Rey Ramos graduated from Harvard University, magna cum laude, and was accepted by Harvard Medical School—against all odds. Rey grew up in the South Bronx, an urban ghetto where young males are more likely to go to jail than they are to graduate from high school, and where early, violent death is not uncommon. All anyone asked of Rey was that he stay out of trouble and stay alive. As a young boy, he was considered a problem child, out of control. In the eighth grade, Rey’s principal told Rey’s mother that her son was being expelled and reassigned to a program for students with learning problems.

REY: “My Mom just started crying, you know, in front of him, and I saw that. And I felt ashamed of myself.”

Rey entered the ninth grade determined to turn his life around. His math teacher recognized both his change in attitude and his ability in math.

MATH TEACHER: “When he got here, I knew he wasn’t joking around anymore. He knew this was it. This was where it starts new.”

REY: “And I started feeling good about this one teacher who said good things about me, and that made me feel good.”

Rey also excelled in science, but the high school he attended (considered one of the worst in New York City and since shut down) offered little. Rey enrolled in a special science program at a local college and graduated first in his class. It was his biology teacher who first suggested to Rey that he might be “Harvard material.”

BIOLOGY TEACHER: “I was trying to push him to believe in himself and do something, because I felt he was incredible.”

Rey accepted the challenge. In his Harvard application he wrote, “The four years I invest in Harvard will probably be the most important four years of my life. I will waste no time while I attend Harvard University.” True to his word, Rey maintained a 3.4 grade point average, enlisted in ROTC, joined a Latino fraternity, and worked part-time. At graduation, he looked back.

REY: “My father always said you can’t change anything; destiny has everything written for you. And I told him no. I rebelled against that, and I told him I was going to make my own destiny, and so far I’ve never heard him say that line to me again.”

After graduating, Rey planned to marry Maiysha, his childhood sweetheart; to enter Harvard Medical School in the fall; and to fulfill his lifelong dream of returning to the South Bronx as a doctor.

Rey Ramos’s story is the American Dream. Indeed, he was chosen to represent “The American Spirit” on NBC Nightly News (June 13, 1997). How did Rey Ramos escape from the “mean streets” to the Ivy League and a future as a physician? What can psychology tell us about his success story? What does it say about intelligence and motivation in general, and about the many factors that shape who we become?

We begin this chapter by introducing you to the rich and varied field of psychology: the many different topics psychologists study, the enduring issues that underlie all psychological inquiry, the meaning of psychology as a science, and the many ways scientific or critical thinking can help you. Then we look at the growth of psychology, from its beginning as an obscure science of the mind to its current stature, broad scope, and current emphasis on human diversity. Next, we examine the research methods psychologists use to describe, explain, and predict behavior as well as the ethical guidelines psychologists use to balance research goals with

THINKABOUTIT

You will find the answers to these questions in the chapter:

1. “Most psychologists study mental and emotional problems and work as psychotherapists.” Is this statement true or false?
2. Psychology has a long past but a short history. What do you think this means?
3. Are ethnic minorities underrepresented among psychologists?
4. How do psychologists design experiments?
5. What can you do with a background in psychology or an advanced degree?
Psychology: The scientific study of behavior and mental processes.

Psychology is the scientific study of behavior and mental processes. Some psychologists study the behavior of other species. And some use other animals as substitutes for human beings in experiments—a topic we will address when we consider the ethics of psychology.

What Is Psychology?

“Most psychologists study mental and emotional problems and work as psychotherapists.” Is this statement true or false?

Answering the question “What is psychology?” is not as simple as one might think. Most contemporary psychologists would agree that psychology is the science of behavior and mental processes. But this general definition does not capture the breadth, depth, or excitement of the field. Psychologists seek to explain how we perceive, learn, remember, solve problems, communicate, feel, and relate to other people, from birth to death, in intimate relationships and in groups. They attempt to understand, measure, and explain the nature of intelligence, motivation, and personality, as well as individual and group differences. Psychologists may focus on mental and emotional disturbances, personal and social problems, psychotherapy, or improving group morale and intergroup relations.

In the late twentieth century, psychology expanded dramatically. New research technologies, new fields of inquiry, and new approaches to studying behavior and mental processes emerged. These advances led to greater specialization within psychology, more collaboration with other sciences—and the academic equivalent of an identity crisis. As a result, psychology is continually redefining itself (Evans, 1999). Perhaps the best way to introduce psychology is to look at what topics interest psychologists.

The Fields of Psychology

Contemporary psychology is less a single, unified field than “an umbrella for a loose confederation of subdisciplines” (Evans, 1999). The American Psychological Association has 53 divisions, representing the major fields of psychological inquiry, as well as specialized research and professional interests (see Table 1–1). Each of the major subfields described here has its own focus and models of behavior and mental processes.

Developmental Psychology Developmental psychologists study human mental and physical growth from the prenatal period through childhood, adolescence, adulthood, and old age. They are interested both in universal patterns of development and in cultural and individual variations. Child psychologists focus on infants and children. They are concerned with such issues as whether babies are born with distinct personalities and temperaments, how infants become attached to their parents and caretakers, how children acquire language and develop morals, how and when sex differences in behavior emerge, and how to evaluate changes in the meaning and importance of friendship during childhood. Adolescent psychologists specialize in the teenage years including how puberty, changes in relationships with peers and parents, and the search for identity can make this a difficult period for some young people. Life-span psychologists focus on the adult years and the different ways

1Note that we did not define psychology as the science of human behavior and mental processes. Some psychologists study the behavior of other species. And some use other animals as substitutes for human beings in experiments—a topic we will address when we consider the ethics of psychology.
individuals adjust to partnership and parenting, middle age, retirement, and eventually the prospect of death.

**Neuroscience and Physiological Psychology**  
Physiological psychologists and neuroscientists investigate the biological basis of human behavior, thoughts, and emotions. In particular, they study the effects of both natural substances that act as chemical messengers, chiefly hormones, and synthetic chemical messengers, including psychoactive medications (such as antidepressants) and “social drugs” (such as alcohol, marijuana, or cocaine). Why do our hearts beat faster when we feel threatened, or why do our palms sweat when we’re nervous? They also study how the brain and the nervous system develop, function, and sometimes malfunction. Does the brain stop growing at a certain point, or does it continue to change over some or all of the life span? Are some areas of the brain more active when people work on mathematical problems? Are others more active when people play or listen to music? Behavioral geneticists investigate the impact of heredity on both normal and abnormal traits and behavior. To what degree is intelligence hereditary? What about shyness? Do illnesses such as alcoholism and depression run in families? To what extent are differences in the way men and women think, act, and respond to situations rooted in biology?

**Experimental Psychology**  
Experimental psychologists conduct research on basic psychological processes, including learning, memory, sensation, perception, cognition, motivation, and emotion. They are interested in answering such questions as: How do people remember, and what makes them forget? How do we make decisions and solve problems? Do men and women approach complex problems in different ways? Why are some people more motivated than others? Are emotions universal—that is, do people from different cultures experience the same emotions in similar situations? Or do different cultures emphasize some emotions and dismiss or disregard others?

**Personality Psychology**  
Personality psychologists study the differences among individuals in such traits as anxiety, sociability, self-esteem, the need for achievement, and aggressiveness. Psychologists in this field attempt to determine what causes
The two major organizations of psychologists in the United States are the American Psychological Association (APA), founded over 100 years ago, and the American Psychological Society (APS), founded in 1988. Members of both groups work in a wide variety of areas. The following list of divisions of the APA reflects the enormous diversity of the field of psychology.

<table>
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<th>Division*</th>
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<tr>
<td>1. General Psychology</td>
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<td>2. Society for the Teaching of Psychology</td>
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<td>3. Experimental Psychology</td>
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<td>5. Behavioral Neuroscience and Comparative Psychology</td>
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<td>6. Developmental Psychology</td>
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<td>7. Society for Personality and Social Psychology</td>
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<td>8. Society for the Psychological Study of Social Issues (SPSSI)</td>
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<td>9. Psychology and the Arts</td>
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<td>10. Society of Clinical Psychology</td>
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<td>11. Consulting Psychology</td>
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<td>12. The Society for Industrial and Organizational Psychology</td>
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<td>13. Educational Psychology</td>
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<td>14. School Psychology</td>
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<td>15. Counseling Psychology</td>
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<td>16. Psychologists in Public Service</td>
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<td>17. Military Psychology</td>
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<td>18. Adult Development and Aging</td>
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<td>19. Applied Experimental and Engineering Psychology</td>
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<td>20. Rehabilitation Psychology</td>
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<td>21. Society for Consumer Psychology</td>
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<td>22. Theoretical and Philosophical Psychology</td>
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<td>23. Experimental Analysis of Behavior</td>
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<td>24. History of Psychology</td>
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<td>25. Society for Community Research and Action</td>
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<td>26. Psychopharmacology and Substance Abuse</td>
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<td>27. Psychotherapy</td>
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<td>28. Psychological Hypnosis</td>
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<td>29. State Psychological Association Affairs</td>
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<td>30. Humanistic Psychology</td>
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<td>31. Mental Retardation and Developmental Disabilities</td>
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<td>32. Population and Environmental Psychology</td>
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<td>33. Society for the Psychology of Women</td>
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<td>34. Psychology of Religion</td>
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<td>35. Child, Youth, and Family Services</td>
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<td>36. Health Psychology</td>
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<td>37. Psychoanalysis</td>
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<td>38. Clinical Neuropsychology</td>
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<td>39. Psychologists in Independent Practice</td>
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<td>40. American Psychology—Law Society</td>
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<td>41. Family Psychology</td>
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<td>42. Society for the Psychological Study of Lesbian, Gay, and Bisexual Issues</td>
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<td>43. Society for the Psychological Study of Ethnic Minority Issues</td>
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some people to be moody and nervous and others to be cheerful and easygoing, and why some people are sedate and cautious whereas others are restless and impulsive. They also study whether there are consistent differences between men and women or members of different racial and cultural groups on such characteristics as sociability, anxiety, and conscientiousness. Ongoing issues for personality psychologists include: Is personality inborn and stable, or is it learned and subject to change? Do different cultures tend to produce different “personality types” (clusters of traits that usually occur together)? What is the best way to assess or measure personality?

### Clinical and Counseling Psychology

When asked to describe a “psychologist,” many people think of a therapist who sees patients (or “clients”) in his or her office, a clinic, or a hospital. This popular view is half correct. About half of all psychologists specialize in clinical or counseling psychology. Clinical psychologists are primarily interested in the diagnosis, cause, and treatment of psychological disorders. Counseling psychologists are primarily concerned with “normal” problems of adjustment that most of us face at some point, such as choosing a career or coping with marital problems. Clinical and counseling psychologists often divide their time between treating patients and conducting research on the causes of psychological disorders and the effectiveness of different types of psychotherapy and counseling.

### Social Psychology

Social psychologists study how people influence one another. They explore such issues as first impressions and interpersonal attraction; how attitudes are formed, maintained, or changed; prejudice and persuasion; conformity and obedience to authority; and whether people behave differently when they are part of a group or crowd than they would on their own. Although most social psychologists are researchers and theorists, not practitioners, this subfield has given rise to numerous practical applications (Hunt, 1994). The principles of social psychology are in support groups for substance abusers, cancer patients, compulsive
gamblers, and other people in crisis; the treatment of family conflict through family (rather than individual) therapy; sensitivity training (aimed, for example, at reducing sexual harassment or combating racial and ethnic prejudice); the use of cooperative rather than competitive methods in classrooms; and programs to give hospital patients and elderly residents of nursing homes more control and decision-making power.

**Industrial and Organizational (I/O) Psychology** Industrial and organizational (I/O) psychologists are concerned with such practical issues as selecting and training personnel, improving productivity and working conditions, and the impact of computerization and automation on workers. Is it possible to determine in advance who will be an effective salesperson or airline pilot, and who will not? Do organizations tend to operate differently under female or male leadership? Research shows that work groups with high morale usually are more productive than those with low morale; are there specific strategies that managers can use to improve group morale?

This is only a sample of what interests psychologists. New specialties continue to emerge, including rehabilitation psychology (the study and application of psychosocial principles on behalf of persons with disabilities); sports psychology (the study of psychological factors that improve athletic performance, as well as the effects of exercise on psychological adjustment and general well-being); forensic psychology (which includes clinical work in correctional facilities, working as a consultant to trial lawyers, serving as an expert witness in jury trials, and formulating public policy on psychology and the law); environmental psychology (the investigation of how natural, constructed, and social surroundings influence people’s thinking and behavior); community psychology (dedicated to theory, research, and social action at the neighborhood level); and peace psychology (the study of the causes and consequences of group conflict, strategies for anticipating and avoiding violent confrontations, and methods for helping victims rebuild their lives after conflicts occur).

