Sixth Edition

The Developing Person
Through Childhood and Adolescence

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WORTH PUBLISHERS
Theories of Development

What Theories Do
Grand Theories
Psychoanalytic Theory
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THINKING LIKE A SCIENTIST: What Is a Mother For?
Cognitive Theory
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Normal Difference or Harmful Deficit?
Nature or Nurture?
Eclecticism and You

devolutional theory A systematic statement of principles and generalizations that provides a coherent framework for studying and explaining development.

As we saw in Chapter 1, the scientific effort to understand human development usually begins with questions. One of the most basic is: How do people develop into the persons they ultimately become?

- Do early experiences—of breast-feeding or bonding or abuse—linger into adulthood, even if they seem to be forgotten?
- How important are specific school experiences in human intelligence?
- Can a person develop moral values without being taught them?
- Do a person’s chances of becoming a violent adult depend on whether he or she grows up in, say, Chile or Cambodia or Canada?
- If your parents or grandparents suffer from depression, schizophrenia, or alcoholism, will you develop the same condition?

For every answer, more questions arise: Why or why not? When and how? And, perhaps more important of all, so what?

What Theories Do

Each of the five questions listed above is answered by one of the five major theories described in this chapter. To frame various questions, and to begin to answer them, we need some way to determine which facts about development are relevant. Then we need to organize those facts to lead us to deeper understanding. In short, we need a theory.

A developmental theory is a systematic statement of principles and generalizations that provides a coherent framework for studying and explaining development. Developmental theorists “try to make sense out of observations . . . [and] construct a story of the human journey from infancy through childhood or adulthood” (Miller, 2002, p. 2). Such a story, or theory, is more than a set of assumptions and facts; it connects facts and observations, putting the details of life into a meaningful whole. Theories are also quite practical, in three ways:

- Theories offer insight and guidance for everyday concerns by providing a broad and coherent view of human development.
- Theories form the basis for hypotheses that can be tested by research studies. Thus, theories “provide a point of departure,” “a conceptual context” for individual scientists who study according to their own particular research interests (Renninger & Amsel, 1997, p. ix).
grand theories  Comprehensive theories that have traditionally inspired and directed thinking about development. Psychoanalytic theory, behaviorism, and cognitive theory are all grand theories.

mini theories  Theories that focus on some specific area of development but are less general and comprehensive than the grand theories.

emergent theories  Recently formulated theories that bring together information from many mini theories but that have not yet cohered into theories that are comprehensive and systematic.

- Theories generate discoveries: “New facts change the theory, and changes in the theory generate new experiments and thus new facts” (Miller, 2002, p. 4).

Not just five, but hundreds of theories are relevant to the study of development. Some originated with extraordinary intellectual leaders, who fashioned what are called grand theories, “because each offered a powerful framework for interpreting and understanding change and development [and was] meant to apply to the change and development of all individuals, in all contexts, across all contents” (Renninger & Amsel, 1997, p. ix). Some are called mini theories, because they are intended to explain only a part of development or to relate to only a particular group of people, rather than to explain everything, everywhere, for everyone (Parke et al., 1994). And some are called emergent theories, because they arise from several accumulated mini theories and may become the new systematic and comprehensive theories of the future.

In this chapter we will focus on three grand theories—psychoanalytic theory, behaviorism, and cognitive theory—and two emergent theories—sociocultural theory and epigenetic systems theory. These five theories, and several others, will be further described and applied in relevant discussions later in this book.

Grand Theories

In the first half of the twentieth century, two opposing theories—psychoanalytic theory and behaviorism (also called learning theory)—began as theories of psychology and later were applied to human development more broadly. By mid-century, cognitive theory had overtaken these first two, becoming the dominant seedbed of research hypotheses. In regard to some ideas, proponents of each of these grand theories often scorned the other two; yet all of them agreed on many basic principles. Before we examine the points of disagreement and agreement, we will briefly describe each theory.

Psychoanalytic Theory

Psychoanalytic theory interprets human development in terms of intrinsic drives and motives, many of which are irrational and unconscious, hidden from awareness. These basic underlying forces are viewed as influencing every aspect of a person’s thinking and behavior, from the smallest details of daily life to the crucial choices of a lifetime. Psychoanalytic theory also sees these drives and motives as providing the foundation for the universal stages of development that every human experiences. For everyone, each stage entails specific developmental tasks, from the formation of human attachments in infancy to the quest for emotional and sexual fulfillment in adulthood.

