

# 1 Introduction: The Foundations of Psychology

## PREVIEW QUIZ

True or False

1. T F Modern psychology is defined as the science of the mind.
2. T F The goals of scientific psychology are to (1) describe, (2) explain, (3) predict, and (4) control behavior.
3. T F Sigmund Freud was the principal founding personality of psychoanalysis.
4. T F The biological viewpoint assumes that most behavior is learned.
5. T F Clinical psychology, a field that stresses psychotherapy and psychological testing, is the single largest field of psychology.

(Answers can be found on page 15.)

## Objectives

After completing this chapter, you will be able to

- define psychology;
- state the goals of scientific psychology;

- identify the five classical schools of psychology and their founding personalities;
- name and describe the six principal viewpoints used to explain behavior;
- name and describe seven important fields of psychology.

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## Looking at the Word *Psychology*: From Ancient to Modern Meanings

The word **psychology** has had several different meanings from ancient to modern times. Here is its present definition: *Psychology is the science that studies the behavior of organisms.* This definition should guide you throughout your study of this book.

Three words in the definition merit special attention: (1) science, (2) behavior, and (3) organisms. Modern psychology is considered a *science* because it bases its conclusions on **data**, information obtained by systematic observations. The research methods used by psychology are covered in chapter 2.

**Behavior** has three aspects: (1) cognitive processes, (2) emotional states, and (3) actions. **Cognitive processes** refer to what an individual thinks. **Emotional states** refer to what an individual feels. **Actions** refer to what an individual does.

An **organism** is any living creature. Consequently, the behavior of dogs, rats, pigeons, and monkeys can be legitimately included in the study of psychology. Such organisms have indeed been subjects in psychology experiments. However, traditionally the principal focus of psychology has been humans. When animals are used in experiments, the implicit goal is often to explore how such basic processes as learning and motivation, as studied in animals, can cast a light on our understanding of human behavior.

(a) What does psychology study? \_\_\_\_\_

(b) What are the three aspects of behavior? \_\_\_\_\_

*Answers:* (a) The behavior of organisms; (b) Cognitive processes, emotional states, and actions.

Although you now know the modern definition of psychology, it is important to realize that the word *psychology* has its roots in ancient meanings associated with philosophy. The Greek word **psyche** means soul. Consequently, to philosophers living 400 to 300 B.C., psychology was the “study of the soul.” This was the meaning given by Socrates, Plato, and Aristotle. In view of the fact that these thinkers, particularly Socrates and Plato, did not believe that animals have souls, it becomes evident why for many centuries psychology’s main attention has been

given to human beings. The ancient philosophers asserted that the soul is the seat of consciousness. It is consciousness that makes mental life possible. This is why psychology is often thought of as the science of the mind.

Indeed, this meaning is the one given to it by William James, the dean of American psychologists. Working at Harvard a little more than one hundred years ago, James defined psychology as “the science of mental life.” He believed that the purpose of psychology should be to investigate such mental processes as thinking, memory, and perception. (There is more about James later in this chapter.)

This is where we stand now. Although psychology no longer is thought of as the study of the soul, this original meaning colors our present-day approach, with its emphasis on human behavior and the importance of cognition.

- (a) The Greek word *psyche* means \_\_\_\_\_.
- (b) William James defined psychology as \_\_\_\_\_.

*Answers:* (a) soul; (b) the science of mental life.

Contemporary, scientific psychology has four explicit goals: (1) describe, (2) explain, (3) predict, and (4) control behavior. These goals are the same common-sense goals that we all use in everyday life. Let’s say that Jane tells her husband, Harry, that their son, seven-year-old Billy, was a brat today. Is this a good description of Billy’s behavior? No, it’s not. It’s too general, too abstract. On the other hand, let’s assume that Jane says that Billy refused to do his homework and told her, “Homework is stupid. I’m not going to do it anymore.” This constitutes a much better description of behavior because it is specific and concrete.

Similar specific descriptions may suggest to both parents that Billy misbehaves more than most children. Jane and Harry now wonder *why* Billy is beginning to misbehave more and more. Is he frustrated? Does he have an inferiority complex? Does he have low self-esteem? Does he have Attention Deficit Disorder (ADD)? Does he have an imbalance of certain key neurotransmitters in his brain? Does he have a childhood neurosis? As you can see, potential explanations are plentiful. They have to be evaluated.

