CHAPTER

2 Theories of Development

Critical Thinking Questions

1. Suppose someone comes up with a new theory of development called the "Food Theory," which states that human development can be explained in terms of the foods we eat. Because no two people eat exactly the same foods, it follows that no two people develop in exactly the same way. Why would you accept or reject this theory?
2. If genetic scientists took one of your cells and cloned you—and then gave the cloned infant to the same caregivers you had—do you think the clone would turn out to be just like you?
3. Do theories of development aid us in understanding by providing a framework, or limit us by forcing connections?
4. In what ways is a theory that tries to explain how humans develop similar to a theory that attempts to explain how the universe developed?

Outline

Theories allow us to see the world coherently and to act on the world in a rational way. Many theories have evolved over the past century in Western cultures that attempt to explain how human personality develops, why we behave as we do, what environmental conditions motivate us to act certain ways, and how these factors are interrelated. Some of these theories base their explanations on critical physical and social-emotional circumstances in our earliest years of life; some on the impact of environmental influences of our family, community, and culture; some on our distinct learning and thought processes; some on successful completion of specific developmental "tasks" at each stage over the life span; and some on how a healthy—or unhealthy—sense of self shapes our personality and behaviors. Over the past two decades, the universal applicability of traditional theoretical models of development has been challenged. Many of the long-standing theories presented in this chapter were formulated by Western white males about Western white males. Some newer theories seek to explain the development of women, nonwhites, and people in non-Western cultures.

Cross-cultural social scientists are putting the older theoretical models to the test on a broader scale in scholarly debates in university settings, in international conferences, and in chat rooms and online discussion groups. This is leading to newer perspectives and understanding on individual development in all domains. More recently, the American Psychological Association established a division, International Psychology, and more than thirty cross-cultural associations are listed on the American Psychological Society Web site that encourage professionals from all disciplines to collaborate and examine human development on a global scale.

THEORY: A DEFINITION

College students often complain, "Why do we have to bother with all these theories? Why not just let the facts speak for themselves!" Unfortunately, facts do not "speak for themselves." Before facts can speak to us in a meaningful way, we must find relationships among them. For example, you might baby-sit, care for younger brothers or sisters, have children of your own, or anticipate having children. What do you do when they misbehave? Do you scold them, threaten them, spank them, forbid them to engage in a favorite activity, reason with them, ignore them, or demonstrate the behavior you expect? The actions you take are based on your theory—whether explicit or not—about how children learn. Perhaps the theory is embedded in a proverb or maxim, such as Spare the Rod and Spoil the Child, You Got to Toughen Kids Up for Life, Just Give Them Loads of Love, Spanking Children Causes Emotional Problems, or Children Are to Be Seen and Not Heard. However, the various functions of theory will become more evident as we define the concept and examine some major types of theories of human development.

A **theory** is a set of interrelated statements that provides an explanation for a class of events. It is "a way of binding together a multitude of facts so that one may comprehend them all at once" (G. A. Kelly, 1955, p. 18). The value of the knowledge yielded by the application of theory lies in the control it gives us over our experience. Theory serves as a guide to action. By formulating a theory, we attempt to make sense of our experiences. We must somehow "catch" fleeting events and find a way to describe and explain them. Only then can we predict and influence the world around us. Theory is the "fabric" we weave to accomplish these ends, just as a fine garment is crafted from pieces of fabric and thread, carefully sewn together, and worn for a particular purpose.

More specifically, a theory performs a number of functions. First, it allows us to organize our observations and to deal meaningfully with information that would otherwise be chaotic and useless. As French mathematician Jules-Henri Poincaré (1854–1912) observed: "Science is built up with facts, as a house is with stones, but a collection of facts is no more a science than a heap of stones is a house." Second, theory allows us to see relationships among facts and uncover implications that would not otherwise be evident in isolated bits of data. Third, it stimulates inquiry as we search for knowledge about many different and often puzzling aspects of behavior. A theory, then, inspires research that can be used to verify, disprove, or modify that theory. So research continually challenges us to craft new and better theories (see Figure 2.1). In human development, as in other social and behavioral sciences, it is often difficult to determine how conclusively the evidence supports a theory, let alone to choose among competing theories. It is a considerably easier task to decide whether the evidence is harmonious with a theory (Lieberson, 1992).

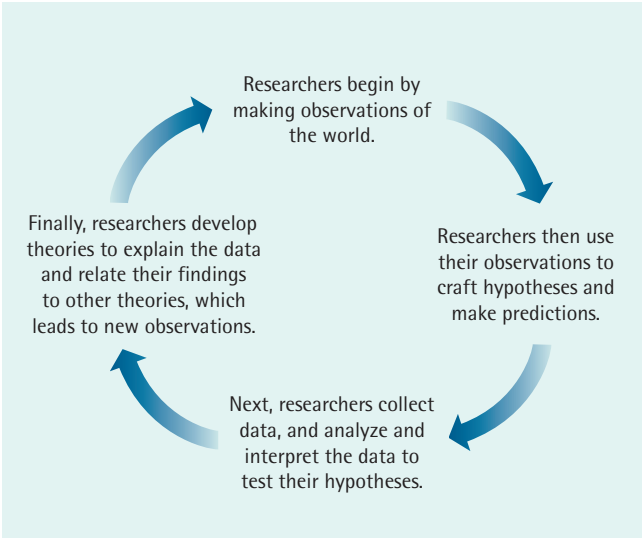


FIGURE 2.1 The Relationships Among Theory, Scientific Method, and Observations of the World

Questions

What is the purpose of a good theory? In what ways is a good theory useful to our lives?

PSYCHOANALYTIC THEORIES

The history of psychology—like the history of the twentieth century—could not be written without discussing the contributions of Sigmund Freud (1856–1939). Both supporters and critics of his theory of personality regard it as a revolutionary milestone in the history of human thought (Robinson, 1993). His notions of how behavior is motivated have influenced the work of a multitude of philosophers, social scientists, psychiatrists, and other mental-health practitioners. And characters in countless plays and novels have been built on Freud's view of the individual.

Central to **psychoanalytic theory** is the view that personality is fashioned progressively as the individual passes through various psychosexual stages. Freud proposed that people operate from three states of being: the *id,* which seeks self-gratification; the *superego,* which seeks to do what is morally proper; and the *ego,* the rational mediator between the id and superego. Now let us consider psychoanalytic theory.

Characteristic	Oral	Anal	Phallic
Time period	Birth to approximately 18 months	Approximately 18 months to 3 years	Approximately the third to seventh year
Pleasurable body zones	Mouth, lips, and tongue	Anus, rectum, and bladder	The genitals
Most pleasurable activity	Sucking during the early phase; biting during the later phase	In the early phase, expelling feces and urine; in the later phase, retaining feces and urine	Masturbation
Sources of conflict	Terminating breast-feeding	Toilet training	In boys, the Oedipal complex In girls, the Electra complex

FIGURE 2.2 Freud's Key to Psychosexual Stages

Sigmund Freud: Psychosexual Stages of Development

Freud was born in 1856 and lived most of his life in Vienna. He was a gifted student and scholar. Early in his medical career, he used hypnosis to treat his patients who had nervous (he referred to them as "neurotic") disorders. But he soon became disenchanted with this method because some of his patients exhibited nervous disorders that could not be attributed to anything physical. Freud hypothesized that something else caused his patients such distress—something the patient was unaware of. He began experimenting with free association of ideas, with dream analysis, and hypnosis to tap patients' "unconscious" thoughts. Using these techniques he developed his famous psychoanalytic approach. Many psychologists and psychiatrists were directly or indirectly influenced by Freud's teachings.

The Role of the Unconscious Freud stressed the role in our behavior of *unconscious motivation*—stemming from impulses buried below the level of awareness. According to Freud, human behavior arises from a struggle between societal prohibitions and instinctual drives associated with sex and aggression. Because certain behaviors are forbidden and punishable, many instinctual impulses are driven out of our awareness early in our lives. Nonetheless, they affect our behavior later in our lives. They find new expression in slips of the tongue ("Freudian slips"), dreams, bizarre symptoms of mental disorder, religion, the arts, literature, and myth. For Freud, the early years of childhood are critically important; what happens to an individual later in life is merely a ripple on the surface of a personality structure that was firmly established during the child's first five to six years.

Psychosexual Stages Freud said that all human beings, starting in infancy, pass through a series of **psychosexual stages.** Freud proposed three key psychosexual stages of development—oral, anal, and phallic (see Figure 2.2.) Each stage is dominated by the development of sensitivity in a particular erogenous, or pleasure-giving, zone of the body; and each stage poses a unique conflict that must be resolved before passing on to the next stage. If a person is unsuccessful in resolving the conflict, the resulting frustration becomes chronic and remains a central feature of their psychological makeup. This is known as a *complex*. According to Freud's theory, the sources of conflict during the phallic stage result in the *Oedipal* complex for boys and the *Electra* complex for girls. At this stage a boy feels sexual love for his mother and hostile rivalry toward his father causing him to fear punishment by the father through castration. A girl feels sexual love for the father and hostile rivalry toward the mother leading her to conclude that she and her mother have been castrated (because they lack penises). This leads to "penis envy" and a feeling of inferiority (Patterson & Hastings, 2007).

On the other hand, an individual who does not develop a complex might become so addicted to the pleasures of a given stage that they are not willing to move on to later stages and become fixated. **Fixation** is the tendency to stay at a particular stage. An individual who is troubled by a conflict at any stage seeks to reduce tension by engaging in the behavior characteristic of that stage.

For example, a person fixated in the oral stage might display an immature, dependent and demanding personality with overwhelming and insatiable needs for mothering. They may be verbally abusive and engage in excessive "oral" behaviors such as smoking, drinking, compulsive eating, and nail biting. A person fixated in the anal stage might display a hostile, defiant personality that finds it difficult to relate to authority figures. Yet this person may be

Sigmund Freud with His Daughter Anna in 1939 In the early 1900s Sigmund Freud, an Austrian psychiatrist founded psychoanalytic theory. He is famous for formulating psychosexual stages and therapeutic techniques to bring unconscious thoughts and feelings to conscious experience. His daughter, Anna, pioneered in the psychoanalytic treatment of children.

a superconformist who is preoccupied with rules, regulations, rigid routines, compulsive neatness and orderliness. This person might also be stingy and miserly. A person fixated in the phallic stage might display sexual problems/conflicts such as impotence, frigidity, homosexuality, and an inability to handle competitive relationships.

For Freud the stages from birth to age 7 were more important to the development of the basic personality structure. He identified two later, less important stages that he referred to as *periods:* the *latency* period and the *genital* period. The latency period corresponds to the middle childhood years. During this phase, Freud thought children suppress most of their sexual feelings and become interested in games, sports, and friendships—boys associate with boys, girls with girls. Sexual reawakening occurs at puberty, launching the genital period. In this stage the equilibrium of the latency period is upset. Young people begin experiencing romantic infatuations, emotional upheavals, and the desire to have a satisfactory sexual relationship.

Appraisal of Freud's Work For decades Freud's ideas dominated much clinical therapy. To many people Freud seemed to open an entirely new psychological world. His emphasis on environment, not biology or heredity, as the primary factor in mental health and illness was particularly hopeful. In fact, people were so fascinated with the novelty of Freud's insights that few questioned their truth. Nonetheless, scientists have come to recognize that Freudian theory is difficult to evaluate because it makes few predictions that can be scientifically tested (Roazen, 1990). Freudians say that only a personal psychoanalysis can reveal the truth of the theory's assertions. Unconscious motivation is, by definition, not in the conscious mind. Consequently, scientists lack the means to observe and study such motivation objectively (Shiraev & Levy, 2007).

Freud constructed his developmental stages almost entirely on the basis of inferences from adult patients. Recent historical research has depicted Freud as occasionally claiming cures when there were none and as suppressing or distorting the facts of cases to prove his theoretical points (Crews, 1998). Also, despite stressing the importance of the early years, Freud rarely worked with children. However, other child psychoanalysts, such as his daughter Anna, did apply his theories to the treatment of children.