**ENDURING ISSUES**

Given this broad range of careers and interests, what holds psychology together? What do psychologists who study organizations, psychological disorders, memory and cognition, behavioral genetics, or attachment in infants have in common? All psychologists share a common interest in five enduring issues that override their areas of specialization and cut to the core of what it means to be human.

**PersonSituation**

To what extent is behavior caused by processes that occur inside the person, such as thoughts, emotions, motives, attitudes, values, personality, and genes? In contrast, to what extent is behavior caused or triggered by factors outside the person, such as incentives, cues in the environment, and the presence of other people? Put another way, are we masters of our fate or victims of circumstances? We will encounter these questions most directly in our consideration of behavior genetics, learning, emotion and motivation, personality, and social psychology.

**NatureNurture**

Is the person we become a product of innate, inborn tendencies, or a reflection of experiences and upbringing? This is the famous “nature versus nurture” debate. For decades, psychologists argued about the degree of influence that heredity or genes versus environment or experience have on thought and behavior. This issue appears in our discussions of behavior genetics, intelligence, development, personality, and abnormal psychology, though it will arise elsewhere as well.
StabilityChange

Are the characteristics we develop in childhood more or less permanent and fixed, or do we change in predictable (and unpredictable) ways over the course of our lives? Is the child “father to the man”? Or can you “teach old dogs new tricks”? Is the self a cognitive construct, a “fictional character” we create to maintain a sense of inner continuity in the face of varied, sometimes unpredictable experiences? Developmental psychologists are especially interested in these questions, as are psychologists who specialize in personality, adjustment, abnormal psychology, and therapy, as well as other areas.

DiversityUniversality

To what extent is every person in certain respects (a) like all other people, (b) like some other people, (c) like no other person? (Adapted from Kluckhohn, Murray, & Schneider, 1961, p. 53.) Human diversity is a central concern for psychologists. Throughout the book we will encounter these questions: Does our understanding apply equally well to every human being? Or does it apply only to men or women, only to particular racial or ethnic groups or only to particular cultures (especially our own)? Do we perhaps need “different psychologies” to account for the wide diversity of human behaviors?

MindBody

Finally, how are mind and body connected? Many psychologists are fascinated by the relationship between what we experience (such as thoughts and feelings) and biological processes (such as activity in the nervous system). This mind-body issue will arise most clearly in our discussions of the biological basis of behavior, sensation and perception, altered states of consciousness, emotion and motivation, adjustment/health psychology, and disorders/therapy.

These five issues have been a running theme in the history of psychology—and will be a running theme in this book. Depending on the times and the intellectual climate, one or another of these issues has assumed special prominence in the history of psychology. Depending on what subject they are studying, psychologists in one area or one school may emphasize the person or the situation, heredity or environment, stability or change, diversity or universality, or subjective experience or biological processes. While philosophers have pondered these issues for centuries, psychologists look at these topics through a scientific lens.

Throughout this book, we will highlight the importance of these issues. Several times in each chapter, we will call your attention to the way in which the topic under consideration—whether it is new discoveries about communication within the nervous system, research into how we learn, or the reason that people abuse drugs—is relevant to one of these issues. In this way, we will show the surprising unity and coherence of the diverse and exciting science of psychology.

Psychology as Science

Earlier we defined psychology as the science of behavior and mental processes. The key word in this definition is science. Psychologists rely on the scientific method when seeking to answer questions. They collect data through careful, systematic observation; attempt to explain what they have observed by developing theories; make new predictions based on those theories; and then systematically test those predictions through additional observations and experiments to determine whether they are correct. Thus, like all scientists, psychologists use the scientific method. An approach to knowledge that relies on collecting data, generating a theory to explain the data, producing testable hypotheses based on the theory, and testing those hypotheses empirically.
The scientific method to describe, understand, predict, and eventually, achieve some measure of control over what they study. (The scientific method is not for scientists only; see Applying Psychology: Critical Thinking—A Fringe Benefit of Studying Psychology.)

Take, for example, the issue of males, females, and aggression. Many people believe that males are naturally more aggressive than females. Others contend that boys learn to be aggressive because our society and culture encourages—indeed requires—males to be combative, even violent. How would psychologists approach this issue? First, they would want to find out whether men and women actually differ in aggressive behavior. A number of research studies have addressed this question, and the evidence seems conclusive: Males are more aggressive than females, particularly when we’re talking about physical aggression (Knight, Fabes, & Higgins, 1996; Wright, 1994). Perhaps girls and women make nasty remarks or yell, but boys and men are far more likely to fight. Having established that there are sex differences in physical aggression and described those differences, the next step is to explain them. A number of explanations are possible. Physiological psychologists would probably ascribe these differences to genetics or body chemistry; developmental psychologists might look to the ways a child is taught to behave “like a boy” or “like a girl”; and social psychologists might explain the differences in terms of cultural norms, which both require males to “stand up for themselves” and teach that physical aggression isn’t “feminine.”

Each of these explanations stands as a theory about the causes of sex differences in aggression; each attempts to distill a few principles from a large number of facts. And each theory allows us to make a number of new hypotheses, or predictions, about the phenomenon in question. If gender differences in aggression arise because males have higher levels of testosterone than females do, then we would predict that extremely violent men should have higher levels of testosterone than do men who are generally nonviolent. If sex differences in aggression stem from early training, then we would predict that there should be fewer sex
differences in aggression in families where parents did not stress gender differences. Finally, if sex differences in aggression reflect cultural norms, then we would predict that in societies that do not prohibit girls and women from fighting, or those that consider physical aggression abnormal or improper for both sexes, the differences should be small.

Each of these predictions or hypotheses can be tested through research, and the results should indicate whether one theory is better than another at accounting for known facts and predicting new facts. If one or more of the theories is supported by research evidence, it should be possible to control aggressive behavior to a greater degree than was possible before. For example, if cultural norms are part of the reason for differences in aggression, then these differences should be smaller in situations where individuals do not feel that they are being evaluated in terms of their masculinity or femininity. One research team tested this hypothesis with a computer war game (Lightdale & Prentice, 1994). When the researcher introduced participants in a way that made clear who was male or female, women played less aggressively than men; when told that they were anonymous to the researchers and other participants, however, women played just as aggressively as men did.

CHECK YOUR UNDERSTANDING

1. If you choose to become a developmental psychologist, your studies will focus on
   ___ a. an individual's personality traits such as cheerfulness or moodiness
   ___ b. the biological basis of behavior
   ___ c. people's lifespans, from prenatal to old age
   ___ d. behavioral disorders

2. You design an experiment to test whether the members of Alcoholics Anonymous who volunteer to become sponsors remain sober longer than those who don’t volunteer. You are most likely a
   ___ a. sports psychologist
   ___ b. personality psychologist
   ___ c. neuroscientist
   ___ d. social psychologist

3. “How do people remember?” and “What makes people forget?” are questions typically asked by a(an)
   ___ a. personality psychologist
   ___ b. experimental psychologist
   ___ c. organizational psychologist
   ___ d. forensic psychologist

4. When a psychologist uses the scientific method, she or he
   ___ a. collects data through careful observation
   ___ b. explains observations by developing theories
   ___ c. makes and tests predictions
   ___ d. all of the above

   **Answers:** 1.c, 2.d, 3.b, 4.d
CRITICAL THINKING—A FRINGE BENEFIT OF STUDYING PSYCHOLOGY

1. Define the problem or the question you are investigating.
   Do opposites in fact attract each other?

2. Collect and examine all the available evidence.
   In doing so, be skeptical of people’s self-reports, as they may be subjectively biased. If data conflict, try to find more evidence. Research on attraction yields no support for the idea that opposites attract, whereas many studies confirm that people of similar looks, interests, age, family background, religion, values, and attitudes seek each other.

3. Suggest a theory or a reasonable explanation for the data.
   Perhaps people who are similar often belong to the same social circles (“birds of a feather flock together”). Research suggests proximity is a big factor in attraction.

4. Analyze assumptions.
   Perhaps people believe that opposites attract because balancing different people’s

Although the plots of many romantic movies and books are built on the idea that opposites attract, psychological research shows that the opposite is true.
strengths and weaknesses is a good way to form a group; they assume incorrectly that therefore it is probably a good basis for personal relationships as well. Or perhaps they believe that since they can think of cases where opposites attract, it must be generally true of personal relationships.

5. Avoid oversimplifying. F. Scott Fitzgerald wrote that “the test of a first-rate intelligence is the ability to hold two opposed ideas in mind at the same time.” Don’t assume that because similarity on some characteristics leads to attraction it will do so for all characteristics. For example, even people of similar temperaments find living together rather difficult in some ways. Living with someone who is as tense as you are may be harder than living with someone of calm temperament—your opposite.

6. Draw conclusions carefully. It seems safe to conclude that, in general, opposites don’t attract, but be alert to the possibility that there are situations and relationships in which this general rule will not apply. Moreover, it may apply more to some cultures and societies than to others.

7. Consider every alternative interpretation. Although it may indeed be true that people who are similar often belong to the same social circles and that is a reason for their mutual attraction, realize that there may be other and better explanations for their attraction.

8. Recognize the relevance of research to events and situations. Many people, including quite a few introductory psychology students, view psychology as nothing more than common sense “dressed up” with fancy jargon. But in fact, psychology is based on data resulting from carefully designed research—data that often contradict common knowledge. Research shows that the psychology course you are taking, and those that follow, will sharpen your own critical-thinking skills (Lehman, Lempert, & Nisbett, 1988; Nisbett et al., 1987). Whenever you are trying to explain behavior, ask “What is the research evidence?” and realize that it may contradict your own experiences and common knowledge.

Throughout this book we will offer you the opportunity to develop and refine your own critical-thinking skills by asking you to evaluate research studies, reflect on what you read, and consider alternative explanations. By the way, psychological research has demonstrated that the other two statements at the beginning of this section are also false.

The Growth of Psychology

Psychology has a long past but a short history. What do you think this means?

Since the time of Plato and Aristotle, people have wondered about human behavior and mental processes. But not until the late 1800s did they begin to apply the scientific method to questions that had puzzled philosophers for centuries. Only then did psychology come into being as a formal, scientific discipline separate from philosophy, and the foundations of the “new psychology”—the science of psychology—were laid.

The “New Psychology”: A Science of the Mind

The history of psychology can be divided into three main stages: the emergence of a science of the mind, the behaviorist decades, and the “cognitive revolution.”

Wilhelm Wundt and Edward Bradford Titchener: Voluntarism and Structuralism  By general agreement, psychology was born in 1879, the year Wilhelm Wundt founded the first psychological laboratory at the University of Leipzig in Germany. In the public eye, a laboratory identified a field of inquiry as “science” (Benjamin, 2000). At the outset, Wundt did not attract much attention; only four students attended his first lecture. By the mid-1890s, however, his classes were filled to capacity.
Wundt set about trying to explain immediate experience and to develop ways to study it scientifically, though he also believed that some mental processes could not be studied through scientific experiments (Blumenthal, 1975). Wundt gave a central place to selective attention—the process by which we determine what we are going to attend to at any given moment. For Wundt, attention is actively controlled by intentions and motives, which gave rise to his use of the term voluntarism in describing his view of psychology; it is this that sets human attention apart from attention in other organisms. In turn, attention controls other psychological processes, such as perceptions, thoughts, and memories. We will examine the role of attention more closely in Chapter 4 (States of Consciousness) and Chapter 6 (Memory), but for the moment it is sufficient to note that in establishing a laboratory and insisting on measurement and experimentation, Wundt moved psychology out of the realm of philosophy into the world of science (Benjamin, 2000).

One important product of the Leipzig lab was its students, who carried the new, scientific psychology to universities in other countries, including the United States. G. Stanley Hall, who established the first American psychology laboratory at Johns Hopkins University in 1883, studied with Wundt; so did J. McK. Cattell, the first American to be called a “professor of psychology” (at the University of Pennsylvania in 1888). Yet another student, British-born Edward Bradford Titchener, went to Cornell University. Titchener’s ideas in many respects differed sharply from those of his mentor (Zehr, 2000). Titchener was impressed by recent advances in chemistry and physics, achieved by analyzing complex compounds (molecules) in terms of their basic elements (atoms). Similarly, Titchener reasoned, psychologists should analyze complex experiences in terms of their simplest components. For example, when people look at a banana they immediately think, “Here is a fruit, something to eat.” But this perception is based on associations with past experience; Titchener looked for the most fundamental elements, or “atoms,” of thought.

Titchener broke consciousness down into three basic elements: physical sensations (what we see), feelings (such as liking or disliking bananas), and images (memories of other bananas). Even the most complex thoughts and feelings, he argued, can be reduced to these simple elements. Titchener saw psychology’s role as identifying these elements and showing how they can be combined and integrated—an approach known as structuralism. Although the structuralist school of psychology was relatively short-lived and has had little long-term effect, the study of perception and sensation continues to be very much a part of contemporary psychology (see Chapter 3, Sensation and Perception).

