have finished reading the section. In fact, this is precisely what the brief end-of-section quizzes (Check Your Understanding) are designed to do.

Another good way to use the Core Concepts is to see if you can explain how the terms in boldface link to the Core Concepts. Let’s take the second Core Concept in this chapter, which says;

Modern psychology developed from several conflicting traditions, including structuralism, functionalism, Gestalt psychology, behaviorism, and psychoanalysis.

Can you explain, for example, how the term *introspection* is related to this Core Concept? (Sample answer: Only the behaviorists, among the historical schools in psychology, refused to use introspection because it was subjective.)

Together, then, the Key Questions and Core Concepts are designed to pose important questions that lead you to the big ideas in the chapter. They will help you step back from the details to see meaningful patterns.

CHAPTER SUMMARY



● WHAT IS PSYCHOLOGY—AND WHAT IS IT NOT?

All psychologists are concerned with some aspect of behavior and mental processes. Unlike the pseudosciences, scientific psychology demands solid evidence to back up its claims. Within psychology there are many specialties that fall in three broad areas. Experimental psychologists primarily do research, but they often teach, as well. Those who are primarily teachers of psychology work in a variety of settings, including colleges, universities, and high schools. Applied psychologists practice many specialties, such as engineering, school, rehabilitation, and clinical psychology, and counseling. In contrast with psychology, psychiatry is a medical specialty that deals with mental disorder.

● **Psychology is a broad field with many specialties, but fundamentally, psychology is the scientific study of behavior and mental processes.**

● WHAT ARE PSYCHOLOGY'S HISTORICAL ROOTS?

Psychology has its roots in several often-conflicting traditions stretching back to the ancient Greeks. René Descartes helped the study of the mind to become scientific, through his insight that sensations and behaviors are linked to activity in the nervous system. The formal beginning of psychology as a science is traced to the establishment by Wundt of the first psychological laboratory in 1879. Wundt's structuralism advocated understanding mental processes such as consciousness by investigating their contents and structure. Another early school of psychology, known as functionalism, argued that mental processes are best understood in terms of their adaptive purposes and functions. Also in opposition to structuralism, Gestalt psychology focused on perceptual "wholes," rather than on parts of consciousness. Psychoanalysis differed from the other schools of psychology by emphasizing the unconscious, while behaviorism staked its uniqueness on a rejection of introspection.

● **Modern psychology developed from several conflicting traditions, including structuralism, functionalism, Gestalt psychology, behaviorism, and psychoanalysis.**

● WHAT ARE THE PERSPECTIVES PSYCHOLOGISTS USE TODAY?

Modern psychology encompasses nine main viewpoints. The biological view looks for the causes of behavior in physical processes such as brain function and genetics. Using cutting-edge technology, neuroscientists using this perspective have made many discoveries about brain function. Many biological psychologists take an evolutionary approach, assuming that human behavior and mental processes are based on genetic adaptations for survival and reproductive advantage. This approach has generated influential theories that explain gender differences and aggressive behavior. The developmental view calls attention to mental and behavioral changes that occur throughout the lifespan. Such changes result from the interaction of heredity and environment. The cognitive view emphasizes information processing; it has made many discoveries about learning, memory, sensation, perception, language, and thinking. Cognitive neuroscientists are especially interested in the link between the brain and mental processes. The psychodynamic view, pioneered by Sigmund Freud, proposes that behavior and thought are influenced by inner, often unconscious psychological forces and conflicts. Its impact has been greatest in therapy. The humanistic view, characterizes human functioning as motivated by a desire to grow, be productive, and fulfill one's human potential. Both have influenced our understanding of personality and the practice of psychotherapy. The behavioral view rejects mentalistic explanations and explains behavior in terms of observable stimuli and responses. It has given us powerful insights into the nature of learning. The sociocultural view recognizes the power of society and cultural context on individual thought, feeling, and action, notably through social learning. Cross-cultural psychologists, who take a sociocultural perspective, are working to incorporate information about other cultures into a field that has historically been dominated by psychologists from Europe and the United States. The evolutionary/sociobiological view takes the approach that changes in behavior have an evolutionary or adaptive cause. The trait view emphasizes enduring personality characteristics, and it is popular among applied psychologists involved in mental testing and clinical work.

● **Nine main perspectives characterize modern psychology: the biological, developmental, cognitive, psychodynamic, humanistic, behavioral, sociocultural, evolutionary/sociobiological, and trait views.**

REVIEW TEST

For each of the following items, choose the single best answer. The answer key appears at the end.

1. Psychology's scientific origins are usually traced to the late 19th century, when _____ established the first psychological laboratory.

- a. Sigmund Freud
- b. William James
- c. John B. Watson
- d. Max Wertheimer
- e. Wilhelm Wundt