Feminist scholars find the psychoanalytic hypothesis of female "penis envy" highly problematic, sexist, and based on the biases of the male-dominated culture of the Victorian era of the late 1800s (Slipp, 1993). Freud's Oedipal and Electra complexes posit children's sexual fantasies as the root of later neuroses, and Rush (1996) argues these are actually a cover-up for the rampant incest and child abuse in Victorian Vienna that Freud encountered with his female patients. This was and continues to be harmful to women because the abuse they suffered was not acknowledged and in effect, the victim is blamed.

Freudian theorists tended not only to ignore women's experience but also to blame them for others' psychological difficulties. For example, as recently as the 1950s, Bruno Bettleheim (1903–1990), a Freudian psychoanalyst, claimed that autism resulted from children being raised by a mother devoid of warmth and love, or by what he termed "refrigerator mothers" (1950). This conceptualization put a heavy burden on mothers at that time who were attempting to understand a child with such a complex disorder.

In contrast to Freud's views, psychiatrist Jean Baker Miller thought that relationships are the central need in human life and that problems that develop are caused by relational disconnections. She states that personality growth occurs within relationships and that infants respond to the emotions of caregivers. The goal is to continue to form intimate relationships, not to strive for autonomy and individuation (Miller & Striver, 1997). Finally, critics charge that Freudian theory is a poor guide to healthy personality development because his patients were suffering from emotional difficulties (Torrey, 1992)

(See the *Human Diversity* box on page 41, "Psychological Research and Spiritual Traditions.")

By the early 1970s, a new generation of U.S. psychiatrists was turning to psychobiology, considering defects of nature, not nurture, to be the primary factors in mental illness. These psychiatrists claimed that neurochemical factors, not childhood traumas, best explained mental illness and addictions—hence they looked to genes and the biochemistry of the brain, not to bad parenting, to explain how mental illness is transmitted from one generation to another. The shift away from Freudian theory in no way detracts from the revolutionary significance of Freud's work. Perhaps, more than anything else, Freud deserves considerable credit for directing attention to the importance of early social experience in human development and the impact those experiences have in the later stages of life.

Questions

What are the distinct features of Freud's psychoanalytic theory? What are the strengths and weaknesses of this theory? How is Freud's theory viewed by many contemporary psychologists?

Erik Erikson: Psychosocial Stages of Development

One of Freud's major contributions was to stimulate the work of other theorists and researchers. Erik Erikson was one of the most talented and imaginative of these theorists. A neo-Freudian psychoanalyst from Denmark, Erikson (1902–1994) came to the United States in 1933. While acknowledging Freud's genius and monumental contributions, Erikson moved away from the fatalism implicit in Freudian theory, challenging Freud's notion that the personality is primarily established during the first five to six years of life. He observed that if everything goes back to early childhood, then everything becomes someone else's fault, and this undermines trust in one's own capabilities.

Erikson concluded that the personality continues to develop over the entire life span. His more optimistic view emphasizes success, greatness, and the flowering of human potential. As his work progressed, Erikson also departed from Freud in another respect. He wove the external landscapes provided by culture, society, and history into Freudian notions of the internal dimensions of the mind.

The Nature of Psychosocial Development Erikson's chief concern is with **psychosocial development,** or development of the person within a social context. In contrast, Freud focused chiefly on the tension occurring as sexual energy sought release, or psychosexual development. Erikson basically formulated eight major stages of development (see Table 2.1), but after his death in 1994, his wife, Joan, published his theory about a ninth stage in very old age (which Erikson himself experienced). Each stage poses a unique developmental task and simultaneously confronts individuals with a crisis that they must resolve (Erikson preferred the term *opportunity*). As employed by Erikson (1968a, p. 286), a crisis is not "a threat of catastrophe but a turning point, a crucial period of increased vulnerability and heightened potential." More importantly he said, "remember that conflict and tension are sources of growth, strength, and commitment" (Erikson & Erikson, 1997). He would see great people of history, such as German Reformationist Martin Luther, Indian philosopher and peacekeeper Mohandas Gandhi, American civil rights activist

Erik H. Erikson and Joan Erikson Erikson became a leading figure in the psychosocial study of human growth and development, formulating nine stages, with a "conflict" or "crisis" to be resolved at each stage for healthy development to occur. He and his wife Joan collaborated on writing and refining his theory through his early nineties.

TABLE 2.1 Erikson's Nine Stages of Psychosocial Development

Stage	Developmental Period	Characteristics of Stage	Favored Outcome
Trust vs. mistrust	Infancy (birth to 1 year)	Come to trust or mistrust themselves and others	Develop trust in self, parents, and the world
Autonomy vs. shame and doubt	2 to 3	With increased mobility, decide whether to assert their will	Develop sense of self-control without loss of self-esteem
Initiative vs. guilt	4 to 5	Are curious and manipulate objects	Learn direction and purpose in activities
Industry vs. inferiority	6 to puberty	Are curious about how things are made and how they work	Develop a sense of mastery and competence
Identity vs. identity confusion	Adolescence	Explore "Who am I?" question	Develop a coherent sense of self and ego-identity
Intimacy vs. isolation	Early adulthood	Are able to reach out and connect with others	Become intimate with someone and work toward career
Generativity vs. stagnation	Middle adulthood	Look beyond self to embrace society and future generations	Begin family, develop concern for those outside family
Integrity vs. despair	Late adulthood	Take stock of one's past	Get sense of satisfaction from looking at past
Despair vs. hope and faith	Very old age (late 80s and beyond)	Face new sense of self over failing bodies and need for care	Achieve a new sense of wisdom and transcendance

Reverend Martin Luther King, Jr., Pope John Paul II, and Mother Teresa of Calcutta as achieving greatness by virtue of the fit between their personal crises and the crises of their times. Their solutions—as expressed in their ideas—become cultural solutions to broader social problems.

According to Erikson (1959; 1982; Erikson & Erikson, 1997), individuals develop a "healthy personality" by mastering "life's outer and inner dangers." Development follows the **epigenetic principle,** a term he borrowed from biology—"anything that grows has a ground plan, and . . . out of this ground plan the parts arise, each having its time of special ascendancy, until all parts have arisen to form a functioning whole" (Erikson, 1968b, p. 92). Hence, according to Erikson, each part of the personality has a particular time in the life span when it must develop if it is going to develop at all. If a capacity does not develop on schedule, the rest of the individual's personality development is unfavorably altered. The individual's capacity to deal effectively with reality is then hindered. However, Erikson did insist that there must be a healthy balance between both sides of each crisis that we encounter. For instance, a healthy mastery of the first stage culminates in a preponderance of *trust,* but also produces a healthy dose of *mistrust:* You cannot trust every person you meet and avoid mishap—you must develop a bit of mistrust to get along in this world. But in the end you should interact with the world from a position rooted in trust, and not mistrust, to further healthy psychosocial development (Rothbaum & Trommsdorff, 2007).

Erikson's Nine Stages Erikson was the first theorist to offer a model of development that extended over the entire life span. Table 2.1 depicts Erikson's nine stages, beginning with "trust vs. mistrust" and ending with "despair vs. hope and faith."

Appraisal of Erikson's Work Erikson's work provides a welcome balance to traditional Freudian theory. Although not neglecting the powerful effects of childhood experience, Erikson draws our attention to the continual process of personality development that takes place throughout the life span. His view is a more optimistic view than Freud's. Whereas Freud was primarily concerned with pathological outcomes, Erikson holds open the prospect of healthy and positive resolutions of our identity crises. Erikson's portrait of the life cycle allows "second chances" for opportunities missed and paths not taken. It has always been a general tenet of American individualism that people can improve themselves and continually refashion their fate by changing their social situation, so Erikson's perspective has captured the imagination of the U.S. public. The language Erikson provided—"identity," "identity crisis," "the life cycle"—plays a major role in thinking about adolescence and, beyond this, about the widest range of adult trials and tribulations (Terkel, 1987).

One criticism of Erikson's work is that all of the subjects of his psychobiographies and most of his case samples were males (Josselson, 1988). However, since the 1970s, identity development in women has been looked at more closely using Erikson's identity statuses as

HUMAN DIVERSITY

Psychological Research and Spiritual Traditions

What do Tibetan Buddhist monks and Western research psychologists have in common? Maybe more than might be apparent. In fact, it is what is not apparent—human mental and emotional processes that interest both Buddhist monks and psychologists. Research psychologists are beginning to realize that they have much to learn from the monks, whose centuries-old religious practices offer new directions for their work.

Tibetan Buddhism emphasizes the importance of gaining knowledge through self-examination of one's experiences. As part of their training, Tibetan Buddhist monks practice a type of meditation that involves becoming mindful—that is, the person acknowledges emotions and mental states but controls the reaction to them. The feelings themselves are not controlled; they are recognized and acknowledged. This differs from Western traditions that advise us to control our emotions. "Don't get angry." "Don't feel stressed." Perhaps that advice is easier said than done. What are we supposed to do with these emotions?

Buddhists realize that emotions such as fear and anger are inevitable aspects of human life. But what we can control through *practice of mindfulness* is the reaction that stems from the emotions, or as the Buddhists say, to recognize "the spark before the flame." Research psychologists are proving that this can be done.

In the course of their research, Paul Ekman and Robert Levenson, professors at the University of California, Berkeley, may have found a man who cannot be startled. In a series of yet unpublished experiments, Ekman exposed one Tibetan Buddhist monk to a sudden sound as loud as a firecracker and monitored the participant's blood pressure, muscle movements, heart rate, and skin temperature for signs of startle. The Buddhist monk, possibly due to hours of practice regulating his emotions through meditation, registered "little signs of disturbance" (Dingfelder, 2003).

Another area of study that interests psychologists is the Tibetan Buddhist monks' practice of creating *mental imagery*. Images such as Buddhist deities and *mandalas* (geometric designs symbolic of order, harmony, and perfect wisdom) are used to calm the mind. "Mental imagery," says Marlene Behrmann, "is critical in a number of tasks besides meditation, from assessing a potential chess move to determining whether a new couch will fit in the living room." She speculates that the current body of research on mental imagery focuses on the skills of Western college sophomores. "By broadening the pool of research participants to include visualization experts such as Tibetan Buddhist monks, psychologists might be able to get an idea of what the upper limits of human visualization look like," says Behrmann (Dingfelder, 2003).

By studying Buddhist practitioners of meditation and mental imagery, research psychologists can gain important insights into how emotions affect us and how we in turn can work through our emotions. It is a way to practice preventative mental health in contrast to the Western model that treats people who are suffering the aftereffects of emotional damage.

Tibetan Buddhist Monks By studying Tibetan Buddhist monks' centuries-old practice of meditation, psychologists are gaining important insights about how we can work through our emotions to practice preventative mental health. In contrast, the Western model of therapy presently treats people who suffer from the aftereffects of emotional damage.

Source: Dingfelder, S. F. (2003, December). Tibetan Buddhism and research psychology: A match made in Nirvana? *Monitor on Psychology, 34*(11), 46–48.

Carol Gilligan Dr. Gilligan has been a pioneer researcher in the development and psychological health of U.S. girls and teens as they navigate the passage to womanhood.

a base (Marcia, 1991). Josselson (1988) studied women's identity statuses and found that "a woman's identity at the close of adolescence forms the template for her adulthood." The issues most important to her female subjects were social-emotional and religious, not occupational or political. Josselson agrees with Jean Baker Miller's relational theory: "Women's sense of self becomes very much organized around being able to make and then to maintain affiliations and relationships" (Josselson, 1988; Josselson, Lieblich, & McAdams, 2007).

Carol Gilligan's (Taylor, Gilligan, & Sullivan, 1995) theory also views female identity as rooted in connections to others and in relationships: "Women conceptualize and experience the world in a different voice, and men and women operate with different internal models" (Gilligan, 1982a, p. 7). A comprehensive concept of identity must incorporate both female and male ways of developing (Pescitelli, 1998). (See the *Further Developments* box on page 44, "Theories of Emotions or Playing Mind Games.")

Questions

How does Erikson's theory of psychosocial development differ from Freud's theory of personality development? What crisis/opportunity characterizes each of Erikson's psychosocial stages, and what is the healthy outcome proposed for each stage throughout the life cycle?