This is where prediction and control come in. Let’s say that Dr. Helen G., the family pediatrician, suggests that Billy *is* indeed suffering from Attention Deficit Disorder. Let’s also assume that Dr. G. is convinced that Billy eats too many foods with refined sugar and that this causes, through a complex biochemical reaction, a depletion of certain neurotransmitters. She recommends a diet of natural foods with little refined sugar. The physician is *predicting* that the change in diet will take away the undesirable symptoms.

Let’s say that the diet is tried. Billy sticks to it. If there is no change in Billy’s misbehavior after several weeks, both Dr. G. and the parents will conclude that the explanation was incorrect. On the other hand, if the diet is therapeutic, and Billy’s

behavior becomes more manageable, then *control* has taken place. The explanation will appear to be adequate.

The four goals of scientific psychology are \_\_\_\_\_.

*Answer:* to describe, explain, predict, and control behavior.

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## The Classical Schools of Psychology: Five Great Thinkers and Their Ideas

It has been said that psychology has a long past and a short history. This statement should be taken to mean that although psychology has its roots in philosophy, as a scientific discipline psychology is only a little over 120 years old. As noted earlier, the roots of psychology can be easily traced back about 2,400 years to ancient Greek philosophers. However, the beginning of scientific psychology is usually associated with the date 1879, the year that a German scientist named Wilhelm Wundt founded the first psychological laboratory at the University of Leipzig in Germany.

Modern psychology arose in the context of what are known as **schools of psychology**. The concept of a school of psychology can be easily understood by thinking of a school of fish. In this case the word *school* is used similarly to the word *group*. A school, or group, of fish follows a leader fish. So it is with a school of psychology. There is a leader and a group of followers. The school has a viewpoint and a set of important assumptions.

(a) As a scientific discipline, psychology is only a little over how many years old?

\_\_\_\_\_

(b) The first psychological laboratory was founded in 1879 by \_\_\_\_\_.

*Answers:* (a) 120; (b) Wilhelm Wundt.

From a historical perspective, the first school of psychology to be established was **structuralism**. Its founding personality was Wilhelm Wundt (1832–1920). As already noted, he founded the world's first psychological laboratory. Wundt was trained in *physiology*, the study of the functions of the body. He became interested in studying not so much the physiology of the sense organs such as the eyes and ears, but in how simple sensations associated with the sense organs combined to form what we call human consciousness.

Imagine that you are looking at an oil painting of a landscape. You perceive trees, a river, a valley, and a sky. But what are the elemental sensations, the *basic building blocks*, that make the visual grasp of the picture possible? What, in a word, is the "structure" of your consciousness? Wundt trained assistants in the art of **introspection**, a skill characterized by paying attention not to the whole pattern

of a stimulus, but to an elemental part of a stimulus. Consequently, a trained introspectionist was not supposed to say, "I see a tree." Instead, he or she was supposed to say, "I see here a patch of green," and "I see there a bit of brown," and so forth. These bits and pieces were the psychological "atoms" that made up the complex "molecule" of the tree or other visual object.

Wundt's studies of vision suggested that there are only three basic kinds of visual sensations. First, there is *hue*, or color. Second, there is *brightness*. For example, a light gray card is brighter than a dark gray card. Also, a page of print illuminated with an intense light is brighter than a page illuminated with a light of lower intensity. Third, there is *saturation*. This refers to the "richness" or "fullness" of a color.

No matter what visual stimulus Wundt's subjects looked at, there were no other kinds of sensations experienced than the three identified above. Consequently, Wundt concluded that all visual experiences are structured out of these same three types of elemental experiences. Similar statements can be made about the other senses such as hearing, taste, and touch. (See chapter 4.)

According to Wundt, the primary purpose of psychology is to study the structure of consciousness. By the structure of consciousness, Wundt meant the relationship of a group of sensations, a relationship that produces the complex experiences we think of as our conscious mental life. This approach to psychology has been called *mental chemistry*. As earlier indicated, the "atoms" of experience are the sensations. The "molecules" of experience are our complex perceptions.

Wundt is considered to be not only the first scientific psychologist, but also the founder of psychology as an academic discipline. (Many beginning psychology students think this honor belongs to Sigmund Freud. Although Freud *is* the most famous psychologist who ever lived, he occupies a different place in psychology's history than does Wundt.)