Freud’s Ideas

Psychoanalytic theory originated with Sigmund Freud (1856–1939), an Austrian physician who developed this theory based on his clinical work with patients suffering from mental illness. He listened to their accounts of dreams and fantasies, as well as to their “uncensored” streams of thought, and constructed an elaborate, multifaceted theory. According to this theory, development in the first six years occurs in three stages, each characterized by sexual interest and pleasure centered on a particular part of the body. In
infancy, that body part is the mouth (the oral stage); in early childhood, it is the anus (the anal stage); in the preschool years, it is the penis (the phallic stage). (See Table 2.1 for descriptions of the stages in Freud’s theory.)

Freud maintained that at each of these stages, sensual satisfaction from stimulation of the mouth, anus, or penis is linked to the major developmental needs and challenges that are associated with that stage. During the oral stage, for example, the baby not only gains nourishment through sucking but also experiences sensual pleasure and becomes emotionally attached to the mother, who provides this oral gratification. During the anal stage, pleasures related to control and self-control—initially with defecation and toilet training—are paramount.

One of Freud’s most influential ideas was that each stage includes its own potential conflicts between child and parent, as, for instance, when an adult tries to wean a baby from the beloved bottle. According to Freud, how the child experiences and resolves these conflicts—especially those related to weaning, toilet training, and childhood sexual curiosity—determines the person’s lifelong personality and patterns of behavior. An adult may not know it, but the fact that he or she smokes cigarettes (oral), or keeps careful track of money (anal), or is romantically attracted to a much older partner (phallic) signifies unconscious problems rooted in a childhood stage.

Another developmental aspect of Freud’s theory is its conception of the personality as consisting of three distinct systems: id, ego, and superego. The id represents the unconscious psychic energy that we devote to satisfying our basic urges toward survival, aggression, and reproduction. The superego is a strict moral judge, especially of impulses that the parents or culture would condemn. The ego tries to make rational choices and to cope with the reality of daily life, partly by keeping the id’s unconscious lust and the superego’s guilt under control. Infants are governed primarily by the id: They want their own needs to be met immediately, including their psychosexual need for oral pleasure. As children grow older, their egos develop; they continue to assert themselves but also begin to accommodate the external world’s demands. Especially in early childhood, at about the phallic stage, parents and the society teach the child which impulses need to be controlled and thus foster development of the superego. The emotionally healthy person develops a strong ego, able to cope with the urges of both the id and the superego.
What’s in a Name?—Erik Erikson

As a young man, this neo-Freudian changed his last name to the one we know him by. What do you think his choice means? (See caption to photo below.)

Erikson's Ideas

Freud had many followers who became famous psychoanalytic theorists in their own right. Although they all acknowledged the importance of unconscious, irrational forces and of early childhood, each expanded and modified Freud’s ideas. The most notable of these neo-Freudians was Erik Erikson (1902-1994), who formulated his own version of psychoanalytic theory.

Erikson spent his childhood in Germany, his adolescence wandering through Italy, and his youth adulthood in Austria. Just before World War II, he arrived in the United States, where he studied Harvard students, children at play, and Native American cultures. Erikson proposed eight developmental stages covering the entire life span, each of which is characterized by a particular challenge, or developmental crisis, which is central to that stage of life.

As you can see from Table 2.1, Erikson’s first five stages are closely related to Freud’s stages. Erikson, like Freud, believed that problems of adult life echo unresolved conflicts of childhood. For example, an adult who has difficulty establishing a secure, mutual relationship with a life partner may never have resolved the crisis of early infancy, trust versus mistrust. However, Erikson’s stages differ significantly from Freud’s in their emphasis on the person’s relationship to the family and culture, not just to his or her own sexual urges.

In Erikson’s theory, the resolution of each developmental crisis depends on the interaction between the individual’s characteristics and whatever support is provided by the social environment. In the stage of initiative versus guilt, for example, children between ages 3 and 6 often want to undertake activities that exceed their abilities or the limits set by their parents. Their efforts to act independently leave them open to pride or failure, depending partly on how they go about seeking independence, partly on the reactions of their parents, and partly on their culture’s expectations. As an example of the last influence, some cultures encourage assertive 5-year-olds as being creative spirits who know their own minds; other cultures discourage them as being rude or fresh children. The children internalize, or accept, these reactions, and later, as adults, some are much bolder and others are more self-critical than their peers in other cultures.

Developmentalists owe a debt of gratitude to Freud and to the neo-Freudians who extended and refined his concepts. Many psychoanalytic ideas are widely accepted today—for example, that unconscious motives affect our behavior and that the early years are a formative period of personality development.

Who Are We? The most famous of Erikson’s eight crises is the identity crisis, during adolescence, when young people find their own answer to the question “Who am I?” Erikson did this for himself by choosing a last name that, with his first name, implies “son of myself” (Erik, Erik’s son). Although the identity crisis is universal, particulars vary from place to place and time to time—with each cohort distinguishing itself from the slightly older cohort in some way.