BEHAVIORAL THEORY

As its name suggests, **behavioral theory** is concerned with the observable behavior of people—what they actually do and say. This is in contrast to psychoanalytic theory which focuses on the mental and emotional processes that shape human personality, and the data it uses come largely from the self-observations provided by *introspection*. However, behavioral psychologists believe that if psychology is to be a science, its data must be directly observable and measurable.

Behavioral theorists have traditionally separated *behavior* into units called **responses** and separated the environment into units called **stimuli.** Behaviorists are especially interested in how people *learn* to behave in particular ways, and hence the approach is also termed *learning theory*. Historically, behaviorism has emphasized two types of learning: (1) *classical,* or respondent conditioning and (2) *operant,* or instrumental conditioning (see Figure 2.3).

Ivan Pavlov: Classical Conditioning

Classical conditioning is based on the work of Ivan Pavlov (1849–1936), a Russian physiologist. Pavlov gained international renown and a Nobel Prize for his early research dealing with the role of gastric juices in digestion in dogs. Subsequently, Pavlov pursued work on an observation he made while conducting his gastric experiments with dogs. He noted that a dog would initially salivate only when food was placed in its mouth. With the passage of time, however, the dog's mouth would water *before* it tasted the food. Indeed, the mere sight of the food or even the sound of the experimenter's footsteps would cause salivation.

Pavlov was intrigued by the anticipatory flow of saliva in the dogs, a phenomenon he termed "psychic secretion." He saw the study of "psychic secretions" as a powerful and objective means for investigating the mechanisms by which organisms adapt to their environment. So Pavlov devised a series of experiments in which he rang a bell immediately before feeding a dog. After doing this a number of times, the dog's mouth would water at the sound of the bell even though food did not follow.

In his experiments, Pavlov dealt with a behavior that is biologically preprogrammed within a dog through genetic inheritance—the salivation reflex. The reflex is an involuntary and unlearned response that is automatically activated by a given stimulus: the presence of food in the animal's mouth. By pairing the sound of the bell with food, Pavlov established a new relationship or connection between a *stimulus* (S) (the sound of the bell) and a *response* (R) (salivation) that previously had not existed. This is called **classical conditioning**—a process

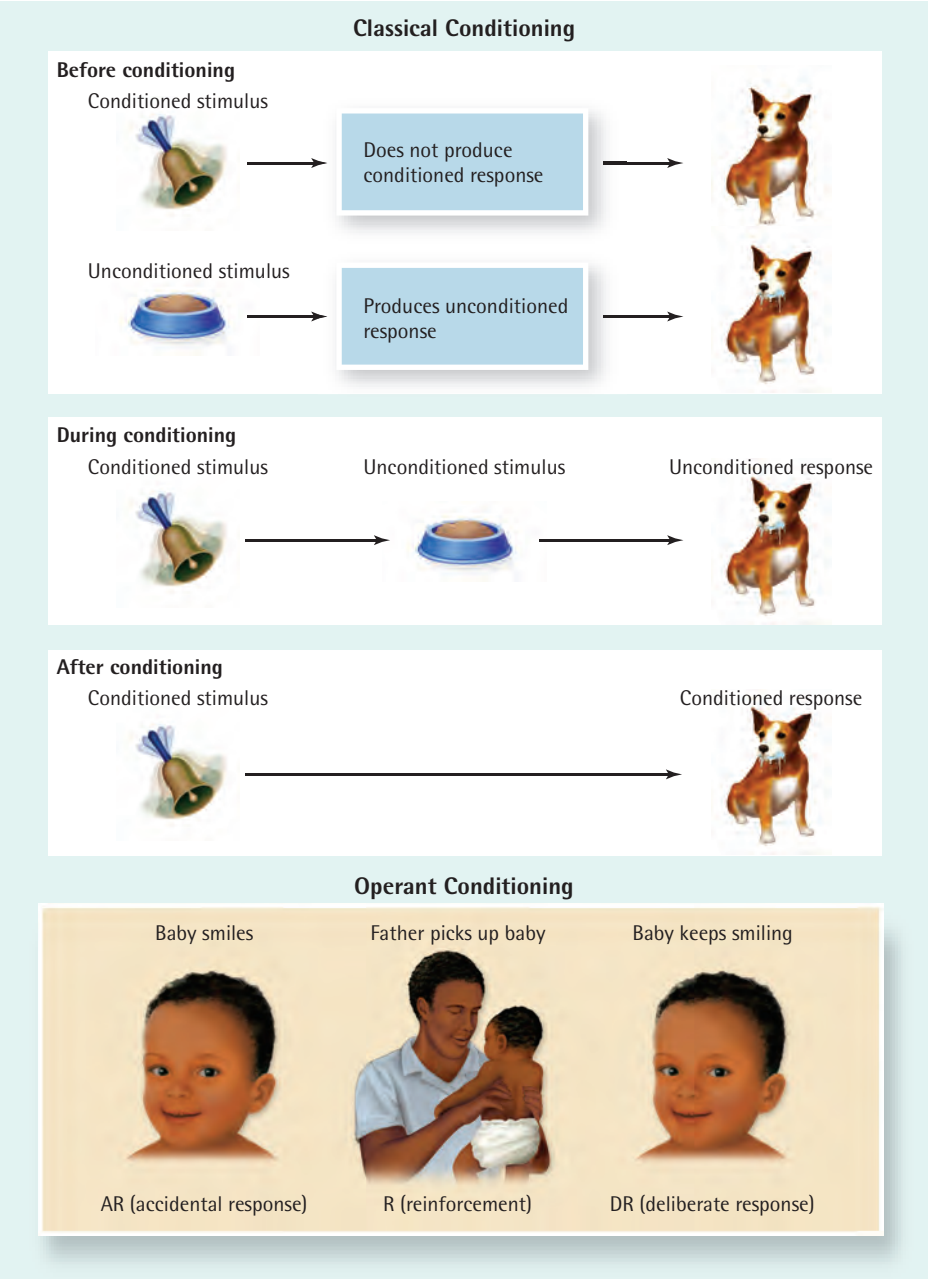


FIGURE 2.3 Classical Conditioning and Operant Conditioning

of stimulus substitution in which a new, previously neutral stimulus is substituted for the stimulus that naturally elicits a response. An illustration might be helpful: Consider a bright student who develops intense nausea associated with fear when confronted with a test situation. As a child, this student had a teacher who denied lunch recess to youngsters who did poorly on tests and assigned them extra work.

Classical conditioning depends on the existence of a reflex that can be activated by a new stimulus; in other words, you must already have some reflex to work with. But most people lack a preexisting unconditioned stimulus with which to link a new stimulus. So psychologists have searched for alternative mechanisms. One of these mechanisms is probably familiar to you if you have seen animals perform tricks. When dolphins perform acrobatic jumps, they are always rewarded with food immediately afterward. In this procedure the dolphin is made to *enact* the behavior and then is rewarded with fish; the food *follows* the response (the trick) and reinforces

FURTHER DEVELOPMENTS

Theories of Emotions or Playing Mind Games

Have you recently experienced an emotional high (or low) by winning (or losing) a college scholarship, a large amount of money in a lottery, at a casino, or just playing Texas Hold 'Em in the dorm? Poker has gained popularity at campuses across the nation and on the Internet and TV, and every good poker player knows that opponents can "read" a player's emotional state by his or her facial expressions, especially during "bluffing." Some celebrities are passionate about playing poker, including James Woods, Ben Affleck, Matthew Perry, and Angela Bassett—all experts at *showing* their emotions! Many of the names of rules of playing Texas Hold 'Em reveal the player's status of his or her emotional behavior, such as *bluff, edge, streak, tells,* and *tilt*.

Moreover, in the public era of "aging gracefully," more people are using Botox to remove the wrinkles of aging, leaving the individual appearing more *emotionless* (a term used by reporters during John Kerry's presidential campaign). Perhaps, then, it may be advantageous at times to *conceal* our emotions and other times to *reveal* them.

For centuries, philosophers and researchers have tried to understand how our emotions reveal so much about us and if the range of emotional expressions are universal across cultures. Only recently have researchers examined emotions positively and with the same interest as they've shown cognition. Emotions have traditionally been given "second status" in academia because emotions are very hard to quantify and measure. Historically, emotions have also been linked to abnormal or irrational behaviors.

Aristotle endorsed the theory that a balance of bodily fluids determines the individual's temperament. Descartes believed that ideas are innate and that the body and mind are distinct entities; he attempted to locate emotions in the nervous system. Spinoza regarded emotions as excessive impulses and promoted rational self-control as the means of freeing the self from "emotional bondage." Rousseau insisted an infant is born with noble emotions, which society adulterates. Kant suggested that innate dispositions are neither good nor bad.

Darwin thought that strong emotions are important for the survival of a species—that is, a strong emotion like fear in response to danger enables one to run away and live to face another day. G. Stanley Hall noted that emotions such as joy, sadness, fear, and anger tend to be expressed more frequently and intensely in childhood and youth. In adolescence, social forces start to redirect the expression of emotions, leading to other manifestations such as violence.

that particular behavior. When teaching a dolphin to do tricks, trainers employ **operant conditioning**—a type of learning in which the consequences of a behavior change the strength of that behavior. *Operants* are behaviors that are susceptible to control by changing the effects that follow them; they are responses that "operate" or act on the environment and generate consequences. So when a dolphin engages in behavior that produces food, the behavior is strengthened by this consequence and therefore the dolphin is more likely to repeat the behavior in the future. This is in contrast to classical conditioning where the food produces the behavior (see Figure 2.3).

To summarize, classical conditioning derives from preexisting *reflexes;* a stimulus is said to elicit the response; and antecedents determine the response probability. Whereas operant conditioning does not derive from preexisting reflexes; the response is emitted; and it is determined by *consequences*.

John Watson and B. F. Skinner

We owe much to the earlier work of behaviorist John Watson (1878–1958), who said that people do not go through distinct stages but do go through a continuous process of behavior changes due to responses to environmental influences (external stimuli). During the 1950s and 1960s, no U.S. psychologist enjoyed greater prominence or commanded greater influence than B. F. Skinner (1904–1990). He added to our understanding of operant conditioning, especially the role of *rewards* and *punishments*. Among the concepts popularized by Skinner is that of **reinforcement**—the process whereby one event strengthens the probability of another event's occurring. Skinner showed that much of life is structured by arranging reinforcing consequences, or "payoffs." For instance, businesses reward appropriate employee work behaviors with wages, commissions, bonuses, or flextime; and teachers use a variety of positive praise and

Freud was intrigued with the possibilities of using hypnosis to deal with emotional conflicts in patients. He attributed fear and anxiety to birth trauma. Later he decided that emotional disturbances were not much different from other neuroses, being more a matter of degree than difference. William James argued that emotion consists of the feeling or perception of changes occurring in bodily organs—that is, if one sees a dangerous object, one begins to tremble and run and then experience fear, so that the emotion follows the physical movement.

In the early 1900s, several researchers at Harvard countered that emotions depend on neural activity in the brain cortex. They removed part of a cat's hypothalamus and reported that they had eliminated all angry reactions from the cat. John Dewey thought that the brain and all other bodily structures function in harmonious relation to each other, creating a series of feelings, depending on the environment. John Watson concluded that fear, rage, and love are inherited or developed shortly after birth, and that all other emotions are learned later through classical conditioning.

Carroll Izard (2007) is a nationally recognized authority on the emotional development of children—especially aggression in children. His cross-cultural research reveals that everyone feels the basic six emotions: happiness, surprise, fear, sadness, disgust and anger, and 42 muscles in the face are used to express these feelings.

More recently, the study of emotions includes the influence of genetic and environmental factors. Paul Ekman researched facial expressions and the physiology of emotions. Ekman investigated universal facial expressions in the United States, Japan, Brazil, and Papua, New Guinea and has published his findings: *Unmasking the Face: A Guide to Recognizing Emotions from Facial Expressions* (2003) and *Emotions Revealed: Recognizing Faces and Feelings to Improve Communication and Emotional Life* (2003). He proposes that the 10,000 emotional facial expressions are largely universal. Presently he consults for the security field to create devices that will allow only classified personnel into high-security areas by matching images of distinctive facial expressions.