(a) Reporting a sensation alone without being confused by other sensations describes what process? \_\_\_\_\_

(b) According to Wundt, the primary purpose of psychology is to study \_\_\_\_\_.

*Answers:* (a) Introspection; (b) the structure of consciousness.

William James (1842–1910), teaching at Harvard in the 1870s, was following Wundt's research with interest. James had an interest not only in psychology, but also in physiology and eventually in philosophy. James founded a psychological laboratory at Harvard; he also authored *The Principles of Psychology*, the first psychology textbook published in the United States. The book was published in 1890, and this can also be taken as the date when the school of psychology known as **functionalism** was born. The principal personality associated with it is James, and he is said to be the dean of American psychologists.

According to James, psychology should be more interested in how the mind

*functions*, or works, than how it is structured. Consequently, James stressed the importance of studying such processes as thinking, memory, and attention. You will recall that James defined psychology as “the science of mental life.” This definition is certainly reflected in the processes just identified.

In brief, functionalism as a school of psychology asserts that the primary purpose of psychology should be to study the functions of human consciousness, not its structures.

According to James, psychology should be interested primarily in how the mind

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*Answer:* functions.

The German psychologist Max Wertheimer (1880–1943), like James, was also dissatisfied with Wundt’s structuralism. Wertheimer believed that Wundt’s emphasis on the importance of simple sensations as the building blocks of perceptions was misguided. According to Wertheimer, a melody, for example, is more than an aggregate of sensations. It is a pattern. And the perception of the melody depends much more on the pattern itself than on the individual notes. A melody played in the key of F can be transposed to the key of C, and *it is still the same melody*. However, all of the notes, the sensations, are *different*.

The general pattern that induces a complex perception is described with the German word **Gestalt**. Gestalt is usually translated as a “pattern,” a “configuration,” or an “organized whole.”

In 1910 Wertheimer published an article setting forth the basic assumptions of Gestalt psychology, and this is usually taken to be the starting date of the school. The article reported a series of experiments using two of his friends, Kurt Koffka and Wolfgang Kohler, as subjects. These two men went on to also become well-known Gestalt psychologists. In the experiments, Wertheimer demonstrated that the perception of motion can take place if stationary stimuli are presented as a series of events separated by an optimal interval of time. This sounds complicated. However, in practice it’s simple enough. If you flip at just the right speed through a special kind of cartoon book, you can perceive motion as the series of still pictures flicker by. Perceiving motion in a motion picture is the same thing. At the level of sensation, you are being presented with a series of still slides. At the level of perception, you are experiencing motion. The presence of motion can’t be explained by the nature of the sensations. Consequently, it must be the pattern of presentation, or the Gestalt, that is inducing the perceived motion.

It became the goal of Gestalt psychology to study the effects that various Gestalten (the plural of *Gestalt*) have on thinking and perception. As you will discover in chapter 6, Kohler’s research related Gestalt principles to insight learning.

In brief, Gestalt psychology asserts that patterns, or configurations, of stimuli have a powerful effect on how we think and perceive the world around us.

- (a) Three of the meanings of the German word *Gestalt* are \_\_\_\_\_.
- (b) The goal of Gestalt psychology was the study the effects that various Gestalten have on \_\_\_\_\_.

*Answers:* (a) pattern, configuration, and organized whole; (b) thinking and perception.

Returning to the United States, **behaviorism** is a fourth classical school of psychology. Its founding personality is John B. Watson (1878–1958). A wave of enthusiasm for Watson's ideas swept him to the presidency of the American Psychological Association (APA) in 1915, and this can be taken as the starting date for behaviorism. Doing research first at the University of Chicago and then at Johns Hopkins University, Watson came to the conclusion that psychology was placing too much emphasis on consciousness. In fact, he asserted that psychology is not a mental science at all. The "mind" is a mushy, difficult-to-define concept. It can't be studied by science because it can't be observed. Only you can know what's going on in your mind. If I say I'm studying your mind, according to Watson, it's only guesswork.

Consequently, Watson asserted that the purpose of psychology should be to study *behavior itself*, not the mind or consciousness. Some critics of Watson say that he denied the very existence of consciousness. Others assert Watson was primarily saying that references to the consciousness, or mental life, of a subject don't provide solid explanations of behavior. In either event, Watson's view is today thought to be somewhat extreme and is referred to as *radical behaviorism*, a psychology that doesn't employ consciousness as an important concept.