Observational Quiz (see answer, page 40): Where and when do you think this photograph was taken?
TABLE 2.1 Comparison of Freud's Psychosexual and Erikson's Psychosocial Stages

<table>
<thead>
<tr>
<th>Approximate Age</th>
<th>Freud (Psychosexual)</th>
<th>Erikson* (Psychosocial)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth to 1 year</td>
<td>Oral Stage</td>
<td>Trust vs. Mistrust</td>
</tr>
<tr>
<td></td>
<td>The mouth, tongue, and gums are the focus of pleasurable sensations in the baby's body, and sucking and feeding are the most stimulating activities.</td>
<td>Babies learn either to trust that others will care for their basic needs, including nourishment, warmth, cleanliness, and physical contact, or to lack confidence in the care of others.</td>
</tr>
<tr>
<td>1-3 years</td>
<td>Anal Stage</td>
<td>Autonomy vs. Shame and Doubt</td>
</tr>
<tr>
<td></td>
<td>The anus is the focus of pleasurable sensations in the baby's body, and toilet training is the most important activity.</td>
<td>Children learn either to be self-sufficient in many activities, including toileting, feeding, walking, exploring, and talking, or to doubt their own abilities.</td>
</tr>
<tr>
<td>3-6 years</td>
<td>Phallic Stage</td>
<td>Initiative vs. Guilt</td>
</tr>
<tr>
<td></td>
<td>The phallus, or penis, is the most important body part, and pleasure is derived from genital stimulation. Boys are proud of their penises, and girls wonder why they don't have one.</td>
<td>Children want to undertake many adult-like activities, sometimes overstepping the limits set by parents and feeling guilty.</td>
</tr>
<tr>
<td>7-11 years</td>
<td>Latency</td>
<td>Industry vs. Inferiority</td>
</tr>
<tr>
<td></td>
<td>This is not a stage but an interlude, during which sexual needs are quiet and children put psychic energy into conventional activities like schoolwork and sports.</td>
<td>Children busily learn to be competent and productive in mastering new skills or feel inferior and unable to do anything well.</td>
</tr>
<tr>
<td>Adolescence</td>
<td>Genital Stage</td>
<td>Identity vs. Role Diffusion</td>
</tr>
<tr>
<td></td>
<td>The genitals are the focus of pleasurable sensations, and the young person seeks sexual stimulation and sexual satisfaction in heterosexual relationships.</td>
<td>Adolescents try to figure out &quot;Who am I?&quot; They establish sexual, political, and career identities or are confused about what roles to play.</td>
</tr>
<tr>
<td>Adulthood</td>
<td>Freud believed that the genital stage lasts throughout adulthood. He also said that the goal of a healthy life is &quot;to love and to work.&quot;</td>
<td>Intimacy vs. Isolation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Young adults seek companionship and love with another person or become isolated from others because they fear rejection and disappointment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Generativity vs. Stagnation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle-aged adults contribute to the next generation through meaningful work, creative activities, and/or raising a family, or they stagnate.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Integrity vs. Despair</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Older adults try to make sense out of their lives, either seeing life as a meaningful whole or despairing at goals never reached.</td>
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</tbody>
</table>

*Although Erikson described two extreme resolutions to each crisis, he recognized that there is a wide range of outcomes between these extremes. For most people, the best resolution of a crisis is not either extreme but, rather, a middle course.

Behaviorism

The second grand theory arose in direct opposition to psychoanalytic theory. Early in the twentieth century, John B. Watson (1878–1958) argued that if psychology was to be a true science, psychologists should study only what they could see and measure: human behavior, not human thoughts and hidden urges. In Watson's words:

Why don't we make what we can observe the real field of psychology? Let us limit ourselves to things that can be observed, and formulate laws concerned only with those things... We can observe behavior—what the organism does or says.


According to Watson, anything can be learned. He said:

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

(Watson, 1924/1998, p. 82)

Other psychologists agreed, partly because they found it difficult to study the unconscious motives and drives identified in psychoanalytic theory. Actual behavior, by contrast, could be studied far more objectively and scientifically. Thus was developed the theory called **behaviorism**. It is also called **learning theory** because the focus is on the ways we learn specific behaviors—ways that can be described, analyzed, and predicted with far more scientific accuracy than the unconscious drives proposed by psychoanalysts (Horowitz, 1994; Uttal, 2000).

### Laws of Behavior

Laws of behavior are said to apply to every individual at every age, from newborn to octogenarian. These laws provide insights into how mature competencies are fashioned from simple actions and how environmental influences shape individual development. In the view of behaviorists, all development involves a process of learning and, therefore, does not occur in specific stages that depend on age or maturation (Bijou & Baer, 1978).