**William James: Functionalism**  One of the first academics to challenge structuralism was an American, William James (son of the transcendentalist philosopher Henry James, Sr., and brother of novelist Henry James). As a young man, James earned a degree in physiology and studied philosophy on his own, unable to decide which interested him most. In psychology he found the link between the two. In 1875, James offered a class in psychology at Harvard. He later commented that the first lecture he ever heard on the subject was his own.

James held that Titchener’s “atoms of experience”—pure sensations without associations—simply do not exist in real-life experience. “No one,” he wrote, “ever had a simple sensation by itself.” Our minds are constantly weaving associations, revising experience, starting, stopping, and jumping back and forth in time. Perceptions, emotions, and images cannot be separated, James argued; consciousness flows in a continuous stream. James was greatly influenced by Charles Darwin’s theory of evolution (see Chapter 2, The Biological Basis of Behavior). According to Darwin, both anatomy and behavior are the result of natural selection. It seemed clear to James that consciousness evolved because it performs an adaptive function. If we could not recognize a banana, we would have to figure out what it was each
time we saw one. Mental associations allow us to benefit from previous experience. When we get up in the morning, get dressed, open the door, and walk down the street, we don’t have to think about what we are doing; we act out of habit. James suggested that when we repeat something, our nervous systems are changed so that each repetition is easier than the last.

James developed a **functionalist theory** of mental processes and behavior that raised questions about learning, the complexities of mental life, the impact of experience on the brain, and humankind’s place in the natural world. Many of these ideas still seem current today. Although impatient with experiments, James shared Wundt and Titchener’s belief that the goal of psychology was to analyze experience. Wundt was not impressed. After reading James’s *The Principles of Psychology* (1890), he commented, “It is literature, it is beautiful, but it is not psychology” (in Hunt, 1994, p. 139).

**Sigmund Freud: Psychodynamic Psychology** Of all psychology’s pioneers, Sigmund Freud is by far the best known—and the most controversial. A medical doctor, unlike the other figures we have introduced, Freud was fascinated by the central nervous system. He spent many years conducting research in the physiology laboratory of the University of Vienna and only reluctantly became a practicing physician. After a trip to Paris, where he studied with a neurologist who was using hypnosis to treat nervous disorders, Freud established a private practice in Vienna. His work with patients convinced him that many nervous ailments are psychological rather than physiological in origin. Freud’s clinical observations led him to develop a comprehensive theory of mental life that differed radically from the views of his predecessors.

Freud held that human beings are not as rational as they imagine and that “free will,” which was so important to Wundt, is largely an illusion. Rather, we are motivated by unconscious instincts and urges that are not available to the rational, conscious part of our mind. Other psychologists had referred to the unconscious in passing, as a dusty warehouse of old experiences and information we could retrieve as needed. In contrast, Freud saw the unconscious as a dynamic cauldron of primitive sexual and aggressive drives, forbidden desires, nameless fears and wishes, and traumatic childhood memories. Although repressed (or hidden from awareness), unconscious impulses press on the conscious mind and find expression in disguised or altered form, including dreams, mannerisms, slips of the tongue, and symptoms of mental illness, as well as in socially acceptable pursuits such as art and literature. To uncover the unconscious, Freud developed a technique, *psychoanalysis*, in which the patient lies on a couch, recounts dreams, and says whatever comes to mind (free association).

Freud’s **psychodynamic theory** was as controversial at the turn of the century as Darwin’s theory of evolution had been 25 years earlier. Many of Freud’s Victorian contemporaries were shocked, not only by his emphasis on sexuality, but also by his suggestion that we are often unaware of our true motives and thus are not entirely in control of our thoughts and behavior. Conversely, members of the medical community in Vienna at that time generally held Freud’s new theory in high regard, nominating him for the position of *Professor Extraordinarius* at the University of Vienna (Esterson, 2002). Freud’s lectures and writings attracted considerable attention in the United States as well as in Europe; he had a profound impact on the arts and philosophy, as well as on psychology. However, Freud’s theories and methods continue to inspire heated debate.

Psychodynamic theory, as expanded and revised by Freud’s colleagues and successors, laid the foundation for the study of personality and psychological disorders, as we will discuss later in this book (Chapters 11, 13, and 14). His revolutionary notion of the unconscious and his portrayal of human beings as constantly at war...
with themselves are taken for granted today, at least in literary and artistic circles. Freud’s theories were never totally accepted by mainstream psychology, however, and in recent decades his influence on clinical psychology and psychotherapy has declined (Robins, Gosling, & Craik, 1999; see also Westen, 1998a).

Redefining Psychology: The Study of Behavior

Up to the beginning of the twentieth century, psychology saw itself as the study of mental processes that may be conscious or unconscious (psychodynamic psychology), viewed as discrete units and compounds (structuralism), or as an ever-changing flow (functionalism). The primary method of collecting data was introspection or self-observation in a laboratory or on an analyst’s couch. Then, a new generation of psychologists rebelled against this “soft” approach. The leader of the challenge was the American psychologist John B. Watson.

**John B. Watson: Behaviorism**  
John B. Watson argued that the whole idea of mental life was superstition, a relic left over from the Middle Ages. In “Psychology as a Behaviorist Views It” (1913), Watson contended that you cannot see or even define consciousness any more than you can observe a soul. And if you cannot locate or measure something, it cannot be the object of scientific study. For Watson, psychology was the study of observable, measurable behavior—and nothing more.

Watson’s view of psychology, known as behaviorism, was based on the work of the Russian physiologist Ivan Pavlov, who had won a Nobel Prize for his research on digestion. In the course of his experiments, Pavlov noticed that the dogs in his laboratory began to salivate as soon as they heard their feeder coming, even before they could see their dinner. He decided to find out whether salivation, an automatic reflex, could be shaped by learning. He began by repeatedly pairing the sound of a buzzer with the presence of food. The next step was to observe what happened when the buzzer was sounded without introducing food. This experiment clearly demonstrated what Pavlov had noticed incidentally: after repeated pairings, the dogs salivated in response to the buzzer alone. Pavlov called this simple form of training conditioning. Thus a new school of psychology was inspired by a casual observation followed by rigorous experiments.

Watson came to believe that all mental experiences—thinking, feeling, awareness of self—are nothing more than physiological changes in response to accumulated experiences of conditioning. An infant, he argued, is a tabula rasa (Latin for “blank slate”) on which experience may write virtually anything:

> Give me a dozen healthy infants, well-formed, and my own specialized world to bring them up in, and I’ll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant chief and, yes, even beggar man, and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race. (Watson, 1924, p. 104)

Watson attempted to demonstrate that all psychological phenomena—even Freud’s unconscious motivations—are the result of conditioning (Rilling, 2000). In one of the most infamous experiments in psychology’s history, Watson attempted to create a conditioned fear response in an 11-month-old boy. “Little Albert” was a secure, happy baby who enjoyed new places and experiences. On his first visit to Watson’s laboratory, Albert was delighted by a tame, furry white rat, but he became visibly frightened when Watson banged a steel bar with a hammer just behind the infant’s head. On his second visit, Watson placed the rat near Albert, and the moment the baby reached out and touched it, he banged the hammer. After half a dozen pair-
ings, little Albert began crying the instant the rat was introduced, without any bang-
ing. Further experiments found that Alfred was frightened by anything white and furry—a rabbit, a dog, a sealskin coat, cotton wool, and Watson wearing a Santa Claus mask (Watson & Rayner, 1920). Freud labeled the transfer of emotions from one person or object to another “displacement,” a neurotic response that he traced to the unconscious. Drawing on Pavlov, Watson called the same phenomenon generalization, a simple matter of conditioning (Rilling, 2000). As far as he was concerned, psychodynamic theory and psychoanalysis were “voodooism.”

One of Watson’s graduate students, Mary Cover Jones (1924), conducted the Little Albert experiment in reverse. Jones successfully reconditioned a boy to overcome a fear of rabbits (not caused by laboratory conditioning) by presenting the rabbit at a great distance and then gradually bringing it closer while the child was eating. Known as desensitization, similar techniques are used by many clinical psychologists today (see Chapter 14, Therapies).

In 1920, a personal scandal forced Watson to resign from his position at Johns Hopkins University. He moved to New York, where he became the resident psychologist with the J. Walter Thompson advertising agency. For some years thereafter, he continued to write popular magazine articles and books on psychology. But the task of refining behaviorism through research fell to others, mainly to B. F. Skinner.

B. F. Skinner: Behaviorism Revisited B. F. Skinner became one of the leaders of the behaviorist school of psychology. Like Watson, Skinner fervently believed that the mind, or the brain and nervous system, was a “black box,” invisible—and irrelevant—to scientists. Psychologists should concern themselves with what goes into the black box and what comes out, and not worry about what goes on inside (Skinner, 1938, 1987, 1989, 1990). He, too, was primarily interested in changing behavior through conditioning—and in discovering natural laws of behavior in the process.

Skinner added a new element to the behaviorist repertoire: reinforcement. He rewarded his subjects for behaving the way he wanted them to behave. For example, an animal (rats and pigeons were Skinner’s favorite subjects) was put into a special cage and allowed to explore. Eventually, the animal reached up and pressed a lever or pecked at a disk on the wall, whereupon a food pellet dropped into the box. Gradually, the animal learned that pressing the bar or pecking at the disk always brought food. Why did the animal learn this? Because the animal was reinforced, or rewarded, for doing so. Skinner thus made the animal an active agent in its own training, a process he called operant or instrumental conditioning.

Conditioning is not limited to simple learning in nonhuman animals. We can only guess at the vast amount of conditioning that occurs in everyday human life. Why do we feel hungry at meal times, sleepy at bedtime, frightened by rats and snakes, or sexually aroused by a song or scent? These physical urges and private feelings are at least partly the result of conditioning, as are many more complex reactions (see Chapters 5 and 9).

Behaviorism dominated academic psychology in the United States well into the 1960s. One unintended and, at the time, largely unnoticed consequence was that psychology developed an environmental bias: virtually every aspect of human behavior was attributed to learning and experience, and investigating evolutionary influences on behavior, or studying hereditary, genetic influences on individual and groups differences, was considered taboo (Evans, 1999). Behaviorists sought to identify universal principles of learning that transcended species, culture, gender, or age. Whether a researcher conducted experiments with rats or pigeons, monkeys or human beings, infants or adults, did not matter; the same laws of learning applied.
The Cognitive Revolution

In the 1960s, behaviorism began to loosen its grip on the field. On the one hand, research on perception, personality, child development, interpersonal relations, and other topics that behaviorists had ignored raised questions they couldn’t readily explain. On the other hand, research in other fields (especially anthropology, linguistics, neurobiology, and computer science) was beginning to shed new light on the workings of the mind. Psychologists came to view behaviorism not as an all-encompassing theory or paradigm but as only one piece of the puzzle (Robins et al., 1999). They began to look into the black box and put more emphasis on humans (and other animals) as “sentient”—conscious, perceptive, and alert—beings; as active learners, not passive recipients of life’s lessons.

The Precursors: Gestalt and Humanistic Psychology

Not all psychologists had accepted behaviorist doctrines. Two schools that paved the way for the cognitive revolution were Gestalt psychology and humanistic psychology.

During the period that behaviorism reigned supreme in American psychology, a group of psychologists in Germany was attacking structuralism from another direction. Max Wertheimer, Wolfgang Köhler, and Kurt Koffka were all interested in perception, but particularly in certain tricks that the mind plays on itself. For example, when we see a series of still pictures flashed at a constant rate (for example, movies or “moving” neon signs), why do the pictures seem to move?

Phenomena like these launched a new school of thought, Gestalt psychology. Roughly translated from German, Gestalt means “whole” or “form.” When applied to perception, it refers to our tendency to see patterns, to distinguish an object from its background, to complete a picture from a few cues. Like William James, the Gestalt psychologists rejected the attempt to break down perception and thought into their elements. When we look at a tree, we see just that, a tree, not a series of isolated leaves and branches. Gestalt psychology laid the foundation for the modern study of sensation and perception (see Chapter 3) and contributed to the revival of interest in mental (or cognitive) processes.

During the same period, the American psychologist Abraham Maslow, who studied under Gestalt psychologist Max Wertheimer and anthropologist Ruth Benedict, developed a more holistic approach to psychology, in which feelings and yearnings play a key role. Maslow referred to humanistic psychology as the “third force”—beyond Freudian theory and behaviorism. Humanistic psychologists emphasize human potential and the importance of love, belonging, self-esteem, self-expression, peak experiences (when one becomes so involved in an activity that self-consciousness fades), and self-actualization (the spontaneity and creativity that result from focusing on problems outside of oneself and looking beyond the boundaries of social conventions). They focus on mental health and well-being, on self-understanding and self-improvement, rather than on mental illness.