Behaviorism has been very influential in American psychology. As you will find in chapter 6, it inspired a psychologist named B. F. Skinner to study the process of learning. Skinner in time became the most famous behaviorist of the twentieth century.

- (a) Watson said that the mind can't be studied by science because it can't be \_\_\_\_\_.
- (b) Behaviorism asserts that the purpose of psychology should be to \_\_\_\_\_.

*Answers:* (a) observed; (b) study behavior itself, not the mind or consciousness.

In order to identify a fifth classical school of psychology, it is necessary to return to the European continent, specifically to Austria; the school is **psychoanalysis**. The father of psychoanalysis is Sigmund Freud (1856–1939). Freud was a medical doctor with a specialty in neurology. His findings and conclusions are based primarily on his work with patients. Early in his career he concluded that a large number of people with neurological symptoms such as paralysis, a numb feeling in a hand or foot, complete or partial blindness, chronic headaches, and similar complaints had no organic pathology. They were *not* biologically sick. Instead their symptoms were produced by intense emotional conflicts.

Freud's original work was done with a colleague named Josef Breuer (1842–1925). Breuer and Freud collaborated on the book *Studies on Hysteria*. Published in 1895, it is the first book written on psychoanalysis. This can also be taken to be the starting date for the school. After the publication of this first book, Freud went on alone without Breuer; it was a number of years before he worked again with colleagues.

The word **hysteria** is a diagnostic label. It used to be assigned to a patient if he or she was experiencing neurological symptoms that were thought to be imaginary in nature. The patient is not malingering. He or she believes that the symptoms are real. Today this is a well-recognized disorder, and is called a **somatoform disorder, conversion type**. This simply means that an emotional problem such as chronic anxiety has converted itself to a bodily expression. (The Greek word *soma* means “body.”)

In order to explain chronic emotional suffering, Freud asserted that human beings have an unconscious mental life. This is the principal assumption of psychoanalysis. No other assumption or assertion that it makes is nearly as important. The unconscious mental level is created by a defense mechanism called **repression**. Its aim is to protect the ego against psychological threats, information that will disturb its integrity. (The ego is the “I” of the personality, the center of the self.) The kind of mental information repressed tends to fall into three primary categories: (1) painful childhood memories, (2) forbidden sexual wishes, and (3) forbidden aggressive wishes.

Psychoanalysis is not only a school of psychology, but also a method of therapy. You will find more about this in chapter 15. Freud believed that by helping a patient explore the contents of the unconscious mental level, he or she could obtain a measure of freedom from emotional suffering. It is important to note that of the five classical schools of psychology, psychoanalysis is the only one that made it an aim to improve the individual's mental health.

- (a) Freud was a medical doctor with a specialty in \_\_\_\_\_.
- (b) The principal assumption of psychoanalysis is that \_\_\_\_\_.

*Answers:* (a) neurology; (b) human beings have an unconscious mental life.

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## Ways of Approaching the Study of Behavior: Searching for Explanations

As noted earlier, one of the goals of scientific psychology is to explain behavior. When someone does something, particularly something unexpected, often the first question that pops into our minds is why. If the answer can be resolved to our satisfaction, we have an explanation. There is often more than one way to explain the same behavior. Sometimes rational thinkers disagree. This has resulted in a set

of *viewpoints*, major ways in which behavior can be explained. These viewpoints greatly influence how research is done, how psychologists approach the study of behavior.

Viewpoints in psychology are major ways \_\_\_\_\_.

*Answer:* in which behavior can be explained.

The first viewpoint to be identified is the **biological viewpoint**. The biological viewpoint asserts that behavior can be explained in terms of such factors as genes, the endocrine system, or the brain and nervous system. The biological viewpoint assumes that we are all organisms, made out of protoplasm, and the most solid explanations are those that recognize this.

Let us say that a child is suffering from mental retardation. Assume that the child receives a diagnosis of Down's syndrome, a set of signs and symptoms suggesting that the child has three chromosomes on what is normally the twenty-first pair of chromosomes. Mental retardation is very frequently associated with this condition. Consequently, the genetic condition provides an explanation of the mental retardation.