Learning occurs through **conditioning**, as a particular response comes to be triggered by a particular stimulus (see Figure 2.1). There are two types of conditioning: classical and operant.

**Classical Conditioning** A century ago, Russian scientist Ivan Pavlov (1849–1936) began to study the link between stimulus and response. While doing research on salivation in dogs, Pavlov noted that his experimental dogs began to drool not only at the sight of food but also, eventually, at the sound of the approaching attendants who brought the food. This observation led him to perform his famous experiment in which he taught a dog to salivate at the sound of a bell. Pavlov began by ringing the bell just before presenting food to the dog. After a number of repetitions of this bell-then-food sequence, the dog began salivating at the bell’s sound even when there was no food nearby.

This simple experiment was one of the first scientific demonstrations of classical conditioning (also called respondent conditioning). In classical conditioning, an organism (any type of living creature) comes to associate a neutral stimulus with a meaningful one and then responds to the former stimulus as if it were the latter. In Pavlov’s original experiment, the dog associated the sound of
Learning occurs through:

- Classical conditioning Through association, neutral stimulus becomes conditioned stimulus.
- Operant conditioning Through reinforcement, weak or rare response becomes strong, frequent response.
- Social learning Through modeling, observed behaviors become copied behaviors.

the bell (the neutral stimulus) with food (the meaningful stimulus) and responded to the sound as though it were the food itself. That response was a conditioned response, which meant learning had occurred.

**Operant Conditioning** The most influential North American proponent of behaviorism was B. F. Skinner (1904–1990), who agreed with Watson that psychology should focus on the scientific study of behavior. Skinner also agreed with Pavlov that classical conditioning explains some types of behavior. However, Skinner believed that another type of conditioning—**operant conditioning** (also called *instrumental conditioning*)—plays a much greater role in human behavior, especially in more complex learning. In operant conditioning, the organism learns that a particular behavior produces a particular consequence. If the consequence is useful or pleasurable, the organism will tend to repeat the behavior to achieve that response again. If the response is unpleasant, the organism will tend not to repeat the behavior.

Once a behavior has been conditioned (learned), animals (including humans) continue to perform it even if pleasurable consequences occur only occasionally. Almost all of a person’s daily behavior, from socializing with others to earning a paycheck, can be understood as a result of operant conditioning. For instance, when a baby first gives a half smile in response to a full stomach, a mother might smile back. Soon the baby is conditioned by the mother’s responsive smile to give a bigger smile, and the mother picks the baby up to reinforce the smile. As time goes on, the baby becomes a smiling toddler, a cheerful child, an outgoing adolescent, and a friendly adult—all because of early operant conditioning and periodic reinforcing.

In operant conditioning, the process of repeating a consequence to make it more likely that the behavior in question will recur is called **reinforcement** (Skinner, 1953). A consequence that increases the likelihood that a behavior will be repeated is therefore called a reinforcer. The mother’s early reinforcement produces a socially responsive, smiling adult.

The study of human development has benefited from behaviorism. That theory’s emphasis on the causes and consequences of observed behavior has led researchers to see that many behavior patterns that seem to be inborn, or to result from deeply rooted emotional problems, are actually learned. If something is learned, it can be unlearned, which is a very hopeful message. Although it is not easy to break old habits and patterns, we are never stuck in our past. This realization has encouraged scientists to find ways to eliminate particular problem behaviors—among them temper tantrums, phobias, and addictions—by analyzing all the reinforcements and past conditioning and then breaking the stimulus-response chains that sustained the unwanted behaviors.

Like any good theory, behaviorism has also been a source of hypotheses for scientific experiments, such as those described in Thinking Like a Scientist.
Thinking Like a Scientist

What Is a Mother For?

Because theories help organize perceptions, they make it easier for scientists to interpret their observations. True scientists welcome not only findings that confirm a theory but also data that don’t fit their expectations. For example, Harry Harlow’s experiments confirmed some conventional wisdom about mother-infant attachment and disproved other aspects.

Both behaviorism and psychoanalytic theory originally assumed that the reason children love their mothers is that the mothers satisfy basic hunger and sucking needs. In other words, they held that “the infant’s attachment to the mother stemmed from internal drives which triggered activities connected with the libidations of the mother’s breast. This belief was the only one these two theoretical groups ever had in common” (Harlow, 1986).

Harlow, a psychologist who studied learning in infant monkeys, observed something that made him question the centrality of food:

We had separated more than 60 of these animals from their mothers 6 to 12 hours after birth and suckled them on tiny bottles. The infant mortality rate was a fraction of what would have obtained had we let the monkey mothers raise their infants. Our bottle-fed babies were healthier and heavier than monkey-mother-reared infants. . . . During the course of our studies we noticed that the laboratory-raised babies showed strong attachment to the folded gauze diapers which were used to cover the . . . floors of their cages.