Humanistic psychology has made important contributions to the study of motivation and emotions (see Chapter 9), as well as to the subfields of personality and psychotherapy (Chapters 11 and 14). But it has never been totally accepted by mainstream psychology. Because humanistic psychology is interested in questions of meaning, values, and ethics, many people—including its own members—see this school of psychology more as a cultural and spiritual movement than as a branch of science (Rabasca, 2000a). In recent years, however, positive psychologists (introduced below) have begun to reexamine some of the questions humanistic psychologists raised a half-century ago (Bohart & Greening, 2001).

The Rise of Cognitive Psychology

In the 1960s, psychology began to come full circle. The field returned from a period in which consciousness was considered to

Gestalt psychology  School of psychology that studies how people perceive and experience objects as whole patterns.

Humanistic psychology  School of psychology that emphasizes nonverbal experience and altered states of consciousness as a means of realizing one’s full human potential.
be inaccessible to scientific inquiry, and psychologists began to investigate and theorize about the mind—but now with new research methods and behaviorism’s commitment to objective, empirical research. Even the definition of psychology changed. Psychology is still the study of human behavior, but psychologists’ concept of “behavior” has been expanded to include thoughts, feelings, and states of consciousness.

The phrase cognitive revolution refers to a general shift away from a limited focus on behavior toward a broad interest in mental processes. This new focus holds for both existing and new subfields of psychology. In developmental psychology, for example, the idea that a child is a blank slate, whose development is shaped entirely by his or her environment, was replaced by a new view of babies and children as aware, competent, social beings. In this new view, children actively seek to learn about and make sense of their world. Moreover, all healthy children are “equipped” with such distinctively human characteristics as the ability to acquire language, without formal education, through exposure. Developmental psychology is only one subfield that both contributed to, and benefited from, the emergence of cognitive psychology.

Cognitive psychology is the study of our mental processes in the broadest sense: thinking, feeling, learning, remembering, making decisions and judgments, and so on. If the behaviorist model of learning resembled an old-fashioned telephone switchboard (a call or stimulus comes in, is relayed along various circuits in the brain, and an answer or response goes out), the cognitive model resembles a high-powered, modern computer. Cognitive psychologists are interested in the ways in which people “process information”—that is, how we acquire information, process or transform bits of information into programs, and use those programs to solve problems.

In contrast to behaviorists, cognitive psychologists believe that mental processes can and should be studied scientifically. Although we cannot observe memories or thoughts directly, we can observe behavior and make inferences about the kinds of cognitive processes that underlie that behavior. For example, we can read a lengthy story to people and then observe the kinds of things they remember from that story, the ways in which their recollections change over time, and the sorts of errors in recall they are prone to make. On the basis of systematic research of this kind, we can gain insight into the cognitive processes underlying human memory. Moreover, with the advent of new brain-imaging techniques (discussed in Chapter 2), cognitive psychologists have begun to address questions about the neurological mechanisms that underlie such cognitive processes as learning, memory, intelligence, and emotion, giving rise to the rapidly expanding field of cognitive neuroscience (D’Esposito, Zarahn, & Aguirre, 1999; Schacter, 1999).

In just a short time, cognitive psychology has had an enormous impact on almost every area of psychology (Sperry, 1988, 1995) and has become the most prominent school in contemporary scientific psychology (Johnson & Erneling, 1997; Robins et al., 1999).

New Directions

During much of the twentieth century, psychology was divided into competing theoretical schools. Crossing theoretical lines was considered intellectual heresy. Today, psychologists are more flexible in considering the merits of new approaches, combining elements of different perspectives as their interests or research findings dictate, and new theories and initiatives are emerging.

Evolutionary Psychology As the name indicates, evolutionary psychology focuses on the evolutionary origins of behavior patterns and mental processes,
exploring what adaptive value they have or had and what functions they serve or served in our emergence as a distinct species (DeKay & Buss, 1992; Wright, 1994). All of the theoretical views we have discussed so far seek to explain modern humans, or *Homo sapiens*. In contrast, evolutionary psychologists ask “How did human beings get to be the way we are?” They study such diverse topics as perception, language, helping others (altruism), parenting, happiness, sexual attraction and mate selection, jealousy, and violence (Bernhard & Penton-Voak, 2002; Buss, 2000a; Buss & Shackelford, 1997; Caporael, 2001). By studying such phenomena in different species, different habitats, different times, different cultures, and in males and females, evolutionary psychologists seek to understand the basic programs that guide thinking and behavior (Archer, 1996; Buss & Malamuth, 1996; Byrne, 2002; DeKay & Buss, 1992; Scarr, 1993).

Cognitive psychologists tend to see the human mind as a “general purpose” computer that requires software (experience) to process information. In contrast, many evolutionary psychologists see the mind as “hardwired,” so that human beings are predisposed to think and act in certain ways (Cosmides, Tooby, & Barkow, 1992; Goode, 2000b; Siegert & Ward, 2002). Further, they contend that these fixed programs evolved hundreds of thousands of years ago when our ancestors lived as hunter-gatherers, and that the problem-solving strategies that benefited early humans may or may not be adaptive in the modern era.

**Positive Psychology** Another emerging perspective is *positive psychology*, the view that psychology should devote more attention to “the good life,” or the study of subjective feelings of happiness and well-being; the development of such individual traits as intimacy, integrity, leadership, altruism, and wisdom; and what kinds of families, work settings, and communities encourage individuals to flourish (Seligman & Csikszentmihalyi, 2000).

Positive psychologists argue that psychologists have learned a great deal about the origins, diagnosis, and treatment of mental illness but relatively little about the origins and nurturance of mental wellness. We have come to understand a lot about how individuals survive and endure under conditions of extreme adversity, but far less about ordinary human strengths and virtues (Sheldon & King, 2001). We know more about intelligence than about wisdom; more about conformity than originality; and more about stress than about tranquility. There have been many studies of
prejudice and intergroup hostility, for example, but very few about tolerance and intergroup harmony. In recent decades, psychologists have made great strides in understanding the neurology of depression, schizophrenia, and other disorders.

Today’s positivists do not argue that psychologists should abandon their role as a science of healing. To the contrary, they support efforts to promote better, more widespread use of what psychologists have learned. But they argue that psychology has reached a point where building positive qualities should receive as much emphasis as repairing damage.

**Multiple Perspectives**  As we noted earlier, contemporary psychologists are less likely than those of previous generations to advocate one theoretical perspective to the exclusion of all others (Friman, Allen, Kerwin, & Larzelere, 1993). Rather, psychologists today tend to see different perspectives as complementary, with each contributing to our understanding of human behavior.

Consider the study of aggression. Psychologists no longer limit their explanations to the behavioral view (aggressive behavior is learned as a consequence of reward and punishment) or to the Freudian perspective (aggression is an expression of unconscious hostility toward a parent). Instead, most contemporary psychologists trace aggression to a number of factors, including long-standing adaptations to the environment (evolutionary psychology) and the influences of culture, gender, and socioeconomic status on how people perceive and interpret events—“That guy is making fun of me” or “She’s asking for it”—(cognitive psychology). Likewise, physiological psychologists no longer limit themselves to identifying the genetic and biochemical roots of aggression, instead they study how heredity and the environment interact.

Sometimes these theoretical perspectives mesh beautifully, with each one enhancing the others; at other times adherents of one approach challenge their peers, arguing for one viewpoint over all the others. But all psychologists agree that the field advances only with the addition of new evidence to support or challenge existing theories.

**Where Are the Women?**

As you read the brief history of modern psychology, you may have concluded that the founders of the new discipline were all men. But did psychology really have only fathers and no mothers? If there were women pioneers, why are their names and accomplishments missing from historical accounts?

In fact, psychology has profited from the contributions of women from its beginnings. Women presented papers and joined the national professional association as soon as it was formed in 1892 (Furumoto & Scarborough, 1986). In 1906, James McKeen Cattell published *American Men of Science*, which, despite its title, included a

**THINKING CRITICALLY**

**Autonomy**

The January, 2000, edition of the journal *American Psychologist* was dedicated to positive psychology. The issue included two articles on autonomy, or self-determination.

In one, the authors (Ryan & Deci, 2000) conclude that autonomy—freedom to make one’s own decisions—is essential to motivation and personal growth. Without options, they argue, people become passive. In the other, the author (Schwartz, 2000) argues that too much freedom of choice is debilitating. Without strong cultural guidelines, people have no way of evaluating their choices and so are more vulnerable to depression.

- Which conclusion do you support? How did you arrive at this view? From personal experience, or from experience in other cultures?
- Play “devil’s advocate” in the sense of developing arguments for the view you oppose. What does this exercise teach you?
- In the United States, we tend to assume that everyone should have freedom of choice, and we espouse this view for everyone, in every culture and society. Is our view culturally biased? What kind of research evidence would you need to determine whether your view is in fact correct?

**Suggestion:** In debating this question with yourself and others, we urge you the read the original articles:


number of women, among them 22 female psychologists. Cattell rated three of these women as among the 1,000 most distinguished scientists in the country: Mary Whiton Calkins (1863–1930), Christine Ladd-Franklin (1847–1930), and Margaret Floy Washburn (1871–1939).

Often, however, female psychologists faced discrimination. Some colleges and universities did not grant degrees to women, professional journals were reluctant to publish their work, and teaching positions were often closed to them (Evans, 1999; Kite et al., 2001; Minton, 2002; O’Connell & Russo, 1990; Russo & Denmark, 1987; Stevens & Gardner, 1982). As a result, most early female psychologists found positions in therapeutic and other nonacademic settings; pursued careers in allied professions, such as child development and education, which were considered acceptable fields for women; or gained recognition by collaborating on research projects and books with their spouses (Evans, 1999).

Christine Ladd-Franklin completed the requirements for a doctorate in psychology at Harvard in the 1880s, but was not awarded a Ph.D. until 1926—more than 40 years later—when Johns Hopkins finally lifted its restrictions against granting doctoral degrees to women. Because of the prevailing prejudice against women who sought to combine a career with marriage and motherhood, she never held a permanent academic position (Furumoto & Scarborough, 1986). Nevertheless, she became one of this country’s leading theorists in color vision.

Like Ladd-Franklin, Mary Whiton Calkins studied psychology at Harvard. William James described her as his brightest student. Yet she, too, was denied a degree because of her gender. Calkins went on to head the psychology department at Wellesley College, where she developed an influential theory of self-psychology and an important research technique for studying verbal learning (Furumoto, 1980). In 1905, she became the first woman to be elected president of the American Psychological Association (APA).

Margaret Floy Washburn began her studies at Columbia University, but soon transferred to Cornell University, one of the few institutions that did grant doctorates to women (Furumoto & Scarborough, 1986). She was Edward B. Titchener’s first doctoral student and also the first woman in America to receive a Ph.D. in psychology. Washburn later became the head of the psychology department at Vassar College, where she remained for 34 years. Washburn wrote several influential books, including _Movement and Mental Imagery_ (1916), which anticipated current research on the role of imagery in directing thought and activity. In addition, Washburn was an editor of the _American Journal of Psychology_ for many years and was elected president of APA in 1921.

After World War II, the cultural climate for women began to change, albeit slowly. Coeducation became the norm, and the policy of systematically denying women graduate degrees was abandoned. Over the next two to three decades, most of the degrees and positions awarded to women were in applied psychology, and men continued to dominate academic experimental psychology. Not until the 1970s and 1980s did women win recognition for contributions in all of psychology’s subfields (Pion et al., 1996).

In recent decades, the number of women who receive Ph.D.s in psychology has grown dramatically (see Figure 1–1). Today, women have begun to outnumber men in psychology. According to the most recent APA survey, women receive three-fourths of the baccalaureate degrees awarded in psychology; represent just under three-fourths of psychology graduate students; and earned two out of three doctorate degrees in psychology awarded in 1997 (APA, 2000).