Texas Hold 'Em: An Emotional Rollercoaster

Daniel Goleman (1995) has promoted *Emotional Intelligence: Why It Can Matter More than IQ*. He brought attention to theories of emotional intelligence proposed by other researchers and spurred a profusion of empirical research. Recently, a new discipline called *social neuroscience* has emerged from Goleman's studies on the brain's interpersonal circuitry, including social encounters in online environments (Goleman, 2006).

Source: Originally adapted from Samuel Smith, *Ideas of the Great Psychologists* (1983), and Kirn, W., & Ressner, J. (2004). Poker's new face: Hot game in town. *Time, 164*(4), p. 30.

rewards to motivate students who are struggling to learn a difficult concept. Also, psychotherapists lead clients to set goals to reduce ineffective behaviors or increase effective behaviors by having clients select their own rewards that are reinforcers.

Many of the principles of learning have found a use in **behavior modification.** This approach applies learning theory and experimental psychology to the problem of altering maladaptive behavior. According to behaviorists, pathological behavior is acquired just as normal behavior is acquired—through the process of learning. They claim that the simplest technique for eliminating an *unwanted* behavior is usually to stop reinforcing it. Interestingly enough, by attending to a child's inappropriate behavior (e.g., by scolding), we can reinforce exactly what we want to diminish. But behavior modification can also involve more deliberate intervention in the form of rewards or punishments. Rewards, as reinforcers, normally are selected by the individual whose behavior is to be changed. Behavior modification has helped obese people lose weight and has helped people overcome *phobias,* such as fears of high places, taking tests, sexual inadequacy, closed-in spaces, speaking before an audience, and many others. Watson and Tharp (2007) contend that people can develop their own behavior modification plan (see the *More Information You Can Use* box on page 48, "Putting Theory to Use in Your Life").

Our understanding of conditioning has undergone major transformations over the past three decades (Rosales-Ruiz & Baer, 1997). Psychologists now understand that conditioning is not simply a mechanical process that involves the association of two events that happen to occur closely in time. Organisms do not pair events in a vacuum. The environmental context is critically important. The overshadowing of some stimuli, the blocking of others, and the highlighting of still others has an impact. From

B. F. Skinner After World War II, B. F. Skinner (above left) became the dominant figure in American psychology. His experimental work with pigeons pioneered many facets of behavioral theory. He stressed the significance that environmental forces play in an organism's acquisition of various behaviors. His theories are prevalent in the educational and therapeutic communities today.

a cognitive learning perspective, organisms only learn when events violate their expectations (Watson & Tharp, 2007). For example, suppose you retrieve a baseball from a bed of poison ivy, and shortly after your skin becomes red and itchy with tiny blisters. You might not link the two events, but a doctor will point out that you are allergic to poison ivy. Then you grasp the relationship between the blisters and the offending plant. Subsequently, you take care to avoid contact with poison ivy. You have learned!

Questions

Consider the growing problem of the eating disorder anorexia nervosa. Using behavioral terminology, how would you explain the development of this condition? Using principles described in the preceding section, what would you propose as a plan to reduce this harmful behavior?

HUMANISTIC THEORY

In the past 50 years or so, a "third force" in psychology has arisen in reaction to the established traditions of psychoanalysis and behaviorism. Commonly termed **humanistic psychology,** it maintains that humans are different from all other organisms in that they actively intervene in the course of events to control their destinies and shape the world around them. They take a **holistic approach,** one that views the human condition in its totality and each person as more than a collection of physical, social, and psychological components (Schneider, Bugental, & Pierson, 2002).

Abraham Maslow and Carl Rogers

Humanistic psychologists, such as Abraham Maslow (1908–1970) and Carl R. Rogers (1902–1987), are concerned with maximizing the human potential for self-direction and freedom of choice (Maslow, 1968; Rogers, 1970). One of the key concepts advanced by Maslow is the **hierarchy of needs,** depicted in Figure 2.4. Maslow felt that human beings have certain basic needs that they must meet before they can fulfill their other developmental needs. At the bottom of Maslow's pyramid are fundamental requirements to satisfy physiological needs (including needs for food, water, and sex) and safety needs. Next, Maslow identified a set of psychological needs focused on belongingness (love) and self-esteem. At the top of the pyramid, he placed the need to realize one's unique potential to the fullest in a process he termed **self-actualization.** To Maslow, such people as Abraham Lincoln, Albert Einstein, Eleanor Roosevelt, Reverend Martin Luther King Jr., and Dr. Maya Angelou are good examples of self-actualizers.

Maslow constructed a composite picture of self-actualized persons (Maslow, 1970). According to Maslow, they are autonomous and independent. They have a firm perception of reality, accepting themselves, others, and the world for what they are yet they are able to transcend their environment rather than merely cope with it. They are problem-centered rather than self-centered and are sympathetic to the condition of other human beings. They tend to establish deep and meaningful relationships with a few people rather than superficial bonds with many people but also have an air of detachment and a need for privacy. They have a democratic world perspective and work to promote the common good. They are spontaneous in thought and behavior but are not deliberately or flamboyantly unconventional. Self-actualized people are creative and are susceptible to *peak experiences* (rapturous feelings of excitement, insight, and happiness) (Rathunde & Csikszentmihalyi, 2006).

Maslow and other humanistic psychologists argue that scientific inquiry should be directed toward helping people achieve freedom, hope, self-fulfillment, and strong identities. The goal of humanistic therapy is to help a person become more self-actualized—that is, to guide the client to self-directed change, building self-esteem along the way (in contrast to psychoanalysis and behavior modification, which are directed more by the therapist). However, many other psychologists are skeptical about their humanistic colleagues. Indeed, important differences characterize their intellectual style (Kimble, 1984). Psychoanalytic and behavioral psychologists see increasing the storehouse of scientific knowledge as their

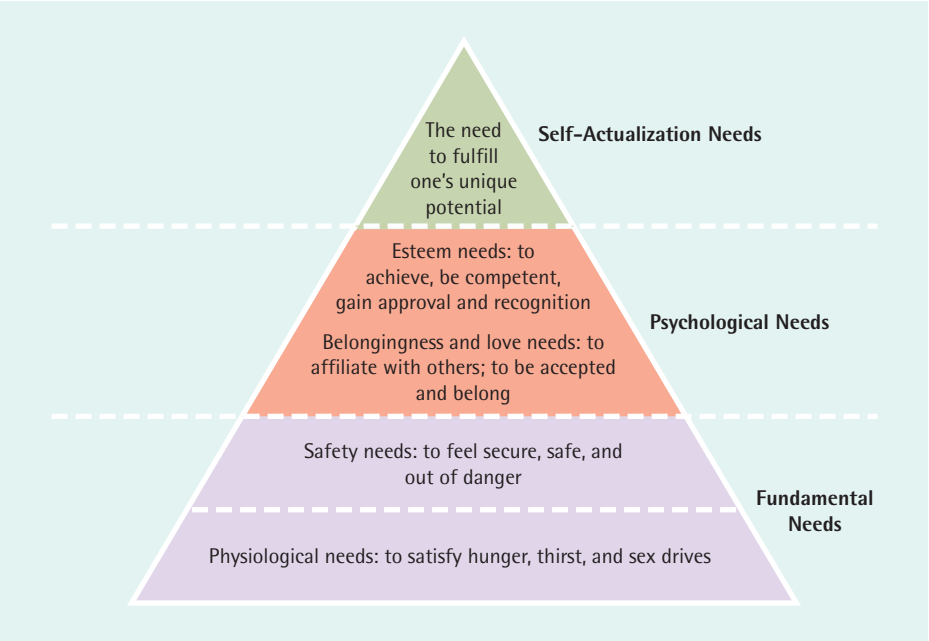


FIGURE 2.4 Maslow's Hierarchy of Human Needs According to the humanistic psychologists Abraham Maslow and Carl Rogers, fundamental needs must be satisfied before an individual is free to progress to psychological needs, which must be met before the person can realize self-actualization needs.

primary task, whereas humanists primarily focus on improving the human condition. Moreover, the former view behavior as determined by underlying laws revealed by using the scientific method. Many humanistic psychologists investigate behavior by relying on intuition and insight. Also, critics charge that humanistic psychology turns people inward, encouraging an intense concern with the self, breeding a narcissistic view, one that says that if each of us works on becoming more fully human ourselves, then social ills such as racism, homelessness, hunger, and militarism will flourish.

Questions

What is the primary task of a humanistic psychologist? How might such a psychologist guide someone to change unwanted behavior?

COGNITIVE THEORY

Early formulations of behaviorism regarded human life as a "black box." These behaviorists viewed *input* or *stimuli* as entering the "box" at one end and coming out the other end as *responses*. What was inside the box did not concern them. But over the past 50 years, psychologists have become increasingly interested in what goes on inside the box. They term these internal factors **cognition**—acts or processes of knowing. Cognition involves how we go about representing, organizing, treating, and transforming information as we devise our behavior. It encompasses such phenomena as sensation, perception, imagery, retention, recall, problem solving, reasoning, and thinking. **Cognitive theory** takes issue with a number of behaviorist tenets.

Cognitive psychologists are especially interested in the cognitive structures and processes that allow a person to mentally represent events that transpire in the environment. The initial impetus to study cognition in the United States came from Jean Piaget, a Swiss developmental psychologist.

Jean Piaget: Cognitive Stages in Development

Like Freud, Piaget (1896–1980) is recognized as a giant of twentieth-century psychology (Beilin, 1992). Anyone who studies Freud and Piaget will never again see children in quite the same way. Whereas Freud was primarily concerned with *personality development*, Piaget concentrated on changes that occur in the child's *mode of thought*. Central to Piaget's work are the **cognitive stages** in development–sequential periods in the growth or maturing of an individual's ability to think—to gain knowledge, self-awareness, and awareness of the environment (Mooney, 2006).

Adjustment as Process

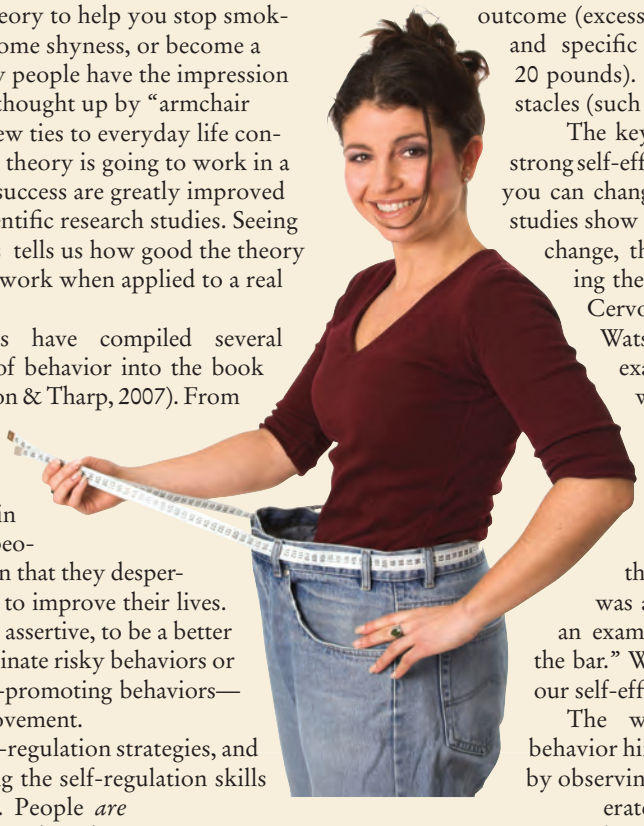
When Piaget began to work with children in the early 1920s, little was known about the process by which thinking develops. Most psychologists assumed that children reason in essentially the same way as adults. Piaget challenged this view insisting that the thought of infants and children is qualitatively distinct, not a miniature version of adult thought. For example, when they say that their shadow follows them

MORE INFORMATION YOU CAN USE

Putting Theory to Use in Your Life

What if you could use theory to help you stop smoking, lose weight, overcome shyness, or become a more effective student? Many people have the impression that theories are grand ideas thought up by "armchair intellectuals," and there are few ties to everyday life concerns. How can we know if a theory is going to work in a practical sense? The odds of success are greatly improved when they are backed by scientific research studies. Seeing the results of research studies tells us how good the theory is and hence how well it will work when applied to a real situation.