[Harlow, 1986, p. 103]

In fact, the infant monkeys seemed more emotionally attached to the cloth diapers than to their bottles. This was contrary to the two prevailing theories. Psychoanalytic theory would say that the infant would love whatever satisfied its oral needs (the nipple), and behaviorism would predict that the infant would become attached to whatever provided reinforcing food (the bottle). Accordingly, Harlow set out to make a “direct experimental analysis” of human attachment via his monkeys.

Using monkeys to study emotional processes in humans may seem a stretch to some people, but not to Harlow, who had been trained as an experimental psychologist. He knew that it would be unethical to separate human infants from their mothers, but he believed that “the basic processes relating to affection, including nursing, contact, clinging, and even visual and auditory exploration, exhibit no fundamental differences in the two species” (Harlow, 1958).

Harlow provided infant monkeys with two “surrogate” (artificial) mothers, both the right size, with a face that included obvious eyes. One surrogate was made of bare wire, and the other was made of wire covered by soft terrycloth. He divided his monkeys into two groups. One was fed by a bottle periodically put through the chest of the cloth “mother”; the other was fed by a bottle put through the chest of the wire “mother.” The hypothesis to be tested was that the cloth surrogate might be reinforcing, even for the monkeys that were fed by the wire mother.

To collect his data, Harlow measured how much time each baby spent holding on to one or the other of the two surrogates. The monkeys who had a cloth mother that provided milk clung to it and ignored the bare-wire, nonfeeding mother. However, beyond the few minutes needed to suck the milk, even the babies that fed from the wire mother had no interest in holding on to it, going to it only when hunger drove them to do so. No attachment to, or love for, the nourishing wire mother could be observed, but the cloth mothers seemed to win the infants’ affection (see Figure 2.2).

This reaction was so strong that Harlow then wondered whether the cloth surrogate mothers might also reassure infant monkeys when frightening events occurred, just as a real mother does when a scared youngster runs to her. He set up another experiment, putting an unfamiliar mechanical toy into a cloth-reared infant monkey’s cage. The monkeys immediately sought comfort from its cloth mother, scrambling to cling to it with one hand and then timidly exploring the new object with the other.
Wire mothers provided no such reassurance. Monkeys who were exposed to the same stress without the cloth mother’s presence showed obvious signs of fright—freezing, screaming, shivering, hiding, urinating. It seems, then, that mothering is not primarily about feeding, but about touching, comforting, and holding, which Harlow called “contact comfort” or “love” (Harlow, 1958).

Harlow’s research is a classic example of the use of theories. Although his study disproved an aspect of both behaviorism and psychoanalytic theory, that is not the most significant point. Remember, theories are meant to be useful, not necessarily true. (If they were known to be true in every aspect, they would be scientific laws, not theories.)

In this example, because he knew what the psychoanalytic and behavioral theories said about love and comfort, the baby monkeys’ interactions with the gauze diapers caught Harlow’s attention. That led to closer observation, a hypothesis, a clever series of experiments, and some amazing results. For decades, perhaps centuries, no one had questioned the idea that feeding creates loyalty—until actual observations conflicted with both grand theories. This conflict prompted an alert scientist to ask new questions.

Both psychoanalytic theory and behaviorism were revised and expanded in response to Harlow’s experiments and to other evidence. Advice to caregivers changed as well: Crying infants should be picked up and cuddled, even if they are not hungry. The result has been much more cradling and less crying—all because a scientist compared a theoretical prediction with his own observations and performed ingenious experiments to test his hypothesis.

**FIGURE 2.2 Softer Is Better** During the first three weeks of Harlow’s experiment, the infant monkeys developed a strong preference for the cloth-covered “mothers.” That preference lasted throughout the experiment, even among the monkeys who were fed by a wire-covered mother.

? **Observational Quiz (see answer, page 46):** At five days, how much time did the wire-fed monkeys spend on the cloth mothers compared with the cloth-fed monkeys?

### Social Learning

**Social Learning**

Originally, behaviorists sought to explain all behavior as arising directly from a chain of learned responses, the result of classical and operant conditioning. However, one characteristic of every grand theory is that it is sufficiently comprehensive and thought-provoking that later scientists revise and extend it. One revision of behaviorism, based on thousands of studies, began with the realization that all creatures appreciate the touch, warmth, reassurance, and example of other similar beings. This extension is called **social learning theory**. Humans, even more than other animals, learn many behaviors by observing the behavior of others, without personally experiencing any reinforcement. Humans also strive for the feelings of pride and acceptance that other people can give.