Assume that thirty-four-year-old Jane C. says, "I feel lazy." This may seem to be a psychological condition. If it is later discovered that she has a sluggish thyroid gland and a low basal metabolism, her laziness may be explained in terms of her low thyroid production.

Bill, a forty-five-year-old engineer, suffers from chronic depression. If it is discovered that he has low levels of the neurotransmitter *serotonin*, a chemical messenger in the brain, he may be prescribed a psychiatric drug that brings the serotonin to an optimal level. His depression has been explained in terms of the brain's neurotransmitters.

As you can see, the biological viewpoint is a powerful and useful one. It is the viewpoint that tends to be favored by psychiatry, a medical specialty, and physiological psychology (see "Fields of Psychology" on page 12).

The biological viewpoint asserts that behavior can be explained in terms of such factors as \_\_\_\_\_.

*Answer:* genes, the endocrine system, or the brain and nervous system.

The second viewpoint to be identified is the **learning viewpoint**. The learning viewpoint assumes that much, perhaps most, behavior is learned. Behaviors are acquired by experience. The learning viewpoint owes much to the influence of the philosopher John Locke (1632–1704), who said that the mind at birth is a **tabula rasa** (i.e., a "blank slate"), meaning that there are no inborn ideas.

Let's say that Opal smokes two packages of cigarettes a day. She thinks of it as a "bad" habit, and the learning viewpoint agrees with this commonsense way of

looking at Opal's smoking behavior. The behavior was acquired by processes such as observation and reinforcement. (There will be more about these processes in chapter 6.)

According to the learning viewpoint, both "good" and "bad" habits are acquired by experience. We acquire more than habits by learning. We learn to talk a specific language, we learn attitudes, we learn to like some people and dislike others, and so forth. Learning is a vast ongoing enterprise in every human life.

(a) Locke said that the mind at birth is a *tabula rasa* or \_\_\_\_\_.

(b) According to the learning viewpoint, both "good" and "bad" habits are \_\_\_\_\_.

*Answers:* (a) blank slate; (b) acquired by experience.

The third viewpoint to be identified is the **psychodynamic viewpoint**. This viewpoint owes much to the influence of Freud and psychoanalysis. It asserts that a human personality contains a field of forces. Primitive sexual and aggressive impulses are often in conflict with one's moral and ethical values. An individual's emotional conflicts can induce or aggravate chronic anxiety, anger, or depression. The psychodynamic viewpoint is of particular value when one seeks to understand the behavior of a troubled person. (There is more about psychoanalysis and the psychodynamic viewpoint in chapter 13.)

The psychodynamic viewpoint asserts that a human personality contains \_\_\_\_\_.

*Answer:* a field of forces.

The fourth viewpoint to be identified is the **cognitive viewpoint**. This viewpoint asserts that an immediate cause of a given action or an emotional state is what a person thinks. For example, before you actually go to the supermarket you usually think something such as, "I'll stop at the store to get some milk and cereal on the way home from work." For a second example, when a person experiences depression, he or she may first think something such as, "My life is pointless. Nobody loves me."

Interest in the thinking process can be easily traced back to the writings of William James. He is often said to be not only the dean of American psychologists but the first cognitive psychologist in the United States. The cognitive viewpoint has led to a great interest in concept formation, rational thinking, and creative thinking. (There is more about thinking in chapter 9.)

The cognitive viewpoint asserts that an immediate cause of a given action or an emotional state is \_\_\_\_\_.

*Answer:* what a person thinks.

The fifth viewpoint to be identified is the **humanistic viewpoint**. This viewpoint asserts that some of our behavior can only be understood in terms of psychological processes that are uniquely human. This viewpoint owes much to *existentialism*, a philosophical position originating in Europe that places an emphasis on the importance of free will and responsibility.

Two processes that tend to receive emphasis are the need for self-actualization and the will to meaning. **Self-actualization**, as defined by the psychologist Abraham Maslow, is the need to fulfill your talents and potentialities. The **will to meaning**, as defined by the psychiatrist Viktor Frankl, is a deep desire to make sense out of life and discover values to live by.

- (a) Existentialism places on emphasis on the importance of \_\_\_\_\_.
- (b) Two processes that tend to receive emphasis in the humanistic viewpoint are \_\_\_\_\_.