The apparent absence of women from the history of psychology is only one aspect of a much bigger and more troubling concern: the relative inattention to human diversity that has characterized psychology through most of the twentieth century. Only recently have psychologists looked closely at the ways in which culture, gender, race, and ethnicity can affect virtually all aspects of human behavior. In the next section of the chapter, we will begin our examination of this important topic.
CHECK YOUR UNDERSTANDING

1. Psychology began in 1879 at the University of Leipzig. Who started it and used the term “voluntarism” to describe it?
   ___ a. Sigmund Freud
   ___ b. John B. Watson
   ___ c. Mary Whiton Calkins
   ___ d. Wilhelm Wundt

2. “No one ever had a simple sensation by itself,” said this opponent of structuralism who defined consciousness as a continuous stream. Identify the person and his theory.
   ___ a. John B. Watson and behaviorist theory
   ___ b. William James and functionalist theory
   ___ c. Sigmund Freud and psychodynamic theory
   ___ d. Abraham Maslow and humanistic theory

3. Gestalt psychology studies
   ___ a. perception of objects as whole patterns
   ___ b. self-improvement and self-understanding
   ___ c. observable and measurable behavior
   ___ d. gender stereotypes

4. Which one of these best sums up the beginnings of cognitive psychology?
   ___ a. a shift toward sexuality and away from free will
   ___ b. a shift away from behavior to mental processes
   ___ c. a shift toward greater use of laboratory experiments
   ___ d. a shift toward conditioning in both humans and animals

Answers: 1.d, 2.b, 3.a, 4.b

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**Figure 1–1**
Percentage of women recipients of Ph.D.s in psychology, 1950–1997
Source: Summary Report: Doctorate Recipients from United States Universities (Selected Years). National Research Council. Figure compiled by the APA Research Office. Copyright © 2000 by the American Psychological Association. Reprinted with permission.
Human Diversity

Are ethnic minorities underrepresented among psychologists?

For today’s students—and tomorrow’s citizens of the globe—understanding human diversity is essential. The reason is all around you. Our major cities are home to people from diverse backgrounds, with diverse values and goals, living side by side. But proximity does not always produce harmony; sometimes it leads to aggression, prejudice, and conflict. Understanding cultural, racial, and ethnic differences in thinking and behavior gives us the tools to reduce some of these interpersonal tensions. In the past, men and women led very different lives. Today, women in many societies are as likely as men to obtain higher education; to work full-time, pursue careers, and start businesses; and to be active in politics. And men are more likely to be more active parents and homemakers than their fathers were. Yet stereotypes about how the “typical male” looks and acts or the “accepted social roles” for females still lead to confusion and misunderstandings between the sexes. Looking at human diversity from a scientific perspective will allow you to separate fact from fiction in your daily interactions with people. Moreover, once you understand how and why groups differ in their values, behaviors, approaches to the world, thought processes, and responses to situations, you will be better able to savor the diversity around you. Finally, the more you comprehend human diversity, the more you will appreciate the many universal features of humanity.

In the early twentieth century, psychology was a white male profession with a distinctly American accent (Strickland, 2000). The great majority of research studies were conducted by white male professors at American universities, using white, male, American college students as subjects. This was not a conscious or deliberate decision to study just one particular group. Like other sciences and prestigious professions in Europe and North America, psychology took for granted that what was true of white, Western males would be true for other people as well. One critical history of psychology during this period was entitled Even the Rat Was White! (Guthrie, 1976).

Examining and overcoming past assumptions and biases has been a slow and uneven process, but a new appreciation of human diversity is taking shape (Phinney, 1996; Tucker & Herman, 2002). Psychologists have begun to question assumptions based on gender, race, and culture explicitly. Are women more likely to help a person in distress than men are? Are African Americans more vulnerable to certain types of mental illness than European Americans, or vice versa? Do the Japanese view children’s ability to learn in the same way Americans do? Do homosexuals have
different motives and emotions than heterosexuals? Research indicates that the answer to such questions often is “no.”

**Gender**

Gender has many layers. *Male* and *female* refer to one’s biological makeup, the physical and genetic facts of being one sex or the other. Some scientists use the term *sex* to refer exclusively to biological differences in anatomy, genetics, or physical functioning and *gender* to refer to the psychological and social meanings attached to being biologically male or female. Because distinguishing what is biologically produced from what is socially influenced is almost impossible, in our discussion of these issues we will use the terms *sex* and *gender* interchangeably.

In contrast, the terms *masculine* and *feminine* have distinct psychological and social meanings. “Masculine” preferences, attributes, and interests are those that are typically associated with being a male in a given society and culture, whereas “feminine” preferences, attributes, and interests are those associated with being a female. These terms are based on people’s cultural notions about the sexes (and indeed, about themselves) rather than on biological facts. Whereas individuals are either biological males or females, masculinity and femininity are better viewed as a continuum, with masculinity at one extreme and femininity at the other with many overlapping traits in between.

**Gender Stereotypes** “Women talk too much; men are strong and silent.” “Men have pals; women have confidants.” “Women worry about their looks and their children; men, about their jobs and their bank accounts.” “Men monopolize the TV zapper; women monopolize the bathroom mirror.” The list of *gender stereotypes*—characteristics that are assumed to be typical of each sex—is endless. In general, our culture holds that men are dominant, strong, and aggressive, whereas women are accommodating, emotional, and affectionate. As a result, many boys learn to hide their emotions, to deny feelings of weakness even to themselves, and to fight, whereas many girls learn to hide their ambitions, to deny their talents
**Gender roles** Behaviors that we expect each gender to engage in.

**Feminist theory** Feminist theories offer a wide variety of views on the social roles of women and men, the problems and rewards of those roles, and the prescriptions for changing them.

**Sexual orientation** Refers to the direction of one’s sexual interest toward members of the same sex, the other sex, or both sexes.

The study of gender similarities and differences has become part of mainstream psychology. Psychologists in virtually every subfield conduct research to determine whether their findings apply equally to males and females, and if not, why. As we will see, feminist theory is not for women only.

**Feminist Psychology** As the number of female psychologists has grown in recent decades, so has the concern about traditional psychological theories, research, and clinical practices (Minton, 2002). Feminist psychologists such as Carol Gilligan make three main points. First, much of the research supporting key psychological theories, such as moral development, was based on all-male samples. Measured against “universal male” standards, females often were found “lacking.” Second, reports of gender differences tend to focus on the extremes, exaggerating small differences and ignoring much greater similarities (Tavris, 1992). Third, the questions psychologists ask and the topics they study reflect what they consider to be important.

Beyond research and theory, contemporary feminist psychology has begun to influence every facet of psychological practice by seeking mechanisms to empower women in the community, by advocating action to establish policies that advance equality and social justice, and by increasing women’s representation in global leadership. Feminists also took the lead in urging other psychologists to recognize sexual orientation as simply another aspect of human diversity.

**Sexual Orientation** The term sexual orientation refers to whether a person is sexually attracted to members of the opposite sex (heterosexuality), the same sex (homosexuality), or both sexes (bisexuality). Division 44 of the American Psychological Association, “Society for the Psychological Study of Lesbian, Gay, and Bisexual Issues,” was founded in 1985 to promote research and education regarding sexual orientation, for psychologists as well as the general public. Psychologists have only just begun to investigate the many sensitive issues associated

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**THINKING CRITICALLY**

**The Universal Male**

Studies of gender often treat males as the standard and women as the variable. For example, a researcher gave men and women a test of creativity, then asked them to explain their scores in a mock job interview (Olson, 1988). The researcher was not interested in which sex was more creative (they were equal), but in their explanations. She found that women were more likely to attribute success to luck and failure to inability, whereas men were more likely to attribute success to ability and failure to bad luck. Why do women take less credit for their achievements? The researcher concluded, “The feminine goal of appearing modest inhibits women from making self-promoting attributions in achievement situations.”

- How is this researcher using the “universal male” standard?
- What would happen if you turned around the sentence in quotes and used women as the standard?
- Try filling in the blanks:
  - Why do men make more _____ explanations than women do?
  - The masculine goal of appearing _____ inhibits men from making more modest explanations, acknowledging the role of luck, or admitting they received help from others (Tavris, 1992, p. 28).
- What are the hidden assumptions?
- Can you think of alternative explanations for the findings?
- What would you need to know about this study to have confidence that the results apply to people generally, rather than just the people who were studied?
with this dimension of human diversity—including such topics as the origins of sexual orientation (LeVay & Hamer, 1994), brain differences between heterosexual and homosexual men (Swaab & Hoffman, 1995), and the impact of allowing gays and lesbians in the military (Jones & Koshes, 1995).

Race and Ethnicity

One of the first things we notice about a person (along with sex) is their race or ethnicity (Omi & Winant, 1994). **Race** is a biological term used to refer to a subpopulation whose members have reproduced exclusively among themselves and therefore are genetically similar and distinct from other members of the same species (Betancourt & López, 1993; Diamond, 1994; Macionis, 1993). Most people simply take for granted the idea that the human species can be divided into a number of distinct races (Asians, Africans, Caucasians, Native Americans, and so on). However, human beings have migrated, intermarried, and commingled so frequently over time that it is impossible to identify biologically separate races. To a greater or lesser degree, all humans are “racial hybrids.” Moreover, the criteria people use to differentiate among different races are arbitrary. In the United States we assign people to different races primarily on the basis of skin color and facial features. In central Africa, members of the Tutsi and Hutu tribes see themselves as different races, although they are similar in skin color and facial features. In spite of these different definitions, most people continue to believe that racial categories are meaningful, and as a result, race shapes people’s social identities, their sense of self, their experiences in their own and other societies, and even their health.

Whereas racial categories are based on physical differences, **ethnicity** is based on cultural characteristics. An ethnic group is a category of people who see themselves—and are perceived by others—as distinctive because of a common homeland and history, language, religion, or traditional cultural beliefs and social practices. For example, Hispanic Americans may be black, white, or any shade in between. What unites them is their language and culture.

As psychologists study the origins of homosexuality, gay couples seek social acceptance as parents.
By the mid-1980s, there was sufficient interest among psychologists in ethnicity that the American Psychological Association created a new division devoted to the psychological study of ethnic minority issues (Division 45). Increasing numbers of psychologists are now studying why ethnicity is so important in our country (and others) and how individuals select or create an identity and respond to ethnic stereotypes.

**Racial and Ethnic Minorities in Psychology**  Most ethnic minorities are still underrepresented among the ranks of American psychologists. According to the APA, ethnic-minority students account for almost 25 percent of college entrants, but only 16 percent of graduates who majored in psychology, 14 percent of those who enroll in graduate school in psychology, 12 percent of those who receive master’s degrees in psychology, and 9 percent of those who earn doctorates (Sleek, 1999). Why? One possibility is that when black, Hispanic, Native American, and other students look at the history of psychology or at the psychology faculties of today’s universities, they find few role models; likewise, when they look at psychological research, they find little about themselves and their realities (Strickland, 2000). As recently as the 1990s, a survey of psychology journals found that less than 2 percent of the articles focused on U.S. racial and ethnic minorities (Iwamasa & Smith, 1996). Nonetheless, their small numbers have not prevented them from achieving prominence and making significant contributions to the field. For example, Kenneth Clark, a former president of the American Psychological Association, received national recognition for the important work he and his wife, Mamie Clark, did on the effects of segregation on black children (Lal, 2002). This research was cited by the Supreme Court in the *Brown v. Board of Education* decision of 1954 that outlawed segregated schools in the United States (Keppel, 2002).

In an effort to remedy the underrepresentation of ethnic minorities, the APA’s Office of Ethnic Minority Affairs is sponsoring programs to attract ethnic-minority students to psychology (Rabasca, 2000a). This initiative includes summer programs for high school students, recruitment at the high school and college levels, mentoring and other guidance programs, and a clearinghouse for college students who meet the requirements for graduate programs.

**Culture**

A classic definition of *culture* is a people’s “design for living” (Kluckhohn, 1949). A culture provides modes of thinking, acting, and communicating; ideas about how the world works and why people behave as they do; beliefs and ideals that shape our individual dreams and desires; information about how to use and improve technology; and perhaps most important, criteria for evaluating what natural events, human actions, and life itself mean. All large, complex modern societies also include subcultures—groups whose values, attitudes, behavior, and vocabulary or accent distinguish them from the cultural mainstream. Most Americans participate in a number of subcultures as well as mainstream culture.

Many of the traits we think of as defining us as human—especially language, morals, and technology—are elements of culture. Even one’s sense of self is dependent on culture and subculture (Segall, Lonner, & Berry, 1998). Thus psychology must take cultural influences into account. For example, cross-cultural research on motivation...
and emotions, personality and self-esteem, has called attention to a broad distinction between individualistic cultures (which value independence and personal achievement) and collectivist cultures (which value interdependence, fitting in, and harmonious relationships) (Kagitcibasi, 1997). Moreover, cross-cultural studies have had a significant impact on the study of gender. Anthropologist Margaret Mead’s classic, *Sex and Temperament in Three Primitive Societies* (1935) is still cited by feminists and others as showing that definitions of masculinity and femininity are not biological givens, but learned, cultural constructs and therefore subject to change. Finally, in our increasingly multicultural society, psychologists will be dealing with diverse clients, research participants, and students (Hall, 1997). To prepare for this future, psychology must begin educating and training “culturally competent” professionals.