An integral part of social learning is **modeling**, when people observe behavior and then copy it. For children, parents are the first models. Modeling is not simply imitation, because people model only some actions, of some individuals, in some contexts. For example, you undoubtedly know some adults who

**Especially for Older Brothers and Sisters:**

Psychologists believe that the best role models for children are older siblings and other people they know well and see daily, rather than sports stars or political heroes. Why?

**social learning theory** An application of behaviorism that emphasizes that many human behaviors are learned through observation and imitation of other people.

**modeling** In social learning theory, the process in which people observe and then copy the behavior of others.
Social Learning in Action  Social learning validates the old maxim "Actions speak louder than words." If the moments here are typical for each child, the girl in the left photo is likely to grow up with a ready sense of the importance of this particular chore of infant care. Unfortunately, the boy on the right may become a cigarette smoker like his father—even if his father warns him of the dangers of this habit.

Observational Quiz (see answer, page 46): Beyond what they are doing, what else shows that these children imitate their parents?

Self-efficacy In social learning theory, the belief that one is effective; self-efficacy motivates people to change themselves and their contexts.

Cognitive Theory

The third grand theory is cognitive theory, which focuses on the structure and development of thought processes and understanding. Cognitive researchers try to determine how a person’s thinking, and the expectations that result from a particular understanding, affect the development of attitudes, beliefs, and behaviors. In other words, to understand people, don’t delve into what they have forgotten from childhood (as in psychoanalytic theory) or what has happened to them (as in behaviorism), but instead find out what they think.

Jean Piaget (1896–1980) was the major pioneer of cognitive theory. Although originally trained in the natural sciences, Piaget became interested in human thought processes when he was hired to field-test questions for a standard intelligence test for children. Piaget
TABLE 2.2 Piaget’s Periods of Cognitive Development

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Name of Period</th>
<th>Characteristics of the Period</th>
<th>Major Gains During the Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth to 2 years</td>
<td>Sensorimotor</td>
<td>Infant uses senses and motor abilities to understand the world. There is no conceptual or</td>
<td>The infant learns that an object still exists when it is out of sight (object permanence)</td>
</tr>
<tr>
<td>2-6 years</td>
<td>Preoperational</td>
<td>reflective thought; an object is “known” in terms of what an infant can do to it.</td>
<td>and begins to think through mental actions as well as physical actions.</td>
</tr>
<tr>
<td>7-11 years</td>
<td>Concrete operational</td>
<td>The child uses symbolic thinking, including language, to understand the world. Sometimes</td>
<td>The imagination flourishes, and language becomes a significant means of self-expression and</td>
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<tr>
<td></td>
<td></td>
<td>the child’s thinking is egocentric, causing the child to understand the world from only one</td>
<td>of influence from others. Children gradually begin to decenter; that is, become less</td>
</tr>
<tr>
<td></td>
<td></td>
<td>perspective, his or her own.</td>
<td>egocentric, and to understand and coordinate multiple points of view.</td>
</tr>
<tr>
<td>12 years through</td>
<td>Formal</td>
<td>The child understands and applies logical operations, or principles, to help interpret</td>
<td>By applying logical abilities, children learn to understand the basic concepts of</td>
</tr>
<tr>
<td>adulthood</td>
<td>operational</td>
<td>experiences objectively and rationally rather than intuitively.</td>
<td>conservation, number, classification, and many other scientific ideas.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The adolescent or adult is able to think about abstractions and hypothetical concepts and</td>
<td>Ethics, politics, and social and moral issues become more interesting and involving as the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to reason analytically, not just emotionally.</td>
<td>adolescent becomes able to take a broader and more theoretical approach to experience.</td>
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</tbody>
</table>

...was supposed to find the age at which most children could answer each question correctly, but he found the children’s wrong answers much more intriguing.

How children think is much more important and more revealing of mental ability, Piaget concluded, than what they know. Moreover, understanding how people think reveals how they interpret their experiences and thus explains how they construct their values and assumptions.

Piaget maintained that there are four major periods, or stages, of cognitive development: the sensorimotor period, the preoperational period, the concrete operational period, and the formal operational period (see Table 2.2). These are age-related, and, as you will see in later chapters, each has features that permit certain types of knowing and understanding (Piaget, 1952b, 1970a,b).

Movement from one period to another is propelled by the human need for cognitive equilibrium—that is, a state of mental balance. What Piaget meant is that each person attempts to make sense of new experiences by reconciling them with his or her existing understanding. Cognitive equilibrium occurs when one’s present understanding “fits” new experiences, whether this fitting involves a baby’s discovery that new objects can be grasped in the same way as familiar objects or an adult’s explanation of shifting world events as consonant with his or her political philosophy.

Figure 2.3 diagrams how the need for cognitive equilibrium is fulfilled. When a new experience does not seem to fit existing understanding, the individual falls into a state of cognitive disequilibrium, an imbalance that initially produces confusion. Disequilibrium then leads to cognitive growth when the person modifies old concepts and constructs better ones to fit the new experience if...