*Answers:* (a) free will and responsibility; (b) self-actualization and the will to meaning.

The sixth viewpoint to be identified is the **sociocultural viewpoint**. This viewpoint assumes that much of our behavior is determined by factors associated with society and culture. For example, when a country has a great long-lasting depression, there is often a rise in personal problems such as depression and alcohol abuse. Society and culture find their expression in the family and its values, in religious traditions, and in general codes of conduct. (The importance of the sociocultural viewpoint is reflected in chapter 16.)

The sociocultural viewpoint assumes that much of our behavior is determined by factors associated with \_\_\_\_\_.

*Answer:* society and culture.

Very few contemporary psychologists identify with a single school of psychology or subscribe to a single explanatory viewpoint. **Eclecticism** is the point of view that there is something of merit in most of the schools of psychology and in the various viewpoints described. The majority of today's psychologists describe themselves as eclectic. Eclecticism is by and large desirable. It is integrative and reflects an open-minded attitude. On the other hand, critics of eclecticism say that it is vapid and stands for nothing. Consequently, a competent psychologist must make an effort to steer a clear course between either a dogmatic adherence to a single viewpoint or an opposite extreme characterized by a lack of conviction and confidence.

Eclecticism is the point of view that there is \_\_\_\_\_ in most of the schools of psychology and the various viewpoints described.

*Answer:* something of merit.

## Fields of Psychology: Of Laboratories and Clinics

Psychology as a profession expresses itself in different *fields*, or domains of interest. There are a number of fields of psychology, such as clinical, experimental, counseling, developmental, physiological, human factors, and industrial.

**Clinical psychology** is the field associated with psychotherapy and psychological testing. A clinic is a place where sick people go for help; consequently, clinical psychologists try to help persons with both well-defined mental disorders and serious personal problems. The word **psychotherapy**, in terms of its roots, means a "healing of the self." In practice, a clinical psychologist who employs psychotherapy attempts to work with a troubled person by using various methods and techniques that are designed to help the individual improve his or her mental health. This is done without drugs. An informal description of psychotherapy refers to it as "the talking cure." (There is more about methods of psychotherapy in chapter 15.)

**Psychological testing** is a process involving, in most cases, the administration of paper-and-pencil intelligence and personality tests. Test results can be helpful in both making an evaluation of the state of a person's mental health and suggesting a course of treatment. (There is more about psychological testing in chapter 13.)

A clinical psychologist should not be confused with a psychiatrist. A fully qualified *clinical psychologist* has earned a Ph.D. degree (doctor of philosophy with a specialization in psychology). **Psychiatry** is a medical specialty that gives its attention to mental disorders. A fully qualified *psychiatrist* has earned an M.D. degree (doctor of medicine). Although psychiatrists can and do practice psychotherapy, they can also prescribe drugs. Clinical psychologists, not being medical doctors, do not prescribe drugs.

Clinical psychology is the largest single field of psychology. About 40 percent of psychologists are clinical psychologists.

- (a) Clinical psychology is the field associated with what two work activities? \_\_\_\_\_
- (b) What kind of a specialty is psychiatry? \_\_\_\_\_

*Answers:* (a) Psychotherapy and psychological testing; (b) It is a medical specialty.

**Experimental psychology** is the field associated with research. Experimental psychologists investigate basic behavioral processes such as learning, motivation, perception, memory, and thinking. Subjects may be either animals or human beings. Ivan Pavlov's experiments on conditioned reflexes, associated with the learning process, used dogs as subjects. (See chapter 6.)

The great majority of experimental psychologists are found at the nation's universities. Their duties combine research and teaching. In order to obtain a per-

manent position and achieve academic promotion, it is necessary for the psychologist to publish the results of experiments in recognized scientific journals.

Experimental psychology is not a large field of psychology in terms of numbers of psychologists. Only about 6 percent of psychologists are experimental psychologists. On the other hand, experimental psychology represents a cutting edge of psychology; it is where much progress is made. The overall concepts and findings in a book such as this one have been made possible primarily by experimental work.

Experimental psychology is the field associated with \_\_\_\_\_.

*Answer:* research.

The remaining fields of psychology will be briefly described in terms of what psychologists associated with them do.