Two researcher/educators have compiled several research-supported theories of behavior into the book *Self-Directed Behavior* (Watson & Tharp, 2007). From these theories they designed a program for anyone to apply to change their own behaviors and ultimately to gain control over their lives. Most people have some behavior pattern that they desperately wish to change in order to improve their lives. Whether it is to become more assertive, to be a better friend or family member, eliminate risky behaviors or addictions, or increase health-promoting behaviors—each of us has room for improvement.



Believe You Can Achieve Your Goals

Watson and Tharp use self-regulation strategies, and understanding and developing the self-regulation skills leads to greater self-control. People *are* capable of regulating their own thoughts, feelings, actions, and impulses. Depending on the situation, our self-regulation capabilities may be stronger or weaker. The good news is that we can learn to regulate our thoughts, feelings, and actions to achieve better behavioral outcomes.

Research findings show that greater self-control leads to getting better grades in school, a decrease in depression or anxiety, higher self-esteem, greater popularity, and greater relationship satisfaction (Tangney, Baumeister, & Boone, 2004). You might be thinking, "This sounds too good to be true. How can it possibly work for me?" Well, actually it is not the theory that will be doing the work—it is *you* who will be doing the work. The theory is the guidepost and achieving results will require commitment, persistence, and effort.

Let's say that your goal is to lose weight. Target a specific behavior (e.g., overeating) that leads to an unwanted outcome (excess weight). One must also be clear and specific about one's goals (e.g., losing 20 pounds). Then, anticipate and manage obstacles (such as a holiday party).

The key to successful change lies with a strong self-efficacy belief. You must truly believe you can change and achieve your goals. Many studies show that when people *believe* they can change, they are more successful at meeting their goals (Bandura & Locke, 2003; Cervone & Scott, 1995; Maddux, 2002). Watson and Tharp (2007) give the example of an Olympic weightlifter who tried to break his own record. Try as he might he could not seem to lift 500 pounds, yet he knew he could lift 499½ pounds. Unknown to the weightlifter, his trainer once put 500½ pounds on the bar. The unaware weightlifter was able to lift it successfully. Here is an example of someone literally "raising the bar." We can do this, too, as we increase our self-efficacy beliefs.

The work involved in self-directed behavior hinges on *self-knowledge*—attained by observing ourselves in a careful and deliberate way. We must observe carefully because studies show that we are prone to overestimating our abilities in activities that we are actually not very good at performing (Dunning et al., 2003). We tend to underestimate how extensively we engage in health-risking behavior, while overestimating our competence level at work as well as our educational attainments (Dunning, Heath, & Suls, 2004).

Applying scientific principles to gain self-knowledge includes observing our own thoughts, feelings, and actions. Keeping written records in order to understand and ultimately change a behavior provides evidence of when, how often, and why we engage in certain behaviors. Using the collected information as a baseline provides a means of comparing and pinpointing our behaviors over time. This then helps to mark the roadmap for change. Self-knowledge along with scientific knowledge and the guidance of theory can all be used to change your life for the better.

Source: Watson, D. L., & Tharp, R. G. (2007). *Self-directed behavior* (9th ed.). Belmont, CA: Wadsworth.

when they go for a walk or that dreams come through the window they are not being illogical—they are operating from a different mental framework from that of an adult. As children grow up, the form of their thought changes.

According to Piaget (1954), children engage in a continual interaction with their environment. They act on, transform, and modify the world in which they live and in turn, they are shaped and altered by the consequences of those interactions. As children have new experiences, they interact with an existing structure or mode of thought. They then alter this structure to make it more adequate. This modified structure influences the children's new perceptions which are then incorporated into a more complex structure. In this fashion, experience modifies structure and structure modifies experience. Thus, Piaget viewed the individual and the environment as engaged in continuing interaction. This interaction leads to new perceptions of the world and new organizations of knowledge (Beilin, 1992; Brown, 1996).

Basically, Piaget saw development as **adaptation.** Beginning with the simple reflexes they have at birth, children gradually modify their repertoire of behaviors to meet environmental demands. By interacting with their environment during play and other activities, children construct a series of *schemas*—concepts or models—for coping with their world. **Schemas** are cognitive structures that people construct to deal with their environment. According to Piaget, children's thoughts mainly reflect the schemas or mental frameworks by which they interpret information from the environment rather than any bits of information that they acquire.

Piaget believed *adaptation* involves two processes: assimilation and accommodation. **Assimilation** is the process of taking in new information and interpreting it so that it conforms to a currently held model of the world. Piaget said that children typically stretch a schema as far as possible to fit new observations. But life periodically confronts them with the inescapable fact that some of their observations simply do not fit their current schemas. Then, *disequilibrium* or imbalance occurs. As a result, children are required to invent increasingly better schemas or theories about the world as they grow up. **Accommodation** is the process of changing one's schema to make it better match the world of reality. Unlike assimilation, in which new experiences are fit into existing conceptions of the world, accommodation involves changing a conception to make better sense of the world. Imagine a child who understands that some animals, called fish, live in the ocean (this is *assimilation*). Yet on viewing whales leaping out of the ocean during a whale watch, he discovers that whales are not fish but mammals that need to breathe air. The child makes an *accommodation* in his understanding of the animals that live in the ocean.

Jean Piaget at Work Piaget spent more than 50 years observing children in informal settings, and he developed a stage theory of cognitive development. His work convinced him that a child's mind is not a miniature model of the adult's—a fact we often overlook when attempting to teach children by using adult logic.

A balance between the processes of accommodation and assimilation is **equilibrium.** When in equilibrium, the child assimilates new experiences in terms of the models she or he arrived at through accommodation. But equilibrium eventually gives way again to the process of accommodation and the creation of new schemas or models. Thus, as viewed by Piaget, cognitive development is marked by alternating states of *equilibrium* and *disequilibrium*. Each stage consists of particular sets of schemas that are in a relative stage of equilibrium at some point in a child's development (Rathunde & Csikszentmihalyi, 2006).

Characteristics of Piaget's Cognitive Stages Piaget (1954) contended that biological growth combines with children's interaction with their environment to take them through a series of separate, age-related stages. The stage concept implies that the course of development is divided into steplike levels. Clear-cut changes in behavior occur as children advance up the developmental staircase, with no skipping of stages allowed. Although teaching and experience can speed up or slow down development, Piaget believed that neither can change the basic order of the stages (Piaget, 1970). Piaget distinguished four stages in the development of cognition or intelligence. They are summarized in Table 2.2 and will be treated in more detail in later chapters on cognitive growth.

TABLE 2.2 Piaget's Stages of Cognitive Development

Developmental Stage	Major Cognitive Capabilities	Example
Sensorimotor stage (birth to 2 years)	Infants discover the relationships between sensations and motor behavior.	They learn that their hands are part of themselves whereas a ball is not.
	Children master the *principle of object permanence.*	Piaget observed that when a baby of 4 or 5 months is playing with a ball and the ball rolls out of sight behind another toy, the child does not look for it even though it remains within reach. Piaget contended that infants do not realize that objects have an independent existence. Around the age of 8 months, the child grasps the fact of object constancy and will search for toys that disappear from view.
Preoperational stage (2 to 7 years)	Children develop the capacity to employ *symbols,* particularly language.	Children use symbols to portray the external world internally—for instance, to talk about a ball and form a mental image of it.
	Egocentrism prevails.	Children of 4 and 5 years consider their own point of view to be the only possible one. They are not yet capable of putting themselves in another's place. A 5-year-old who is asked why it snows will answer by saying, "So children can play in it."
Stage of concrete operations (7 to 11 years)	Children show the beginning of rational activity. They are able to "conserve" mass, weight, number, length, area, and volume.	Youngsters come to master various logical operations, including arithmetic, class and set relationships, measurement, and conceptions of hierarchical structures. Before this stage children do not appreciate that a ball of clay can change to a sausage shape and still be the same amount of clay.
	Children gain the ability to "conserve" quantity.	Before this stage, children cannot understand that when water is poured out of a full glass into a wider glass that the water fills only halfway, the amount of water remains unchanged. Instead, children "concentrate" on only one aspect of reality at a time. They see that the second glass is half empty and conclude that there is less water in it. Now children come to understand that the quantity of water remains the same.
Stage of formal operations (11 years and older)	Youths acquire a greater ability to deal with abstractions.	When younger children are confronted with the problem, "If coal is white, snow is _____," they insist that coal is black. Adolescents, however, respond that snow is black.
	Youths can engage in scientific thought.	At this stage, youths can discuss Newtonian principles about the behavior of spherical objects.

Appraisal of Piaget's Work U.S. scientists largely ignored Piaget's discoveries until about 1960. Today, however, the study of cognitive factors in development is of central interest to psychologists across the world. They credit Piaget with drawing their attention to the possibility that an unsuspected order might underlie some aspects of children's intellectual development (Levin & Druyan, 1993). Nonetheless, some followers of Piaget, such as John H. Flavell (1992), say that the notion of stages implies long periods of stability, followed by abrupt change. He argues that the most important changes happen gradually, over months and years. Flavell (1992) contends that cognitive growth is much less predictable than Piaget thought.

A mounting body of evidence also suggests that Piaget underestimated the cognitive capabilities of infants and young children. The kinds of memory Piaget found in 18-month-old babies researchers now find in babies at 6 months of age. Of course, Piaget did not have the methods, equipment, and procedures now available to scholars to measure the brain's electrical activity. The operational thinking capabilities of children from 2 to 7 years of age also are considerably greater than Piaget recognized (Novak & Gowin, 1989).

Research on other cultures has revealed both striking similarities and marked differences in children's performance on various cognitive tasks. Certain aspects of cognitive development among children in these cultures seem to differ from particular assumptions of Piagetian theory (Maynard & Greenfield, 2003). We should remember that no theory—particularly one that offers such a comprehensive explanation of development—can be expected to withstand the tests of further investigation without undergoing some criticism (Brown, 1996).

It is too soon to determine the ultimate impact Piaget's theory will have on our understanding of cognitive development. Yet we must recognize that we would not know as much as we do about children's intellectual development without Piaget's monumental contributions. He noted many ways in which children seem to differ from adults, and he shed light on how adults acquire abstract concepts such as space, time, morality, and causality (Sugarman, 1987). Other researchers have attempted to integrate aspects of Piaget's theory into the cognitive learning and information-processing theories that are discussed in the next section (Brown, 1996).

Questions

Piaget is often considered to be one of the great "stage" theorists of developmental psychology. In your own words, how would you explain his stage theory of cognitive development? Why have his research findings been criticized recently?

Albert Bandura: Cognitive Learning

Piaget's work gave a major impetus to cognitive psychology and to research into the part played by inner mental activity in human behavior (Sperry, 1993). Opposing classical behavioral notions, cognitive theorists affirm that the world we live in is driven not solely by mindless physical forces but also by subjective human attitudes, values, and aims. Cognitive psychologists view the contents of conscious experience and their subjective qualities as dynamic, emergent properties of *brain activity* (inseparably interfused with and tied to the brain's cellular and biochemical properties and processes).

These psychologists are finding that mental schemes—often called "scripts" or "frames"—function as selective mechanisms that influence the information individuals attend to, how they structure it, how much importance they attach to it, and what they then do with it (Vander Zanden, 1987). As we noted earlier in this chapter, psychologists are also finding that people actively engage their environment, evaluate different stimuli, and devise their actions accordingly.

Classic behavioral theory also fails to explain many changes in our behavior that result from interactions with people in a social context. Indeed, if we learned solely by direct experience—by the reward or punishment for our actions—most of us would not survive to adulthood. If, for example, we depended on direct experience to learn how to cross the street, most of us would already be traffic fatalities. Similarly, we probably could not develop skill in playing baseball, driving a car, solving mathematical problems, cooking meals, or even brushing our teeth if we were restricted to learning through direct reinforcement.

We can avoid tedious, costly, trial-and-error experimentation by imitating the behavior of socially competent models (Eccles, 2007; Grusec & Davidov, 2007). By watching other people, we learn new responses without first having had the opportunity to make the responses ourselves. This process is termed **cognitive learning.** (It is also termed *observational learning*, *social learning*, and *social modeling*.) The approach is represented by the work of theorists such as Albert Bandura (1977, 1986, 2007).