![FIGURE 2.3 Challenge Me](image)

Most of us, most of the time, prefer the comfort of our conventional conclusions. According to Piaget, however, when new ideas disturb our thinking, we have an opportunity to expand our cognition with a broader and deeper understanding.

cognitive equilibrium: In cognitive theory, the state of mental balance that enables a person to reconcile new experiences with existing understanding. People strive to attain cognitive equilibrium.

**Equilibrium**

<table>
<thead>
<tr>
<th>New Idea or Experience</th>
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<tbody>
<tr>
<td>Disequilibrium</td>
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<tr>
<td>Discrepancy</td>
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<table>
<thead>
<tr>
<th>Adaptation</th>
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<tbody>
<tr>
<td>Assimilation</td>
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</table>

| New Equilibrium |
necessary, thus moving to a higher stage. In Piaget's terminology, cognitive adaptation occurs in two ways:

- Reinterpreting new experiences so that they fit into, or assimilate with, the old ideas
- Revamping old ideas so that they can accommodate the new

Assimilation is easier, since it does not require much adjustment. But accommodation is sometimes necessary, and it produces significant intellectual growth—a new form of thinking that is more inclusive than before.

You may experience cognitive disequilibrium, for example, when a friend's argument reveals logical inconsistencies in your views, when your favorite chess strategy fails against a skilled opponent, or when your mother does or says something you never expected her to. In the last example, you might assimilate your mother's unusual statement by deciding that it was just something she heard and didn't really mean. Growth occurs if, instead, you adjust your previous conception of your mother to accommodate a new, expanded, and more comprehensive view of who she is.

**How to Think About Flowers** A person's stage of cognitive growth influences how he or she thinks about everything, including flowers. (a) To a baby, in the sensorimotor stage, flowers are "known" through pulling, smelling, and perhaps tasting. (b) A slightly older child might be egocentric, wanting to pick and eat the vegetables now. (c,d) At the adult's formal operational stage, flowers can be part of a larger, logical scheme—either to earn money or to cultivate beauty. Note, however, that thinking is an active process throughout the life span.
According to cognitive theory, babies poke, pull, and taste everything they get their hands on; preschool children ask thousands of questions; school-age children become avid readers and information collectors; adolescents try out a wide variety of roles and experiences; and adults continually increase their knowledge and expertise in areas that interest them—all because people at every age seek cognitive challenges.

Recognition of this active searching is the very essence of Piaget's theory of human cognitive development. Unlike psychoanalytic and learning theories, which depict children as buffeted and shaped by influences beyond their control, cognitive theory portrays a much more active person, one who seeks ways to comprehend the world.

Limitations of the Grand Theories

All three of the theories we have just described deserve to be called "grand." They are insightful and provocative, stimulating not only for researchers in human development but also for historians, educators, novelists, and, particularly, psychotherapists. Thousands of clinical professionals still use techniques originated by Freud, Skinner, or Piaget. Further, each of these three theories has made significant contributions to developmental science, as already shown.

However, the grand theories, as they attempted to explain the development of all humans everywhere, were probably too wide-ranging. The central idea that every person, in every culture, in every nation, passes through certain fixed stages (Freud, Erikson, Piaget) or can be conditioned according to the same laws of reinforcement (Watson, Pavlov, Skinner) does not seem applicable to the actual diversity of human beings worldwide. Careful observation of any living, breathing, growing person evokes surprise and puzzlement, no matter what grand theory or basic assumption the observer might hold. This is already evident from the surprising examples in Chapter 1: the butterfly effect, the Bosnian 5-year-olds unscathed by war, and the eleventh-graders who seemed to forget that they had had sex before age 13.

In other words, all three grand theories seem much less comprehensive and inclusive now than they once did. This is apparent in the central controversies of development (continuity/discontinuity, difference/deficit, nature/nurture), discussed at the end of this chapter. It also becomes apparent when the theories of physics and biology are compared with the theories about human development in terms of their scientific rigor. As one critic writes:

No field of biology can match the precision and power of physics, because unlike electrons or neutrons, all organisms are unique. But the differences between, say, two *Escherichia coli* bacteria or two leafcutter ants are trivial compared to the differences between any two humans, even those who are genetically identical. Each individual mind may also change dramatically when its owner is spanked, learns the alphabet, reads *Thus Spoke Zarathustra*, takes LSD, falls in love, gets divorced,

*Not What He Expected* Water spraying out of a pipe that he can hold in his hand—a surprising event that is likely to trigger first cognitive disequilibrium and then cognitive growth.