Throughout this book we will explore similarities and differences among individuals and among groups of people. For example, we will examine differences in personality characteristics, intelligence, and levels of motivation; we will look at similarities in biological functioning and developmental stages. In almost every chapter, we will examine research on males and females, members of different racial and ethnic groups, and cross-cultural studies.

**CHECK YOUR UNDERSTANDING**

1. The terms “masculine” and “feminine” are based on
   ____ a. biological facts
   ____ b. stereotypes
   ____ c. feminist psychology
   ____ d. cultural notions

2. If *race* is a biological term, *ethnicity* is a _____ term?
   ____ a. cultural
   ____ b. sexual
   ____ c. arbitrary
   ____ d. feminist

Most Americans are members of a subculture as well as being members of the mainstream culture.
3. When psychologists use the term “culture,” they mean the study of
   ___ a. the good life
   ___ b. ethnic minorities
   ___ c. designs for living
   ___ d. aggressive behavior

Research Methods in Psychology

How do psychologists design experiments?

All sciences—psychology, sociology, economics, political science, biology, and physics—require empirical evidence based on careful observation and experimentation. To collect data systematically and objectively, psychologists use a variety of research methods, including naturalistic observation, case studies, surveys, correlational research, and experimental research. Each of these research strategies has advantages and disadvantages compared to the others.

Naturalistic Observation

Psychologists use naturalistic observation to study human or animal behavior in its natural context. One psychologist with this real-life orientation might observe behavior in a school or a factory; another might actually join a family to study the behavior of its members; still another might observe monkeys in the wild rather than in cages. The primary advantage of naturalistic observation is that the behavior observed in everyday life is likely to be more natural, spontaneous, and varied than that observed in a laboratory.

For example, naturalistic observation was used in a recent study (Hammen, Gitlin, & Altshuler, 2000) designed to understand why some patients with bipolar disorder (a mental disorder discussed more fully in Chapter 13, Psychological Disorders) are more likely to adjust successfully to the workplace than others. By carefully studying 52 people over a 2-year period in their natural settings, these authors found that the people who displayed the most successful work adjustment were those who also had strong supportive personal relationships with other people. Surprisingly, stressful life events did not seem to play an important role in how well these people adjusted to work. Because simulating a genuine workplace environment in a laboratory would have been extremely difficult (especially over an extended period of time), naturalistic observation provided a practical alternative to exploring this issue.

Naturalistic observation is not without its drawbacks. Psychologists using naturalistic observation have to take behavior as it comes. They cannot suddenly yell, “Freeze!” when they want to study what is going on in more detail. Nor can psychologists tell people to stop what they are doing because it is not what they are interested in researching. Moreover, simply describing one’s impressions of “a day in the life” of a particular group or how different people behave in the same setting is not science. Observers must measure behavior in a systematic way, for example, by devising a form that enables them to check what people are doing at timed intervals.

The main drawback in naturalistic observation is observer bias. As we will see in Chapter 6 (Memory), eyewitnesses to a crime are often very unreliable sources of information. Even psychologists who are trained observers may subtly distort what they see to make it conform to what they were hoping to see. For this reason, contemporary researchers often use videotapes that can be analyzed and scored by

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**Empirical evidence** Information derived from systematic, objective observation.

**Naturalistic observation** Research method involving the systematic study of animal or human behavior in natural settings rather than in the laboratory.

**Observer bias** Expectations or biases of the observer that might distort or influence his or her interpretation of what was actually observed.
other researchers who do not know what the study is designed to find out. Another potential problem is that psychologists may not observe or record behavior that seems to be irrelevant. Therefore, many observational studies employ a team of trained observers who pool their notes. This strategy often generates a more complete picture than one observer could draw alone.

Unlike laboratory experiments that can be repeated over and over again, each natural situation is a one-time-only occurrence. Therefore, psychologists prefer not to make general statements based on information from naturalistic studies alone. Rather, they test the information from naturalistic observation under controlled conditions in the laboratory before they apply it to situations other than the original one.

Despite these disadvantages, naturalistic observation is a valuable tool. After all, real-life behavior is what psychology is all about. Naturalistic observation often provides new ideas and suggests new theories, which can then be studied more systematically and in more detail in the laboratory. This method also helps researchers maintain perspective by reminding them of the larger world outside the lab.

**Case Studies**

A second research method is the **case study**: a detailed description of one (or a few) individuals. Although in some ways similar to naturalistic observation, the researcher uses a variety of methods to collect information that yields a detailed, in-depth portrait of the individual. A case study usually includes real-life observation, interviews, scores on various psychological tests, and whatever other measures the researcher considers revealing. For example, the Swiss psychologist, Jean Piaget, developed a comprehensive theory of cognitive development by carefully studying each of his three children as they grew and changed during childhood. Other researchers have tested his theory with experiments involving larger numbers of children, in our own and other cultures (see Chapter 10, Life Span Development).

Like naturalistic observation, case studies can provide valuable insights but also have significant drawbacks. Observer bias is as much a problem here as it is with naturalistic observation. Moreover, because each person is unique, we cannot confidently draw general conclusions from a single case. Nevertheless, case studies figure prominently in psychological research. For example, the famous case of Phineas Gage, who suffered severe and unusual brain damage, led researchers to identify the front portion of the brain as important for the control of emotions and the ability to plan and carry out complex tasks (see Chapter 2, The Biological Basis of Behavior). The case study of another brain-damaged patient (Milner, 1959), called “H. M.,” who could remember events that preceded his injury but nothing that happened after it, prompted psychologists to suggest that we have several distinct kinds of memory (see Chapter 6, Memory).

**Surveys**

In some respects, surveys address the shortcomings of naturalistic observation and case studies. In **survey research**, a carefully selected group of people is asked a set of predetermined questions in face-to-face interviews or in questionnaires. Perhaps the most familiar surveys are the polls taken before major elections: For months, even a
year, before the election, we are bombarded with estimates of the percentage of people likely to vote for each candidate. But surveys are used for other purposes as well. For example, one survey found that 61 percent of the adults questioned by telephone believed that advertisers embedded subliminal messages in their ads, and 56 percent were convinced that such messages make people buy things they do not want (Lev, 1991). (There is no scientific evidence to support these beliefs.) According to a 1995 Department of Defense survey of 28,000 active-duty personnel, 78 percent of women and 38 percent of men reported one or more incidents of sexual harassment (Hay & Ellig, 1999). This survey—and others conducted more recently—indicates that sexual harassment occurs quite frequently in a wide variety of settings, often affecting both males and females (Larimer, Lydum, Anderson, & Turner, 1999).

Surveys, even those with a low response rate, can generate a great deal of interesting and useful information at relatively low cost, but to be accurate, the survey questions must be unambiguous and clear, the people surveyed must be selected with great care (see sampling, below), and they must be motivated to respond to the survey thoughtfully and carefully (Krosnick, 1999). For example, asking parents, “Do you ever use physical punishment to discipline your children?” may elicit the socially correct answer, “No.” Asking “When was the last time you spanked your child?” or “In what situations do you feel it is necessary to hit your child?” is more likely to elicit honest responses, because the questions are specific and imply that most parents use physical punishment; the researcher is merely asking when and why. At the same time, survey researchers must be careful not to ask leading questions, such as, “Most Americans approve of physical punishment; do you?” Guaranteeing participants in a survey anonymity can also be important.

Naturalistic observations, case studies, and surveys can provide a rich set of raw data that describes behaviors, beliefs, opinions, and attitudes. But these research methods are not ideal for making predictions, explaining, or determining the causes of behavior. For these purposes, psychologists use more powerful research methods, as we will see in the next two sections.

**Correlational Research**

A psychologist, under contract to the Air Force, is asked to predict which applicants for a pilot-training program will make good pilots. An excellent approach to this problem would be **correlational research**. The psychologist might select several
hundred trainees, give them a variety of aptitude and personality tests, and then compare the results to their performance in training school. This approach would tell him whether some characteristic or set of characteristics is closely related to, or correlated with, eventual success as a pilot.

Suppose he finds that the most successful trainees score higher than the unsuccessful trainees on mechanical aptitude tests and that they are also cautious people who do not like to take unnecessary risks. The psychologist has discovered that there is a correlation, or relationship, between these traits and success as a pilot trainee: High scores on tests of mechanical aptitude and caution predict success as a pilot trainee. If these correlations are confirmed in new groups of trainees, then the psychologist could recommend with some confidence that the Air Force consider using these tests to select future trainees.

Correlational data are useful for many purposes, but they do not permit the researcher to explain cause and effect. This important distinction is often overlooked. Correlation means that two phenomena seem to be related: when one goes up the other goes up (or down). For example, young people with high IQ scores usually earn higher grades in school than do students with average or below-average scores. This correlation allows researchers to predict that children with high IQ scores will do well on tests and other classwork. But correlation does not identify the direction of influence. A high IQ might cause or enable a child to be a good student. But the reverse might also be true: working hard in school might cause children to score higher on IQ tests. Or a third, unidentified factor might intervene. For example, growing up in a middle-class family that places a high value on education might cause both higher IQ scores and higher school grades (see Appendix A for more on correlation).

So it is with our example. This psychologist has described a relationship between skill as a pilot and two other characteristics, and as a result he is able to use those relationships to predict with some accuracy which trainees will and will not become skilled pilots. But he has no basis for drawing conclusions about cause and effect. Does the tendency to shy away from risk taking make a trainee a good pilot? Or is it the other way around: Learning to be a skillful pilot makes people cautious? Or is there some unknown factor that causes people to be both cautious and capable of acquiring the different skills needed in the cockpit?

Despite limitations, correlational research often sheds light on important psychological phenomena. In this book you will come across many examples of correlational research.
research: People who are experiencing severe stress are more prone to develop physical illnesses than people who are not; children whose parent(s) have schizophrenia are more likely to develop this disorder than are other children; and when one needs help, the more bystanders, the less likely it is that any one of them will come forward to offer help. These interesting findings allow us to make some predictions, but psychologists want to move beyond simply making predictions. To explain the causes of psychological phenomena, psychologists most often use experimental research.

**Experimental Research**

A psychology instructor notices that on Monday mornings most students in her class do not remember materials as well as they do later in the week. She has discovered a correlation between the day of the week and memory for course-related material. Based on this correlation, she could predict that next Monday and every Monday after that the students in her class will not absorb material as well as on other days. But she wants to go beyond simply predicting her students’ behavior; she wants to understand or explain why their memories are poorer on Mondays than on other days of the week.

Based on her own experiences and some informal interviews with students, she suspects that students stay up late on weekends and their difficulty remembering facts and ideas presented on Mondays is due to lack of sleep. This hypothesis appears to make sense, but the psychologist wants to prove that it is correct. To gather evidence that lack of sleep actually causes memory deficits, she turns to the experimental method.

Her first step is to select participants, people whom she can observe to find out whether her hypothesis is correct. She decides to use student volunteers. To keep her results from being influenced by sex differences or intelligence levels, she chooses a group made up of equal numbers of men and women, all of whom scored between 520 and 550 on the verbal section of their College Boards.

Next, she designs a memory task. She needs something that none of her participants will know in advance. If she chooses a chapter in a history book, for example, she runs the risk that some of her participants will be history buffs. Given the various possibilities, the psychologist decides to print a page of geometric shapes, each labeled with a nonsense word. Circles are “glucks,” triangles, “rogs,” and so on. She gives students half an hour to learn the names from this page, then takes it away and asks them to assign those same labels to geometric shapes on a new page.

The psychologist also needs to know which participants are sleep-deprived. Simply asking people whether they have slept well is not ideal: Some may say “no” so they will have an excuse for doing poorly on the test, others may say “yes” because they do not want a psychologist to think they are so unstable they cannot sleep. And two people who both say they “slept well” may not mean the same thing by that phrase. So the psychologist decides to intervene—that is, to control the situation more closely. Everyone in the experiment, she decides, will spend the night in the same dormitory. They will be kept awake until 4:00 A.M., and then they will be awakened at 7:00 A.M. sharp. She and her colleagues will patrol the halls to make sure that no one falls asleep ahead of schedule. By manipulating the amount of time the participants sleep, the psychologist is introducing and controlling an essential element of the experimental method: an independent variable.

The psychologist believes that the students’ ability to learn and remember labels for geometric shapes will depend on their having had a good night’s sleep. Performance on the memory task (the number of correct answers) thus becomes the dependent variable. According to the hypothesis, changing the independent variable (the amount of sleep) should also change the dependent variable (performance on the memory task). Her prediction is that this group of participants, who get no more than three hours of sleep, should do quite poorly on the memory test.
At this point, the experimenter begins looking for loopholes in her experimental design. How can she be sure that poor test results mean that the participants did less well than they would have done had they had more sleep? For example, their poor performance could simply be the result of knowing that they were being closely observed. To be sure that her experiment measures only the effects of inadequate sleep, the experimenter creates two groups, containing equal numbers of males and females of the same ages and with the same College Board scores. One of the groups, the experimental group, will be kept awake, as described, until 4:00 A.M. That is, they will be subjected to the experimenter’s manipulation of the independent variable—amount of sleep. Members of the other group, the control group, will be allowed to go to sleep whenever they please. If the only consistent difference between the two groups is the amount of sleep they get, the experimenter can be much more confident that if the groups differ in their test performance, the difference is due to the length of time they slept the night before.