A **counseling psychologist** provides advice and guidance, often in a school setting. Sometimes he or she will, like a clinical psychologist, attempt to help individuals with personal problems. However, if the problems involve a mental disorder, the individual will be referred to a clinical psychologist or a psychiatrist.

A **developmental psychologist** is concerned with maturational and learning processes in both children and adults. Although a developmental psychologist is usually thought of as a “child psychologist,” it is important to realize that a given developmental psychologist might have a particular interest in changes associated with middle-aged or elderly people.

A **physiological psychologist**, like an experimental psychologist, does research. Subject areas include the structures and functions of the brain, the activity of neurotransmitters (i.e., chemical messengers), and the effect that hormones produced by the endocrine glands have on moods and behavior.

A **human factors psychologist** combines a knowledge of engineering with a knowledge of psychology. For example, he or she may be part of a team that is attempting to redesign an aircraft control panel in an attempt to make it more “user friendly” in order to reduce pilot error associated with misperceptions.

An **industrial psychologist** usually works for a corporation. The principal aim is to provide a work environment that will facilitate production, reduce accidents, and maintain employee morale. A theme that guides industrial psychology is “the human use of human beings.”

(a) A counseling psychologist provides \_\_\_\_\_.

(b) A human factors psychologist combines a knowledge of what two subject areas?

\_\_\_\_\_

*Answers:* (a) advice and guidance; (b) Engineering and psychology.

**SELF-TEST**

1. The primary subject matter of psychology is
  - a. the philosophical concept of the psyche
  - b. the behavior of organisms
  - c. the conscious mind
  - d. the unconscious mind
2. Which one of the following is *not* a goal of scientific psychology?
  - a. To abstract behavior
  - b. To explain behavior
  - c. To predict behavior
  - d. To control behavior
3. What characterizes a school of psychology?
  - a. Its physiological research
  - b. Its stand on Gestalt psychology
  - c. Its orientation toward psychoanalysis
  - d. Its viewpoint and assumptions
4. Functionalism, associated with William James, is particularly interested in
  - a. introspection
  - b. the structure of consciousness
  - c. how the mind works
  - d. developmental psychology
5. Which one of the following is correctly associated with the German word *Gestalt*?
  - a. Neuron
  - b. Organized whole
  - c. Physiological psychology
  - d. Repression
6. What school of psychology indicates that it is important to study behavior itself, not the mind or consciousness?
  - a. Behaviorism
  - b. Structuralism
  - c. Psychoanalysis
  - d. Functionalism
7. The principal assumption of psychoanalysis is that
  - a. habits determine behavior
  - b. human beings do not have an unconscious mental life
  - c. human beings have an unconscious mental life
  - d. all motives are inborn

8. The cognitive viewpoint stresses the importance of
  - a. learning
  - b. thinking
  - c. motivation
  - d. biological drives
9. What viewpoint stresses the importance of the activity of the brain and nervous system?
  - a. The psychodynamic viewpoint
  - b. The learning viewpoint
  - c. The humanistic viewpoint
  - d. The biological viewpoint
10. Psychotherapy is a work activity associated with what field of psychology?
  - a. Experimental psychology
  - b. Developmental psychology
  - c. Clinical psychology
  - d. Physiological psychology

### ANSWERS TO THE SELF-TEST

1-b 2-a 3-d 4-c 5-b 6-a 7-c 8-b 9-d 10-c

### ANSWERS TO THE TRUE-OR-FALSE PREVIEW QUIZ

1. False. Modern psychology is defined as the science that studies the behavior of organisms.
2. True.
3. True.
4. False. The biological viewpoint assumes that behavior can be explained in terms of such factors as genes, the endocrine system, or the brain and nervous system.
5. True.

### KEY TERMS

actions	cognitive viewpoint
behavior	counseling psychologist
behaviorism	data
biological viewpoint	developmental psychologist
clinical psychology	eclecticism
cognitive processes	emotional states

experimental psychology  
functionalism  
Gestalt  
human factors psychologist  
humanistic viewpoint  
hysteria  
industrial psychologist  
introspection  
learning viewpoint  
organism  
physiological psychologist  
psyche  
psychiatry

psychoanalysis  
psychodynamic viewpoint  
psychological testing  
psychology  
psychotherapy  
repression  
schools of psychology  
self-actualization  
sociocultural viewpoint  
somatoform disorder, conversion type  
structuralism  
tabula rasa  
will to meaning