The cognitive learning theory of Bandura relies heavily on notions of information-processing theory, which holds that individuals perform a series of discrete mental operations on incoming information and then mentally store the conclusions they have drawn from the process (Bandura, 2006). Bandura's theory emphasizes the ways that children and adults mentally operate on their social experiences and how these mental operations then influence their behavior. People abstract and integrate information that they encounter in the course

Social Modeling Often Influences Child Behavior
How little we may be aware that children imitate our behaviors.

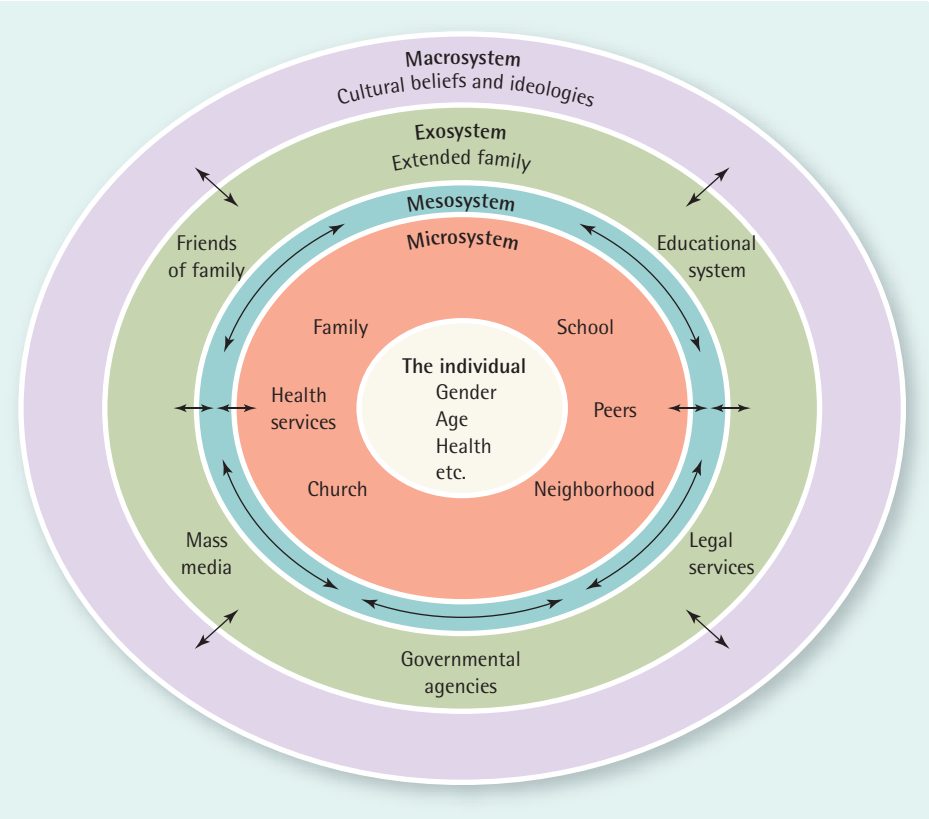


FIGURE 2.5 Bronfenbrenner's Ecological Theory of Development This shows the four levels of environmental influences: the microsystem, mesosystem, exosystem, and macrosystem.

to a film about war if the same film is seen both before and after the person has fought in a real war.

Bronfenbrenner also said change must occur over time, and he added the concept of the chronosystem to capture the dynamics of development with and across other systems. The **chronosystem** refers to changes within the individual and changes in the environment across time, as well as the relationship between the two processes. For example, if a divorce occurs in a child's family during the preschool period, it will have a different impact than if the child is an adolescent or young adult.

Question

Every morning when she rises, a woman from the Kiribati Islands in the Pacific pulls one hair from her head, places it in a container, and then goes out to check her fish trap. You need to come up with a reason that explains why she does this. You have two possible ways to collect data and arrive at an understanding of why she does this. You do not speak the language, but you can use an interpreter for one day, or you can observe her for one week without being able to talk to her. Which of the previous theories, in your opinion, comes closest to explaining her behavior? Explain your decision.

SOCIOCULTURAL THEORY

If one examines the parenting practices of most parents in the United States, it becomes apparent that they are stressing *individualism* and *independence* as soon as the child is born. Common wisdom and practice is to place the infant, soon after birth, in a separate room in order to encourage independence. U.S. parents also reinforce a preference for objects rather than people to be used as means of comforting in times of distress. Child-rearing practices in many other cultures stress *interdependence*, sometimes called *collectivism*, over independence or *individualism*, with the focus on ties to family. Children are socialized to think of themselves as being part of a group or community, rather than an individual at odds with those in the vicinity. Interdependence is natural to human activity and offers different trajectories for development according to a prominent Russian psychologist's view regarding cognitive and language development—"All of the higher [psychological] functions originate as relations between human individuals" (Vygotsky, 1978).

Lev Vygotsky

Lev Vygotsky (1896–1934) is credited with creating one of the outstanding schools of Soviet psychology and is known for his **sociocultural theory** of psychological

development. According to Vygotsky, to understand the mind we must first understand how psychological processes (especially language) shape the functions of the mind. The major theses of his work are as follows:

- Development of individuals occurs during the early formative years and has a specifically historical character, content, and form; in other words, development will be different depending on when and where you grow up.
- Development takes place during changes in a person's social situation or during changes in the activities the person undertakes.
- Individuals observe an activity and then internalize the basic form of that activity.
- Systems of signs and symbols (like language) must be available in order to internalize activities.
- Individuals assimilate the values of a particular culture by interacting with other people in that culture.

It is important to note that Vygotsky assumes that the development of the individual is determined by the *activity of groups*. The child will interact with another person, assimilate the social aspects of the activity, and take that information and internalize it. In this way, social values become personal values (Vygotsky, 1978).

Vygotsky's theory provides a developmental perspective on how such mental functions as thinking, reasoning, and remembering are facilitated through *language* and how such functions are anchored in the child's *interpersonal relationships* (Daniels, Wertsch, & Cole, 2007). The child, according to Vygotsky, will observe something happening between others and then will be able to take that observation and mentally incorporate it. One example is the way children use language. First, a child will be told "Say please and thank you" by a parent. The child will also see people saying "Please" and "Thank you" to each other. Then the child will begin to say these words aloud. By saying "Please" and "Thank you" aloud, the child is internalizing the words and the concepts they stand for in a social setting. Only after assimilating the words' meanings can the child individually start to act in a polite manner. It follows that development is always a social process for Vygotsky, and child–adult interaction plays an important role (Berk & Winsler, 1995). So it should come as no surprise that for Vygotsky, the way to understand development is to observe the individual in a social activity.

Questions

Which prominent theorist proposed sociocultural theory? How does his theory explain how a child learns using such functions as thinking, reasoning, and remembering?

CLASSIFYING THE MODELS

Each theory has its proponents and its critics. Yet the theories are not mutually exclusive; we need not accept one and reject the others. In fact, most psychologists prefer an **eclectic approach,** which allows them to select and choose aspects from the various theories and models that provide the best fit for the descriptive and analytical task at hand. As stated at the beginning of this chapter, theories are simply tools—mental *constructs* that allow us to visualize (that is, to describe and analyze) something. Any theory limits the viewer's experience, presenting a tunnel perspective. But a good theory also extends the horizon of what is seen, functioning like a pair of binoculars. It provides rules of inference through which new relationships can be discovered and suggestions as to how the scope of a theory can be expanded.

Furthermore, different tasks call for different theories. Behavioral theory helps us understand why U.S. children typically learn English and Russian children learn Russian. We shall see that ethological theory, one of the evolutionary adaptation theories, directs our attention to ways in which the human organism is neurally prewired for certain activities. In interaction with an appropriate environment, young children typically find that their acquisition of language comes rather "naturally"—a type of *easy learning*. Psychoanalytic theory alerts us to personality differences and to differing child-rearing practices that influence a child's learning to talk. Cognitive theory encourages us to consider the stages of development and the mental processes involved in the acquisition of language. Sociocultural theory reminds us of the range of influences that impact individual development—from individual attributes and family characteristics to community and cultural influences. The distinction between mechanistic and organismic models helps to clarify some of these theories.

Mechanistic and Organismic Models

Some psychologists attempt to classify developmental theories in terms of two basic categories: a mechanistic worldview and an organismic worldview. The **mechanistic model** represents the universe as a machine composed of elementary particles in motion. Each human being is regarded as a physical object, a kind of elaborate machine. Like other parts of the universal machine, the organism is inherently at rest and passive. It responds only when an external power source is applied. In keeping with this view, human development is portrayed as a gradual, uninterrupted, chainlike sequence of events. Indeed, one can question whether a machine can be said to "develop"; it changes only when some external agent adds, subtracts, or alters the machine's parts (Sameroff & Rosenblum, 2006). Change cannot occur without environmental influence. Individual differences are

the central focus of mechanistic approaches. Behavioral learning theories fall within this tradition.

In contrast, the **organismic model** focuses not on elementary particles but on the whole. The distinctive interrelations among the lower-level components are seen as imparting to the whole characteristics not found in the components alone. Hence, the whole differs in kind from its parts. The organism is inherently *active*—it is the source of its own acts rather than being activated by external forces. From this perspective, human development is characterized by discrete, steplike levels or states. Humans are portrayed as developing by constantly restructuring themselves. The new structures that will be formed are determined by the interaction between the environment and the organism (Lerner, 2002). The stage theories of Freud, Erikson, and Piaget fall within the organismic tradition.

Question

Can you compare and contrast the major premise of mechanistic, organismic, and eclectic views of human development?

Continuity and Discontinuity in Development

Most psychologists agree that development follows orderly sequences of change that depend on growth and maturation as individuals interact with their environment—that is, *continuity* of development. Those that say development produces smooth, gradual, and incremental change typically fall within the mechanistic camp. However, other psychologists emphasize discontinuity in sequences of change. They usually fall within the organismic camp.

The two different models of development can be clarified by considering two analogies. According to the *continuity model,* human development is analogous to the growth of a leaf. After a leaf sprouts, it grows by simply becoming larger. The change is gradual and uninterrupted. Psychologists who emphasize the part that learning plays in behavior tend to take this point of view. They see the learning process as lacking sharp developmental states between infancy and adulthood. Learning is cumulative, building on itself.

According to the *discontinuity model,* human development is analogous to the developmental changes that produce a butterfly. Once a caterpillar hatches from an egg, it feeds on vegetation. After a time it fastens itself to a twig and spins a cocoon within which the pupa develops. One day the pupal covering splits open and the butterfly emerges. Psychologists who adopt the discontinuity model see human development as similar to the process of insect metamorphosis. Each individual passes through a sequence of stages in which change constitutes a difference of kind rather than merely of degree. Each stage is characterized by a distinct and unique state in ego formation, identity, or thought. The theories of Sigmund Freud, Erik Erikson, and Jean Piaget are of this sort.

How we view development depends in part on our vantage point. To return to our analogies, when we first observe a caterpillar and then a butterfly, we are struck by the dramatic qualitative change. But when we observe the developmental changes that occur within the cocoon, we have a different impression. We see that butterfly-like characteristics are gradually acquired, and consequently we are more likely to describe the process as continuous (Lewis & Starr, 1979). However, if we look at a seed and then a tree, we are impressed by the magnitude of the change that has occurred.

Increasingly, psychologists recognize that much depends on one's vantage point and hence see both continuities and discontinuities across the life span (Lewis, 2001). In sum, social and behavioral scientists increasingly have come to see development as residing in a relation between organism and environment—in a transaction or collaboration: People work with and affect their environment and, in turn, it works with and affects them.

Questions

How would you explain the continuity versus discontinuity models of human development over the life span? Which view do you think is more accurate? Why?

Nature Versus Nurture

Time and again it has been claimed that heredity-environment questions are dead, that they have been definitively answered for all time. Yet in one fashion or another, each generation resurrects them, thrashes them out once more, and then presumes once again to set them to permanent rest. For example, a prevailing question in contemporary U.S. society is why some of our children and adolescents are so violent. Is the child's tendency to be violent due to an inherited genetic flaw, or due to the type of home or school environment, or due to peer influences, or due to a combination of these factors? Some of the difficulties associated with the nature-nurture controversy stem from the fact that various schools of thought ask different questions and hence come up with different answers. How we phrase our questions structures the alternatives by which the questions are answered.