Finally, the psychologist questions her own objectivity. Because she believes that lack of sleep inhibits students’ learning and memory, she does not want to prejudice the results of her experiment; that is, she wants to avoid experimenter bias. So she decides to ask a neutral person, someone who does not know which participants did or did not sleep all night, to score the tests.

The experimental method is a powerful tool, but it, too, has limitations. First, many intriguing psychological variables, such as love, hatred, or grief, do not readily lend themselves to experimental manipulation. And even if it were possible to induce such strong emotions as part of a psychological experiment, this would raise serious ethical questions. In some cases, psychologists may use animals rather than humans for experiments. But some subjects, such as the emergence of language in children or the expression of emotions, cannot be studied with other species. Second, because experiments are conducted in an artificial setting, participants—whether human or nonhuman—may behave differently than they would in real life.

The Summary Table lays out the most important advantages and disadvantages of each of the research methods we have discussed. Because each method has drawbacks, psychologists often use more than one method to study a single problem.

**Multimethod Research**

Suppose a psychologist was interested in studying creativity. She might begin her research by giving a group of college students a creativity test that she invented to measure their capacity to discover or produce something new. Next she would compare the students’ scores with their scores on intelligence tests and with their grades to see if there is a correlation between them. Then she would spend several weeks observing a college class and interviewing teachers, students, and parents to correlate classroom behavior and the adults’ evaluations with the students’ scores on the creativity test. She would go on to test some of her ideas with an experiment using a group of students as participants. Finally, her findings might prompt her to revise the test, or they might give the teachers and parents new insight into a particular student.

**The Importance of Sampling**

One obvious drawback to every form of research is that it is usually impossible, or at least impractical, to measure every single occurrence of a characteristic. No one could expect to measure the memory of every human being, to study the responses of all individuals who suffer from phobias (irrational fears), or to record the maternal behavior of all female monkeys. No matter what research method is used, whenever researchers conduct a study, they examine only a relatively small number of people or animals of the population they seek to understand. In other words, researchers almost always study a small sample and then use the results of that...
limited study to generalize about larger populations. For example, the psychology instructor who studied the effect of lack of sleep on memory assumed that her results would apply to other students in her classes (past and future), as well as to students in other classes and at other colleges.

How realistic are these assumptions? How confident can researchers be that the results of research conducted on a relatively small sample of people apply to the much larger population from which the sample was drawn? Social scientists have developed several techniques to deal with sampling error. One is to select participants at random from the larger population. For example, the researcher studying pilot trainees might begin with an alphabetical list of all trainees and then select every third name or every fifth name on the list to be in his study. These participants would constitute a random sample from the larger group of trainees, because every trainee had an equal chance of being chosen for the study.
Another way to make sure that conclusions apply to the larger population is to pick a **representative sample** of the population being studied. For example, researchers looking for a representative cross-section of Americans would want to ensure that the proportion of males and females in the study matched the national proportion, that the number of participants from each state matched the national population distribution, and so on. Even with these precautions, however, unintended bias may influence psychological research. This issue has received a great deal of attention recently, particularly in relation to women and African Americans, as we discussed earlier.

**Ethics and Psychological Research**

Almost all psychological research involves people (often college students) or live animals. What responsibilities do psychologists have toward their human and non-human research subjects?

**Ethics in Research on Humans**  If your college or university has a research facility, you will probably have a chance to become a participant in a psychology experiment. Most likely, you will be offered a small sum of money or class credit to participate. But you may not learn the true purpose of the experiment until after it’s over. Is this deception necessary? What if the experiment causes you discomfort? Before answering, consider the ethical debate that flared up in 1963 when Stanley Milgram published the results of several experiments he had conducted.

Milgram used ads in local newspapers to hire people to participate in a “learning experiment.” When a participant arrived at the laboratory, he was met by a stern-faced researcher in a lab coat; another man in street clothes was sitting in the waiting room. The researcher explained that he was studying the effects of punishment on learning. When the two men drew slips out of the hat, the participant’s slips said “teacher.” The teacher watched as the “learner” was strapped into a chair and an electrode attached to his wrist. Then the teacher was taken into an adjacent room and seated at an impressive looking “shock generator” with switches from 15 to 450 volts, labeled “Slight Shock,” “Very Strong Shock” up to “Danger: Severe Shock” and finally “XXX.” The teacher’s job was to read a list of paired words, which the learner would attempt to memorize and repeat. The teacher was instructed to...
deliver a shock whenever the learner gave a wrong answer and to increase the intensity of the shock each time the learner made a mistake. At 90 volts, the learner began to grunt; at 120 volts, he shouted “Hey, this really hurts!”; at 150 volts he demanded to be released; and at 270 volts his protests became screams of agony. Beyond 330 volts, the learner appeared to pass out. If the teacher became concerned and asked to stop, the experimenter politely but firmly replied that he was expected to continue, that this experiment was being conducted in the interests of science.

In reality, Milgram was studying obedience, not learning. He wanted to find out whether ordinary people would obey orders to cause another person pain. As part of his research, Milgram (1974) described the experiment to 110 psychiatrists, college students, and middle-class adults and asked them at what point they thought participants would stop. Members of all three groups guessed that most people would refuse to continue beyond 130 volts, and no one would go beyond 300 volts. The psychiatrists estimated that only one in a thousand people would continue to the XXX shock panel. Astonishingly, 65 percent of Milgram’s participants administered the highest level of shock, even though many worried aloud that the shocks might be causing the learners serious damage.

To find out what he wanted to know, Milgram had to deceive his participants. The stated purpose of the experiment—to test learning—was a lie. The “learners” were Milgram’s accomplices, who had been trained to act as though they were being hurt; the machines were fake; and the learners received no shocks at all (Milgram, 1963). But, critics argued, the “teachers”—the real participants in the study—were hurt. Most not only voiced concern, but showed clear signs of stress: They sweated, bit their lips, trembled, stuttered, or in a few cases broke into uncontrollable nervous laughter. Critics also worried about the effect of the experiment on the participants’ self-esteem.

Although the design of this experiment was not typical of the vast majority of psychological experiments, it sparked such a public uproar that the APA reassessed its ethical guidelines, first published in 1953 (APA, 1953). A new code of ethics on psychological experimentation was approved. The code is assessed each year and periodically revised to ensure that it adequately protects participants in research studies. In addition to outlining the ethical principles guiding research and teaching, the code spells out a set of ethical standards for psychologists who offer therapy and other professional services, such as psychological testing (see Chapter 14, Therapies).

The APA code of ethics requires that researchers obtain informed consent from participants and stipulates that:

- Participants must be informed of the nature of research in clearly understandable language.
- Informed consent must be documented.
- Risks, possible adverse effects, and limitations on confidentiality must be spelled out in advance.
- If participation is a condition of course credit, equitable alternative activities must be offered.
- Participants cannot be deceived about aspects of the research that would affect their willingness to participate, such as risks or unpleasant emotional experiences.
- Deception about the goals of the research can be used only when absolutely necessary to the integrity of the research.*

In addition, psychological researchers are required to follow the government’s Code of Federal Regulations, which includes an extensive set of regulations concerning the protection of human participants in all kinds of research. If a researcher fails to abide by these regulations, federal funding for the researcher may be terminated and the research institution where he or she works may be penalized.

Despite these formal ethical and legal guidelines, controversy still rages about the ethics of psychological research on humans. Some hold that research procedures that might be emotionally or physically distressing should be prohibited (Baumrind, 1985); others assert that the guidelines are too strict and may cripple future research (Gergen, 1973; Sears, 1994). Some believe that the APA guidelines, which state that researchers can never deceive participants “... about aspects of the research that would affect their willingness to participate . . . (and) can be used only when absolutely necessary to the integrity of the research . . .,” are adequate to balance the rights of participants and the needs of research (Kimmel, 1998; Korn, 1998; Bröder, 1998). Others assert that deception is never justified (Ortmann & Hertwig, 1997, 1998). Still another view is that the explanations necessary to produce informed consent may foster a better understanding of the goals and methods of research (Blanck, Bellack, Rasnow, Rotheram-Borus, & Schooler, 1992). Finally, some hold that psychology, as a science, should base its ethical code on documented evidence about the effects of research procedures on participants, not on conjecture about what is “probably” a good way to conduct research (Holmes, 1976; Trice, 1986).

Ethics in Research on Nonhuman Subjects  In recent years, questions have also been raised about the ethics of using nonhuman subjects in psychological research (Herzog, 1995; Plous, 1996; Rowan & Shapiro, 1996; Shapiro, 1991). Psychologists conduct research with animals for three main reasons. The first is to study general behavior principles that apply to humans as well. Crowding mice into small cages, for example, has yielded valuable insights into the effects of overcrowding on humans. The second is for comparison. By comparing the behavior of great apes (our closest biological kin) to that of humans, psychologists gain insight into what makes humans unique and also what our ancestors might have been like (evolutionary psychology). Third, researchers use animals in experiments where it would be clearly unethical to use human participants, such as in studies involving brain lesions (cutting into the brain) or electric stimulation of parts of the brain. In fact, much of what we know about sensation, perception, drugs, emotional attachment, and the neural basis of behavior is derived from animal research (Domjan & Purdy, 1995).

At the heart of this debate is the pain and suffering that experiments can cause animals. A number of animal-rights groups, including Psychologists for the Ethical Treatment of Animals (PsyETA), are urging legislators to place stricter limits on experimentation with animals on the grounds that many such experiments are inhumane (especially when there are alternative, painless ways of studying the brain), that most are unnecessary (the point has already been made in prior research), and that the results of studies of other species do not necessarily apply to humans (Shapiro, 1991; Singer, 1998). Their opponents contend that the goals of scientific research justify the means, even though they agree that animals should be made to suffer as little as possible (Gallistel, 1981; Novak, 1991). They argue that procedures now in place, including the use of anesthesia in many experiments, are adequate.

How do psychologists themselves feel about this issue? Results of a national survey showed that the majority of psychologists support animal studies involving observation and confinement but generally disapprove of animal studies involving pain or death (Plous, 1996). The APA has addressed this issue in its ethical guidelines, noting that psychologists using animals in research must ensure “appropriate consideration of [the animal’s] comfort, health, and humane treatment.” Under these guidelines, animals may not be subjected to “pain, stress, or privation” when
an alternative procedure is available (APA, 1992). The National Institutes of Health (NIH), which funds about 40 percent of biomedical research in the United States, has instituted more stringent policies governing animal research. A project cannot receive NIH funding unless it has been sanctioned by an animal-research committee. An attempt by Congress to require researchers to use the same safeguards for small animals (mice, rats, and birds) as they are required to use for larger animals (dogs, cats, and monkeys) failed with the passage of H.R. 2646 in May, 2002 which excludes those small animals from protection under the Animal Welfare Act.

1. Observer bias is the main drawback in which kind of research?
   ___a. surveys  
   ___b. naturalistic observation  
   ___c. correlational research  
   ___d. experimental research

2. Of the many kinds of research in the field of psychology, correlational research:
   ___a. explains cause and effect  
   ___b. enables predictions to be made about two or more variables  
   ___c. gives a detailed description of one individual  
   ___d. sets up an experiment with independent and dependent variables

3. Researchers try to head off sampling error by which method?
   ___a. getting a good night’s sleep  
   ___b. wording the survey questions just right  
   ___c. repeating the survey every two years for ten years  
   ___d. random and representative sampling

5. Animal-rights advocates believe that research on animals is ethical under which of these conditions?
   ___a. APA-sanctioned experiments  
   ___b. NIH-approved experiments  
   ___c. naturalistic observation  
   ___d. no conditions

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Careers in Psychology

What can you do with a background in psychology or an advanced degree?

Some readers may be studying psychology out of general interest; others may be considering careers in psychology. What kinds of careers are open to psychology graduates? People with bachelor’s degrees in psychology may find jobs assisting psychologists in mental-health centers, vocational rehabilitation, and correctional centers. They may also work as research assistants, teach psychology in high school, or land jobs as trainees in government or business.

Community college graduates with associate’s degrees in psychology are well qualified for paraprofessional positions in state hospitals, mental-health centers, and
Individuals with associate degrees and bachelor degrees in psychology are often well qualified to serve as paraprofessionals in mental health centers and other human-service settings. Job responsibilities may include screening and evaluating new patients, keeping records, and assisting in consultation sessions.