2. "To understand consciousness or behavior, you must focus on the probable purpose of an action or process." This statement reflects the arguments of
 - a. humanism.
 - b. functionalism.
 - c. Gestalt psychology.
 - d. structuralism.
 - e. behaviorism.
3. According to the _____ approach, which is a variation of the _____ view, a person's behavior and personality develop as a result of unconscious inner tensions and conflicts.
 - a. behaviorist/trait
 - b. evolutionary/biological
 - c. introspective/cognitive
 - d. psychodynamic/clinical
 - e. structuralist/behavioral
4. Which of psychology's nine perspectives says that psychology should *not* study mental processes, such as sensation, perception, memory, thinking, motivation, and emotion?
 - a. behavioral
 - b. biological
 - c. cognitive
 - d. evolutionary/sociobiological
 - e. trait
5. According to the evolutionary approach in modern psychology, human behavior is the result of the natural selection of behaviors that promote
 - a. cultural conformity.
 - b. ability to process information.
 - c. survival and reproduction.
 - d. conflict between individual goals and societal limits.
 - e. appropriate responses to novel situations.
6. All of the following areas are applied psychology specialties, *except*
 - a. cognitive psychology.
 - b. counseling psychology.
 - c. clinical psychology.
 - d. school psychology.
 - e. industrial/organizational psychology.
7. The cognitive view of psychology:
 - a. subscribes to the idea that changes as we grow affect our personality.
 - b. has a special interest in mental health and mental disorders.
 - c. has a special interest in how the operation of your brain influences personality.
 - d. subscribes to the idea that human traits arise from hereditary characteristics.
 - e. subscribes to the idea that thoughts and actions arise from the way we interpret experiences.
8. Which researcher is most closely associated with the founding of humanistic psychology?
 - a. Sigmund Freud
 - b. Max Wertheimer
 - c. William James
 - d. Carl Rogers
 - e. John Watson
9. The tendency to attend to evidence that confirms our expectations is known as:
 - a. confirmational bias.
 - b. empirical investigation.
 - c. functionalism.
 - d. introspection.
 - e. Gestalt perspective.
10. The statement "Behavior has developed over eons of time" most directly reflects the perspective of
 - a. developmental psychology.
 - b. clinical psychology.
 - c. behavioral psychology.
 - d. trait psychology.
 - e. evolutionary psychology.

ANSWERS: 1.e 2.b 3.d 4.a 5.c 6.a 7.e 8.d 9.a 10.e

AP* REVIEW: VOCABULARY

Match each of the following vocabulary terms to its definition.

- | | | |
|-------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| 1. Psychology | 6. Developmental view | _____ e. Behavior has developed and adapted over time. |
| 2. Structuralism | 7. Behavioral view | _____ f. People are complex systems that respond to both environmental and hereditary influences. |
| 3. Functionalism | 8. Evolutionary/sociobiological view | _____ g. School of psychology devoted to uncovering the basic structures that make up mind and thought. |
| 4. Cognitive view | 9. Biological view | _____ h. People undergo predictable patterns of change throughout their lives. |
| 5. Trait view | 10. Humanistic view | _____ i. School of psychology that believed that mental processes should be understood in terms of their adaptive purpose. |
-
- | | |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| _____ a. People are information-processing systems. | _____ j. Individual differences result in our underlying patterns of stable characteristics. |
| _____ b. Behavior is shaped by learning. | |
| _____ c. The scientific study of behavior and mental processes. | |
| _____ d. Emphasized human growth and potential. | |

AP* REVIEW: ESSAY

Use your knowledge of the chapter concepts to answer the following essay question.

There are many differing approaches to psychology. Two of them are diametrically opposed, namely the psychodynamic and behavioral approaches. Describe how these views of psychology differ, being sure to address the following:

- founders
- main areas of interest
- typical research topics

KEY TERMS

Psychology (p. 2)

Empirical approach (p. 3)

Pseudopsychology (p. 4)

Confirmation bias (p. 4)

Experimental psychologists (p. 6)

Teachers of psychology (p. 7)

Applied psychologists (p. 7)

Psychiatry (p. 8)

Structuralism (p. 11)

Introspection (p. 11)

Functionalism (p. 12)

Gestalt psychology (p. 12)

Behaviorism (p. 12)

Psychoanalysis (p. 13)

Biological view (p. 15)

Neuroscience (p. 15)

Evolutionary psychology (p. 15)

Developmental view (p. 16)

Cognitive view (p. 16)

Cognitions (p. 16)

Cognitive neuroscience (p. 16)

Clinical view (p. 16)

Psychodynamic psychology (p. 16)

Humanistic psychology (p. 17)

Behavioral view (p. 17)

Sociocultural view (p. 18)

Evolutionary/sociobiological view (p. 18)

Trait view (p. 19)

OUR RECOMMENDED BOOKS AND VIDEOS

ARTICLE

Morgeson, F. P., Seligman, M. E. P., Sternberg, R. J., Taylor, S. E., & Manning, C. M. (1999). Lessons learned from a life in psychological science: Implications for young scientists. *American Psychologist*, 54, 106–115. Interested in becoming a psychologist? Read this article in which a panel of well-known psychologists discuss their early careers and reveal what they know now that they wish they had known then.

BOOKS

Burr, C. (2004). *The emperor of scent: A true story of perfume and obsession*. New York: Random House. We know least about our most ancient sense. Yet in this true story, when a likable scientist claims he has discovered the true inner workings of the sense of smell, he is dismissed by peers, must struggle to publish his findings in *Nature*, and next meets with resistance from the fragrance industry. This book is an exposé of scientific publication as well as an exploration of the olfactory sense.

Hunt, M. (1993). *The story of psychology*. New York: Doubleday. The fascinating anecdotes, summaries, and documentation in this book

cover the lives and times of what Morton Hunt calls “the Magellans of the mind,” from ancient philosophy to modern research.

Pinker, S. (2003). *The blank slate: The modern denial of human nature*. New York: Viking. Steven Pinker, MIT psychology professor and author of *How the Mind Works* and *The Language Instinct*, uses wit, poetry, and comedy to argue against the notion that the human infant’s brain is a “blank slate” at birth, insisting that evolution provides strong, inherited, survival-oriented skills—with ample room for shaping by culture and experience.

VIDEO

Fast, cheap, and out of control. (1997, color, 82 min). Directed by Errol Morris; starring Dave Hoover, George Mendonca, Ray Mendez, and Rodney Books. This documentary has interviews with four eccentric “geniuses”—a lion tamer, a topiary gardener, an expert on the African naked mole rat, and an MIT robotics scientist—mixed with B-movie footage and running commentary on life and human nature. (Rating PG)