Scientists began by asking *which* factor—heredity or environment—is responsible for a given trait, such as a mental disorder or a person's level of intelligence. Later, they sought to establish *how much* of the observed differences among people is due to differences in heredity

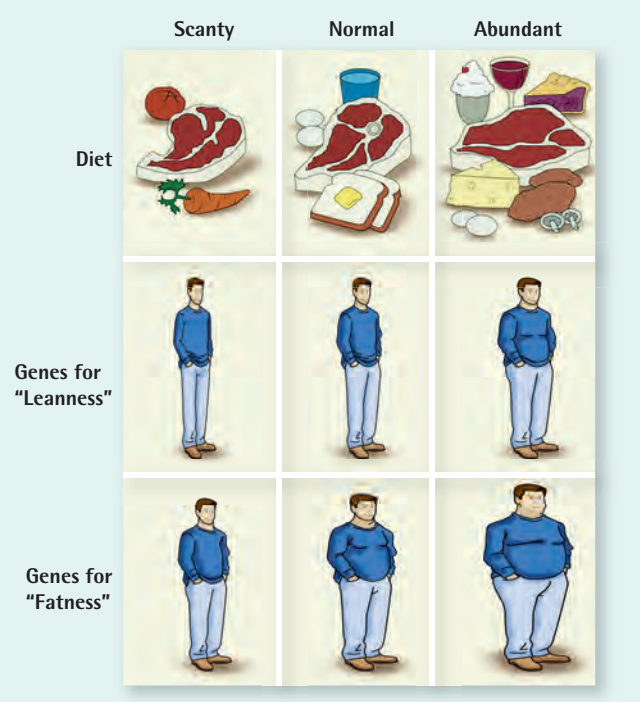


FIGURE 2.6 Gene-Environment Interaction Many traits are affected by environmental and genetic factors. A person who has a gene for "fatness" might actually weigh less than one with a gene for "leanness," if the former lives on a scanty diet and the latter on an abundant diet.

Source: Mankind Evolving: The Evolution of the Species by Theodosius Dobzhansky. Copyright © 1962 by Yale University. Reprinted by permission of Yale University Press.

and *how much* to differences in environment. Human intelligence is one trait which the study of genetics has yielded more information than any other. Researchers are using data from the *Human Genome Project* to identify specific genes that are responsible for the heritability of intelligence (Plomin & Schalkwyk, 2007). And recently, some scientists have insisted that a more fruitful question is *how* specific hereditary and environmental factors *interact* to influence various characteristics (Buss, 2008). Each of these questions leads to its own theories, interpretations, and methods of inquiry.

The "Which" Question Most students can recall debating the question "Which is more important, heredity or environment?" Yet most scientists today reject this formulation. They believe that phrasing the issue in terms of *heredity versus environment* has caused the scientific community, and society at large, untold difficulties. Counterposing heredity to environment is similar in some respects to debating whether sodium or chlorine is more important in ordinary table salt. The point is that we would not have salt if we did not have both sodium and chlorine (see Figure 2.6).

The "How Much" Question As scientists recognized the inappropriateness of the "which" question, some of them reformulated the issue. Granting that both heredity and environment are essential for the emergence of any characteristic, they asked, "*How much* of each is required to produce a given trait?" They asked, "What percentage of a person's level of intelligence is attributable to heredity, and how much depends on environment?" The same question could be asked of a given mental disorder.

Scientists have traditionally sought answers to the "how much" question by measuring the resemblance among family members with respect to a particular trait (Segal, 1993). Nature occasionally provides us with the makings of a natural experiment. From time to time a fertilized egg, by some accident, gets split into two parts termed *identical* or *monozygotic twins*. Genetically, each is essentially a carbon copy of the other. The study of identical twins reared under different environmental conditions is the closest approach possible to experiments concerned with the influence of environment and heredity (see "The Minnesota Twin Project" on page 58).

In contrast to identical twins, *fraternal* or *dizygotic twins* come from two eggs fertilized by two different spermatozoa. They are simply siblings who happen to develop separately in the womb at the same time and are (usually) born at the same time. Important evidence can be obtained and comparisons can be made between identical twins reared apart and fraternal twins reared together. Many scientists believe that such comparisons reveal valuable information about the relative contributions that heredity and environment make to a particular trait or behavior (Buss, 2008).

By studying children who were adopted at birth and reared by foster parents, one can compare some characteristic of the adopted children, such as IQ score or the presence of a particular mental or physical disorder, with that of their biological parents and their foster parents. In this fashion researchers attempt to weigh the relative influences of the genetic factor and the home environment.

The "How" Question A number of scientists, such as the psychologist Anne Anastasi (1908–2001) believe that the task of science is to discover *how* hereditary and environmental factors work together to produce behavior. They argue that the "how much" question assumes that nature and nurture are related in such a way that the contribution of one is *added* to the contribution of the other. This produces a particular behavior.

Anastasi (1986), among others, disputes this view (Smith & Thelen, 2000). She argues that as applied to human life, neither heredity nor environment exists separately. They are always interconnected, continually interacting. However, Anastasi recognizes that the role played by hereditary factors is more central in some aspects of development than in others. She thus sets forth the notion

of the **continuum of indirectness.** At one end of the continuum are the most direct contributions of heredity—such as physical characteristics like eye color and chromosomal disorders like Down syndrome. At the other end of the continuum are contributions of heredity that are quite indirect—such as social stereotypes members of a given society attach to various categories of skin color and hair texture.

Heredity and environment interact in complex ways. Genes influence the kinds of environment we seek, what we attend to, and how much we learn (Plomin & Schalkwyk, 2007). Psychologist Sandra Scarr (1997) contends that each stage in a child's psychological development is ushered in by an increment in the child's biological maturation. Only after the child is genetically receptive is the environment able to have any significant effect on her or his behavioral development. Scarr believes that children's genetic predispositions tailor their environment in three ways—passively, evocatively, and actively:

- *Passive relationship:* Parents give their children both genes and an environment that are favorable (or unfavorable) to the development of a particular capability. For example, parents gifted in social skills are likely to provide their children with an enriched social environment.
- *Evocative relationship:* A child evokes particular responses from others because of the child's genetically influenced behavior. For instance, socially engaging children typically elicit from other people more social interaction than passive, sober children do.
- *Active relationship:* Children seek out environments that they find compatible with their temperament and genetic propensities. For example, sociable children search for playmates and even create imaginary playmates if real ones are not at hand.

In short, what children experience in any given environment is a function of genetic individuality and developmental status (Buss, 2008). Scientists, then, are increasingly able to apply rigorous measurements to some aspects of the old nature-nurture controversy. In particular, valuable new insights are coming from a rapidly growing field of study (behavioral genetics) that undertakes to embrace, forge, and integrate insights from both psychology and genetics.

Questions

Historically, as scientists have studied the heredity-environment debate, what types of questions have they investigated? Where do contemporary researchers stand now?

Behavioral Genetics

Behavioral genetics focuses on individual differences and seeks answers to why individuals within a species exhibit different behaviors. There is much more acceptance in the field of psychology for the influence of genetics on individual difference (Plomin & Schalkwyk, 2007). Interest in the hereditary aspects of behavior had been subdued for nearly half a century by both behaviorism and psychoanalytic theory. The renewed interest in biological factors is due partly to exciting new discoveries in microbiology and genetics (advancing technologies let us examine cell structures both microscopically and chemically) and partly due to the failure of social scientists to document a consistently strong relationship between measures of environmental experience and behavioral outcome. The pendulum seems to be swinging away from the environmentalists toward the side of the biologists. Indeed, some scholars worry that the pendulum is moving too rapidly toward a biological determinism that is as extreme as the earlier loyalty of some social and behavioral scientists to an environmental explanation of behavior (Plomin, Defries, & Fulker, 2006).

Jerome Kagan: Timidity Studies One area of investigation is extreme timidity ("shyness"). Jerome Kagan and his associates (Kagan & Snidman, 1991) followed 41 children in longitudinal research for eight years, studying "behavioral inhibition." The researchers found that 10 to 15 percent of those studied seem to be born with a biological predisposition that makes them unusually fearful of unfamiliar people, events, or even objects like toys. These youngsters have intense physical responses to mental stress: Their dilated pupils, faster and more stable heart rates, and higher levels of salivary cortisol (a hormone found in saliva) indicate that their nervous system is accelerated by even mildly stressful conditions.

Other researchers have found that shy biological parents tend to have shy children—even when the youngsters are adopted by socially outgoing parents (Rothbart, 2004). In addition, shy boys are more likely than their peers to delay entry into marriage, parenthood, and stable careers; to attain less occupational achievement and stability; and—when late in establishing stable careers—to experience marital instability. Shy girls are more likely than their peers to follow a conventional pattern of marriage, childbearing, and homemaking (Caspi & Shiner, 2006). A predisposition for timidity can be enhanced or reduced, but not eliminated, by nurturing child-rearing experiences. Kagan offers this additional bit of advice: "Look at whether the child is happy. Some shy kids are. And they often end up doing well in school . . . they become computer scientists, historians. We need these people, too" (quoted by Elias, 1989, p. 1D).

Identical Twins Separated at Birth Often Reveal Startling Similarities Separated as infants from Guadalajara, Mexico, identical twins Adriana Scott and Tamara Rabi were adopted into families only miles apart in the New York City area. While attending Hofstra, Adriana's friends mistook her for Tamara, attending Adelphi University. When they met, they were amazed at the similarities in their behavior and lives: both are 5' 3¾" tall, both were raised as only children, both are psychology majors with a B average, both have difficulty with math, both love music and dancing, both use similar expressions and gestures, and both lost their adoptive fathers to cancer.

Question

Briefly, how would you summarize these research findings on timidity?

The Minnesota Twin Project The results of an ongoing project at the University of Minnesota similarly suggest that genetic makeup has a marked impact on appearance, personality, health factors, and intelligence (Johnson & Bouchard, 2005). Researchers put 348 pairs of identical twins, including 44 pairs who were reared apart, through six days of extensive testing that included analysis of their blood, brain waves, intelligence, and allergies. All the twins took several personality tests, answering more than 15,000 questions on subjects ranging from personal interests and values to aggressiveness, aesthetic judgment, and television and reading habits.

Of 11 key personality traits or clusters of traits analyzed in the study, 7 revealed a stronger influence for hereditary factors than for child-rearing factors. The Minnesota researchers found that the cluster that rated highest for heritability was "social potency" (a tendency toward leadership or dominance); "social closeness" (the need for intimacy, comfort, and help) was rated lowest. Although they had not expected "traditionalism" (obedience to authority and strict discipline) to be more an inherited than an acquired trait, it is one of the traits with a strong genetic influence. The Minnesota researchers do not believe that a single gene is responsible for any one of the traits. Instead, each trait seems to be determined by a large number of genes in combination, so that the pattern of inheritance is complex—what is called **polygenic inheritance** (see Chapter 3).

Such findings do not mean that environmental factors are unimportant. It is not full-blown personality traits that are inherited but rather tendencies or predilections. Such family factors as extreme deprivation, incest, or abuse would have a larger impact—though a negative one—than the Minnesota research reveals.

The message for parents is that it is a mistake to treat all children the same. Children can—and often do—experience the same events differently, and this uniqueness nudges their personalities down different roads. In studies of thousands of children in Colorado, Sweden, and Great Britain, researchers found that siblings often respond to the same event (a parent's absence, a burglarized home), and interpret the same behavior (a mother's social preening) in quite different ways (Plomin, DeFries & Fulker, 2006). Birth order, school experiences, friends, and chance events often add up to very different childhoods for siblings (Leman, 2004).

Because each child carries about her or his own customized version of the environment, it seems that growing up in the same family actually works to make siblings different. So in guiding and shaping children, parents should respect their individuality, adapt to it, and cultivate those qualities that will help each child cope with life. For a timid child good parenting would involve providing experiences in which success will encourage the child to take more risks. If another child is fearless, good parenting will involve cultivating qualities that temper risk taking with intelligent caution. Remember, though, that cultures differ in the value they place on such personality traits as risk taking or timidity, so good parenting will differ from culture to culture.