Many careers outside psychology draw on a person’s knowledge of psychology without requiring postgraduate study. For example, personnel administrators deal with employee relations; vocational rehabilitation counselors help people with disabilities find employment; directors of volunteer services recruit and train volunteers; probation officers work with parolees; and day-care center supervisors oversee the care of the preschool children of working parents. Indeed, employers in areas such as business and finance seek out psychology majors because of their knowledge of the principles of human behavior and their skills in experimental design and data collection and analysis. Typical entry-level jobs include research or administrative assistants and sales or management trainees.

**Academic and Applied Psychology**

For those who pursue advanced degrees in psychology—a master’s degree or doctorate—career opportunities span a wide range. Many doctoral psychologists join the faculties of colleges and universities. Others work in applied settings such as school, health, industrial, commercial, and educational psychology. Nearly half of doctoral psychologists are clinicians or counselors who treat people experiencing mental, emotional, or adaptation problems. Master’s graduates in psychology often work as researchers, collecting and analyzing data at universities, in government, or for private companies. Students with a masters degree in Industrial/Organizational Psychology are particularly sought after by large corporations to work in personnel and human resource departments, while doctoral graduates in Industrial/Organizational Psychology are hired into management or consulting positions in industry (Murray, 2002). Others work in health, industry, and education. APA standards require that master’s graduates who work in clinical, counseling, school, or testing and measurement settings be supervised by a doctoral-level psychologist.

**Clinical Settings**

Many students who major in psychology want to become therapists. (And at some point in their lives, others may want to consult a therapist.) What training programs qualify you, or someone you might consult, to offer therapy? To practice psychotherapy...
you need a state license, which in most (but not all) states requires a doctorate degree. But there are important differences in training and approach among licensed practitioners as well.

- **Licensed social workers** (LSW) may have a master’s degree (M.S.W.) or doctorate (D.S.W.). Social workers usually work under psychiatrists or clinical psychologists, though in some states they may be licensed to practice independently.

- **Counseling psychologists** help people to cope with situational problems. School counselors work with elementary and middle school children and their parents, high school students applying to college, and college students who are having difficulty adjusting or are seeking vocational guidance. Marriage, family, and child counselors (MFCC) work with couples and/or parents and children who have troubled relationships.

- **Clinical psychologists** assess and treat mental, emotional, and behavioral disorders, ranging from short-term crises to chronic disorders such as schizophrenia. They hold advanced degrees in psychology (a Ph.D. or Psy.D.\(^2\))—the result of a 4- to 6-year graduate program, plus a 1-year internship in psychological assessment and psychotherapy and at least one more year of supervised practice.

\(^2\)A Ph.D. degree requires courses in quantitative research methods and a dissertation based on original research; a Psy.D. usually is based on practical work and examinations rather than a dissertation.
Psychiatrists are medical doctors (M.D.s) who, in addition to four years of medical training, have completed three years of residency training in psychiatry, most of which is spent in supervised clinical practice. Psychiatrists specialize in the diagnosis and treatment of abnormal behavior. As a rule, clinical psychologists have more training in current psychological theory and practice. Until 2002 when New Mexico granted prescription privileges to clinical psychologists, psychiatrists were the only mental health professionals who were licensed to prescribe medications (see On the Cutting Edge: Prescription Privileges for Clinical Psychologists).

Psychoanalysts are psychiatrists or clinical psychologists who have received additional specialized training in psychoanalytic theory and practice, usually at an institute that requires them to undergo psychoanalysis before practicing. Many work in private practice, where they treat clients who choose to go into psychoanalysis, which usually means two to five sessions a week for a year or more.

The APA maintains a web site, http://www.apa.org/, which contains up-to-date information about employment opportunities, as well as a vast array of related material of interest to psychology students. A free booklet titled Careers in Psychology is available by calling the order department of the American Psychological Association at 1-800-374-2721.

CHECK YOUR UNDERSTANDING

1. You need a medical degree before you can become a
   ___a. psychiatrist
   ___b. psychology professor
   ___c. clinical psychologist
   ___d. school counselor

2. Psychologists work in a variety of settings including:
   ___a. research labs
   ___b. schools
   ___c. corporations
   ___d. all of the above

Answers: 1.a, 2.d

What Is Psychology?

As the science of behavior and mental processes, psychology is an extremely broad discipline. It seeks to both describe and explain every aspect of human thought, feelings, perceptions, and actions.

The Fields of Psychology

Psychology has many major subdivisions. Developmental psychology is concerned with processes of growth and change over the life course, from the prenatal period through old age and death. Neuroscience and physiological psychology focus on the body’s neural and chemical systems, studying how these affect thought and behavior. Experimental psychology investigates basic psychological processes, such as learning, memory, sensation, perception, cognition, motivation, and emotion. Personality psychology looks at differences among people in traits such as anxiety, aggressiveness, and self-esteem. Clinical and counseling psychology specializes in diagnosing and treating psychological disorders, whereas social psychology focuses on how people influence each other’s thoughts and actions. Finally, industrial and organizational psychology studies problems in the workplace and other kinds of organizations.
Enduring Issues  A number of fundamental questions cut across the various subfields of psychology, unifying them with similar themes. Some fundamental questions are (1) Is behavior caused more by inner traits or by external situations? (2) How do genes and experiences interact to influence people? (3) How much do we stay the same as we develop and how much do we change? (4) In what ways do people differ in how they think and act? (5) What is the relationship between our internal experiences and our biological processes?

Psychology as Science  As a science, psychology relies on the scientific method to find answers to questions. This method involves careful observation and collection of data, efforts to explain observations by developing theories about relationships and causes, and the systematic testing of hypotheses (or predictions) to rule out theories that aren’t valid.

The Growth of Psychology  It was not until the late 1800s that psychology emerged as a formal discipline. Over its relatively brief history a number of key people and perspectives have helped to shape its directions.

The “New Psychology”- A Science of the Mind  In 1879, Wilhelm Wundt established the first psychology laboratory at the University of Leipzig in Germany. There the use of experiment and measurement marked the beginnings of psychology as a science. One of Wundt’s students, Edward Titchener, established a perspective called structuralism, which was based on the belief that psychology’s role was to identify the basic elements of experience and how they combine.

The American psychologist William James criticized structuralism, arguing that sensations cannot be separated from the mental associations that allow us to benefit from past experiences. Our rich storehouse of ideas and memories is what enables us to function in our environment, James said. His perspective became known as functionalism.

The theories of Sigmund Freud added another new dimension to psychology: the idea that much of our behavior is governed by unconscious conflicts, motives, and desires. Freud’s ideas gave rise to psychodynamic theories.

Redefining Psychology: The Study of Behavior  John B. Watson, a spokesman for the school of thought called behaviorism, argued that psychology should concern itself only with observable, measurable behavior. Watson based much of his work on the conditioning experiments of Ivan Pavlov.

B. F. Skinner’s beliefs were similar to Watson’s, but he added the concept of reinforcement or rewards. In this way he made the learner an active agent in the learning process. Skinner’s views dominated American psychology into the 1960s.

The Cognitive Revolution  According to Gestalt psychology, perception depends on the human tendency to see patterns, to distinguish objects from their backgrounds, and to complete pictures from a few clues. In this emphasis on wholeness the Gestalt school radically differed from structuralism.

During the same period, the American psychologist Abraham Maslow developed a more holistic approach to psychology. Humanistic psychology emphasizes the goal of reaching one’s full potential.

Cognitive psychology is the study of mental processes in the broadest sense, focusing on how people perceive, interpret, store, and retrieve information. Unlike behaviorists, cognitive psychologists believe that mental processes can and should be studied scientifically. This view has had a far-reaching impact on psychology.

New Directions  Evolutionary psychology focuses on the functions and adaptive values of various human behaviors, trying to understand how they have evolved. In this way it seeks to add a new dimension to psychological research.

Positive psychology differs from most other schools of psychological thought in that it emphasizes positive feelings and traits rather than problems.

Most contemporary psychologists do not adhere to just one school of thought. They believe that different theories can often complement each other and together enrich our understandings.

Despite their contributions to the field, women psychologists often faced discrimination in the early years of the discipline. Some colleges and universities did not grant degrees to women, and many did not hire them to teach. Professional journals often refused their work. In recent decades, the number of women has grown dramatically, and women have begun to outnumber men in psychology.

Human Diversity  A rich diversity of behavior and thought exists in the human species, both among individuals and among groups. This diversity has become an important focus in psychology.

Gender  One area of research on diversity involves differences in thought and behavior between the two sexes or genders. Popular beliefs regarding these differences are called gender stereotypes. Psychologists are trying to determine the causes of gender differences—both the contribution of heredity and that of culturally learned gender roles. Feminist theory offers a variety of views on the social roles of women and men and feminist psychology has begun to influence every facet of psychological practice.

Sexual orientation refers to whether a person is sexually attracted to members of the opposite sex, the same sex, or both sexes.

Race and Ethnicity  Race is a biological term that refers to a subpopulation whose members have reproduced exclusively among themselves and therefore are genetically distinct. Because human beings have migrated and commingled so frequently over time, it is impossible to identify biologically separate races. Ethnicity is based on common cultural characteristics. Psychologists study why ethnicity is important and how individuals select or create an identity and respond to ethnic stereotypes. An ethnic group is a category of people who see themselves—and are perceived by as others—as distinct from common culture.

Most ethnic minorities are still underrepresented among psychologists, possibly because they find few role models and few studies of themselves. Members of minority groups have nonetheless distinguished themselves as psychologists.

Culture  Culture consists of all the tangible things a society produces, as well as the intangible beliefs, values, traditions, and norms of behavior its people share. In a society as large and diverse as ours is, there are many subcultural groups with their own cultural identities.

Research Methods in Psychology  All sciences require empirical evidence based on careful observation and experimentation. Psychologists use a variety of methods to...
study behavior and mental processes. Each has its own advantages and limitations.

**Naturalistic Observation** Psychologists use naturalistic observation to study behavior in natural settings. Since there is minimal interference from the researcher, the behavior observed is likely to be more accurate, spontaneous, and varied than behavior studied in a laboratory. One potential problem with naturalistic observation is observer bias, the expectations or biases of the observer that might distort his or her interpretations of what was observed.

**Case Studies** Researchers conducting a case study investigate the behavior of one person or a few persons in depth. This method can yield a great deal of detailed, descriptive information useful for forming hypotheses.

**Surveys** Survey research generates a large amount of data quickly and inexpensively by asking a standard set of questions of a large number of people. Great care must be taken, however, in how the questions are worded.

**Correlational Research** Correlational research is used to investigate the relation, or correlation, between two or more variables. Correlational research is useful for clarifying relationships between preexisting variables that can’t be examined by other means.

**Experimental Research** In the experimental method one variable (the independent variable) is systematically manipulated and the effects on another variable (the dependent variable) are studied, usually using both an experimental group of participants and a control group for comparison purposes. By holding all other variables constant, the researcher can draw conclusions about cause and effect. Often a neutral person is used to record data and score results, so experimenter bias doesn’t distort the findings.

**Multimethod Research** Since each research method has benefits as well as limitations, many psychologists use multiple methods to study a single problem. Together they can give much fuller answers to questions.

**The Importance of Sampling** Regardless of the particular research method used, psychologists almost always study a small sample of participants and then generalize their results to larger populations. Random samples, in which participants are chosen randomly, and representative samples, in which participants are chosen to reflect the general characteristics of the population as a whole, are two ways of ensuring that results have broader application.

**Ethics and Psychological Research** The American Psychological Association (APA) has a code of ethics for conducting research involving human or animal subjects. Still, controversy over ethical guidelines continues, with some thinking they are too strict and impede psychological research, and others thinking they are not strict enough to protect subjects from harm.

A key part of the APA code regarding research on humans is the requirement that researchers obtain informed consent from participants in their studies. Participants must be told in advance about the nature of the research and the possible risks involved. People should not feel pressured to participate if they do not want to.

Although much of what we know about certain areas of psychology has come from animal research, the practice of experimenting on animals has strong opponents. APA and federal guidelines govern the humane treatment of laboratory animals, but animal-rights advocates argue that the only ethical research on animals is naturalistic observation.

**Careers in Psychology**

Psychology is one of the most popular majors in colleges and universities. A background in it is useful in a wide range of fields because so many jobs involve a basic understanding of people.

**Academic and Applied Psychology** Careers for those with advanced degrees in psychology include both academic and applied work. They include teaching, research, jobs in government and private business, and a number of occupations in the mental health field.

**Clinical Settings** Opportunities in the mental-health field depend on one’s degree of training. They include the occupations of psychiatrist; the job of clinical psychologist, which involves getting a doctoral degree; and the jobs of counseling psychologist and social worker.