Some scholars fear that the results of the Minnesota research will be used to blame the poor for their misfortunes. So they are distrustful of biological or genetic explanations of behavior. Other scholars point

out that the research holds promise for preventive medicine. As researchers find a genetic predisposition for various disorders, they can then work on changing the environment with diet, medication, or other interventions. For example, in 2007 research teams believe they have identified specific linkage to genes that increase susceptibility for schizophrenia (Zhao et al., 2007) or bipolar disorder (also known as manic-depressive illness) (Jamra et al., 2007). Using the newest genetic-sequencing methods, researchers can better understand diseases and can then search for new ways to treat these disorders. In sum, the potential dangers of genetic research are great, but so are its potential benefits (Hartwell et al., 2008).

Questions

How would you summarize the major findings of the Minnesota Twin Studies? What do we mean by polygenic inheritance?

Evolutionary Adaptation

It follows that organisms are *genetically prepared* for some responses. For instance, much learning in many insects and higher animals is guided by information inherent in the genetic makeup of the organism (Hartwell et al., 2008). The organism is preprogrammed to learn particular things and to learn them in particular ways. As we will see in Chapter 5, Noam Chomsky says that the basic structure of human language is biologically channeled by an inborn language-generating mechanism. Such a mechanism helps to explain why we learn speech so much more easily than we learn inherently simpler tasks such as addition and subtraction.

Ethology holds that human babies are biologically preadapted with behavior systems like crying, smiling, and cooing that elicit caring by adults (Buss, 2008). Similarly, babies having attributes of cuteness—with large heads, small bodies, and distinctive facial features—induce others to want to pick them up and cuddle them. Ethologists call these behaviors and features **releasing stimuli,** which function as especially potent activators of parenting. A number of psychologists, among whom John Bowlby (1969) is perhaps the most prominent, compare the development of strong bonds of attachment between human caretakers and their offspring to the process of imprinting encountered among some bird and animal species. **Imprinting** is a process of attachment that occurs only during a relatively short period and is so resistant to change that the behavior appears to be innate.

Konrad Lorenz Here, young goslings follow the eminent Austrian ethologist rather than their mother. Because he was the first moving object that they saw during the critical imprinting period, they came to prefer him to all other objects.

Konrad Lorenz (1935), the Nobel Prize–winning ethologist, has shown that there is a short period of time early in the lives of goslings and ducklings when they slavishly follow the first moving object they see—their mother, a human being, even a rubber ball. Once this imprinting has occurred, it is irreversible. The object becomes "Mother" to the birds, so that thereafter they prefer it to all others and in fact will follow no other. Imprinting differs from other forms of learning. First, imprinting can take place only during a relatively short period, termed a **critical period.** (For example, the peak period for the imprinting effect among domestic chickens occurs about 17 hours after hatching and declines rapidly thereafter.) Second, as already mentioned, imprinting is irreversible; it is highly resistant to change, so that the behavior appears to be innate.

Some developmental psychologists have applied ethological notions to human development. However, many prefer the term *sensitive period* to "critical period," for it implies greater flexibility in the time dimension and greater reversibility in the later structure. According to this concept, particular kinds of experience affect the development of an organism during certain times

of life more than they do at other times (Bornstein, 1989). As we saw in our earlier discussion of Freud, the notion of sensitive periods is central to psychoanalytic thought. Freud's view was that infancy and early childhood are the crucial period in molding an individual's personality. However, most life-span developmentalists reject the idea that the first five years of a child's life are all-important.

Questions

Who are ethologists and what contributions have they made to our understanding of human development? How does evolutionary adaptation apply to human development?

SEGUE

In Chapter 2 we have considered several major types of theory dealing with human development. Psychoanalytic theories draw our attention to the importance of early experience in fashioning personality and to the role of unconscious motivation. Behavioral theories emphasize that one's environment plays a large part in learning. Humanistic theories attempt to maximize the human potential for self-actualization. Cognitive theories highlight the importance of various mental capabilities and problem-solving skills. Ecological theory stresses the importance of the relationship between the developing individual and the changing environment. Sociocultural theories focus on the interaction between the individual and others in a social activity and how individuals assimilate and internalize cultural meaning. Ethology holds that humans are biologically preadapted with behavior systems.

With Chapter 3, we begin to take you on a journey through the stages of life, from conception through birth, infancy, early childhood, middle childhood, late childhood, adolescence, early adulthood, middle adulthood, late adulthood, and dying and death. In each of these life stages, many of these developmental theories will be discussed further.

We have also written this text to help you broaden your understanding of human development from several other perspectives. In the following chapters you will encounter a prudent blending of research findings and theories from the hard sciences of biology, chemistry, and genetics as well as from the social sciences of psychology, sociology, anthropology, history, and political science. In addition, we have included some cross-cultural research findings. You will come to realize that contemporary developmentalists live and conduct research around the world, collaborate on a global scale, and disseminate findings such that the "newest" theories are more accessible than in the past. We encourage you to use your critical thinking skills to evaluate the diversity of theories you will undoubtedly encounter, both in our text, in your classroom, and in the online world.

SUMMARY

Theory: A Definition

1. The framework of a theory allows us to organize a large array of facts so that we can understand them. Theories about human development provide information or serve as a guide to acting on the world in a rational way, and they can inspire or stimulate further inquiry or research about behaviors.
2. Some newer theories seek to explain the development of women and nonwhites. Cross-cultural social scientists are examining the universality of older theoretical models of development in cultures across the world.

Psychoanalytic Theories

3. Sigmund Freud postulated psychoanalytic theory that personality development involves a series of psychosexual stages. Each stage poses a unique conflict that the individual must resolve before passing on to the next stage.
4. Freud also proposed that people operate from three states of being: the id, which seeks self-gratification; the superego, which seeks what is morally proper; and the ego, which is the rational mediator between the id and superego. Freud used a variety of therapeutic techniques to tap into the unconscious thoughts of his patients, which he thought was the source of his patients' distress.
5. Critics point out that Freudian theory is difficult to evaluate because it makes predictions about unconscious states that can neither be observed nor tested by accepted scientific procedures.
6. Freud's work is also criticized for his conclusion that early childhood is a significant stage of development, because

he studied mainly adult patients with disorders. Freud's daughter Anna continued her father's work, applying psychoanalytic principles to the treatment of children.

7. Contemporary feminist scholars find Freud's work to be problematic because he neglected to study women's development and psychological difficulties within the context of the historical time period.
8. Erik Erikson identifies nine psychosocial stages over the course of the life span, each of which confronts the individual with a major task (crisis) that the individual must successfully resolve to achieve healthy psychosocial development. Each part of the personality has a particular time period within the full life span when it must develop if it is going to develop at all.
9. More contemporary researchers such as Carol Gilligan propose that female identity is rooted in connections to others and in relationships.

Behavioral Theory

10. Behavioral theory proponents, such as Watson and Skinner, believe that if psychology is to be a science, it must look to data that are directly observable and measurable, and not rely on introspection and self-observation by subjects. Behaviorists are interested in how people learn to behave in particular ways.
11. People learn to respond to the stimuli in their environment, and their responses shape their behavior. Some learning is based on classical conditioning, using a subject's reflex/innate responses—other learning derives from operant conditioning, where the consequences of the behavior alter the strength of the behavior.
12. Behaviorists deem learning to be a process called "conditioning," whereby individuals, as a result of their experience within an environmental context, establish an association or linkage between two events.
13. Behaviorists use concepts such as reinforcement, which can be either rewards or punishments, to shape desired behavior. Behavior modification is an approach that applies behavioral/learning theory to the problem of altering maladaptive behavior.

Humanistic Theory

14. Humanistic psychology maintains that human beings are different from all other organisms in that they actively intervene in the course of events to control their destinies and to shape the world around them.

Cognitive Theory

15. Cognitive theory examines internal mental representations such as sensation, reasoning, thinking, and memory. Cognition involves how children and adults go about representing, organizing, treating, and transforming information that in turn alters behavior.
16. Jean Piaget studied growing children and how they adjust to the world they live in. By playing and interacting with their world, children develop schemas or mental frameworks.
17. Piaget proposed four progressive stages of cognitive development: sensorimotor, preoperational, concrete operations, and formal operations.
18. Cognitive learning theorists say that the human capacity to use symbols affords us a powerful means for comprehending and dealing with our environment. Symbols allow us to represent events; analyze our conscious experience; communicate with others; plan, create, imagine; and engage in foresightful action.
19. Piaget underestimated the cognitive capabilities of infants and young children; and cross-cultural studies of cognitive development in children are finding aspects of his stage theory to be less applicable.
20. Cognitive learning and information-processing theorists' findings suggest that mental "schemas" function as selective mechanisms that influence the information individuals attend to, how they structure information, how important it is to them, and what they do with the information.
21. Through the process of cognitive learning (also called observational learning, social learning, or social modeling), people can learn new responses without first having had the opportunity to make the responses themselves.

Ecological Theory

22. Urie Bronfenbrenner devised an ecological theory that centers on the relationship between the developing individual and four expanding levels of the changing environment, from home and family to the broader cultural context. The chronosystem captures the dynamics of development through time.

Sociocultural Theory

23. Lev Vygotsky proposed sociocultural theory—focusing on the interaction between the individual and others in a social activity and how individuals assimilate and internalize cultural meanings. Mental functions are facilitated through language, and such functions are anchored in the child's interpersonal relationships during activities such as play.
24. Americans seem to reward independence and individualism in their children, whereas other cultures of the world stress interdependence in child-rearing practices.

Classifying the Models

25. Each developmental theory has its proponents and critics. Yet different tasks and components of development simply call for different theories. Most psychologists prefer an eclectic approach to development.
26. Continuity theories of development suggest that human development is gradual and uninterrupted, whereas discontinuity models suggest humans pass through a set sequence of stages, characterized by distinct states of ego formation, identity, or thought.
27. Social scientists continue the debate about the role of nature or nurture for human development.
28. Jerome Kagan and his associates have shown the part genetic factors play in extreme timidity. Bouchard and colleagues at the University of Minnesota have similarly

examined how the genetic makeup of twins impacts personality.

29. Ethologists propose that humans are biologically preadapted (from evolution) with behavior systems that elicit care by adults; these features function as especially important activators of parenting. The concept of a critical (sensitive) period for certain development to occur is supported by some developmentalists while being rejected by others.

KEY TERMS

accommodation *(49)*
adaptation *(49)*
assimilation *(49)*
behavior modification *(45)*
behavioral genetics *(57)*
behavioral theory *(42)*
chronosystem *(53)*
classical conditioning *(42)*
cognition *(47)*
cognitive learning *(51)*
cognitive stages *(47)*
cognitive theory *(47)*
continuum of indirectness *(57)*
critical period *(59)*
eclectic approach *(54)*
ecological theory *(52)*
epigenetic principle *(40)*
equilibrium *(49)*
ethology *(59)*
fixation *(37)*
hierarchy of needs *(46)*
holistic approach *(46)*
humanistic psychology *(46)*
imprinting *(59)*
mechanistic model *(54)*
operant conditioning *(44)*
organismic model *(55)*
polygenic inheritance *(58)*
psychoanalytic theory *(36)*
psychosexual stages *(37)*
psychosocial development *(39)*
reinforcement *(44)*
releasing stimuli *(59)*
responses *(42)*
schemas *(49)*
self-actualization *(46)*
sociocultural theory *(53)*
stimuli *(42)*
theory *(36)*

FOLLOWING UP ON THE INTERNET

Web sites for this chapter focus on the historical study of human development and major theories of various aspects of development. Please access the text Web site at www.mhhe.com/crandell9 for up-to-date hot-linked Internet addresses for the following topics:

APA Society for the History of Psychology (Division 26)
Archives of the History of American Psychology
Classics in the History of Psychology
Erikson's Stages of Psychosocial Development
Key Theorists in Psychology
A History of Women in Psychology
A History of Japanese Psychology
The Jean Piaget Society
Resources in the History of Psychology
Twin Studies