*Observational Quiz* (see answer, page 48):
This boy is 14 months old, in the sensorimotor period, and at an age when he loves to experiment. What is he likely to do next?

*No Theories Allowed* These three elderly women are in a nursing home where research in human development has not yet been applied. Being confined to wheelchairs, unable to see or hear each other, means that they are cut off from the comforts of human contact (psychoanalytic), of homemade food (behaviorism), and of intellectual stimulation (cognitive theory). Although none of the grand theories are considered comprehensive in the twenty-first century, any one of them could suggest improvements in the situation depicted here.
Emergent Theories

The three grand theories originated almost a century ago as theories of psychology. By contrast, the two emergent theories are recent and interdisciplinary. They include observations, mini-theories, and hypotheses from all the many sciences—in addition to psychology—that currently study human development. Sociocultural theory draws on research in education, sociology, and history; epigenetic systems theory is based on research from biology, genetics, ethology, and neuroscience. In part because of their scope and in part because of their recency, neither theory has become a comprehensive, coherent whole. However, as you will now see, both provide significant frameworks for the study of human development.

Sociocultural Theory

Although "sociocultural theory is still emerging and is not a single consolidated view," it stresses a new appreciation of the social context that developmentalists now recognize (Rogoff, 1998, p. 687). Sociocultural theory seeks to explain the growth of individual knowledge, development, and competencies in terms of the guidance, support, and structure provided by the society. Social change over time results from individual choices. Note the bidirectional influence of culture and person: People are affected by society, but people also change society.

The central thesis of sociocultural theory is that human development is the result of dynamic interaction between developing persons and their surrounding culture. According to this theory, culture is not simply an external variable that impinges on the developing person; it is integral to development (Cole, 1996).

The power of culture cannot be understood simply by comparing one particular practice in one place or ethnic group with another, as "cross-cultural" research did in the past. Instead, each culture is seen as a unique "design for living," and children learn that design from objects and people—from their parents, teachers, and peers, in their homes, schools, and neighborhoods. Consider a very simple example: What do you do if a 6-month-old baby starts to fuss? You could find a pacifier, turn on a musical mobile, change the diaper, give a bottle, pick up the baby and walk around, sing a lullaby, offer a breast, shake a rattle, or close the door so the noise won’t bother anyone. Each of these is "the right thing to do" according to parents in some cultures but not in others. Few of these parents are aware that their culture has so shaped their attitudes that they respond to a baby’s cry in a particular way, yet this is precisely what happens, according to sociocultural theory.
Guided Participation

A major pioneer of the sociocultural perspective was Lev Vygotsky (1896–1934), a psychologist from the former Soviet Union. Vygotsky was particularly interested in the cognitive competencies that developed among the culturally diverse people of his huge country, including such skills as the proper use of tools in an agricultural community and the appropriate use of abstract words among people who had never been to school. In the sociocultural view, these competencies develop from interactions between novices and more skilled members of the society, who act as tutors or mentors in a process called an apprenticeship in thinking (Rogoff, 1990, 1998).

The implicit goal of this apprenticeship is to provide the instruction and support that novices need in order to acquire the knowledge and capabilities that are valued by their culture. The best way to accomplish this goal is through guided participation: The tutor engages the learner in joint activities, offering not only instruction but also direct involvement in the learning process.

Note that this apprenticeship depends on social interaction, not on a student’s own discovery or on a teacher’s lecture. Neither student nor teacher is ever passive; one person learns from another, through the words and activities that they engage in together (Karpov & Haywood, 1998). This is one crucial difference between sociocultural theory and the grand theories of the past: “Cognitive development occurs in and emerges from social situations” (Gauvain, 1998, p. 191). Adults learn from children as well as vice versa, and both adults and children learn as much from their peers as from older or younger individuals.

The concept that a culture’s patterns and beliefs are social constructions (as explained in Chapter 1) is easy for sociocultural theorists to understand. However, the fact that something is socially constructed does not reduce its power or importance; quite the opposite. Values are among the most potent forces, shaping the development of every member of the culture. This point was stressed by Vygotsky, who himself was a teacher and argued that mentally and physically disabled children can learn (Vygotsky, 1925/1994). If people believe that “every child can learn,” they are likely to find a way to teach every child.

The Zone of Proximal Development

According to sociocultural theory, what people need to learn depends on their cultures, but how they learn is always the same, whether they are learning a manual skill, a social custom, or a language. Cultural context, social customs, and guided participation are always part of the process.
For learning to occur, a teacher (who can be a parent or peer as well as a professional) draws the learner into his or her zone of proximal development, which is the range of skills that the learner can exercise and master with assistance but cannot yet perform independently. Through sensitive assessment of the learner’s ability and capacity for growth, the teacher engages his or her participation, guiding the transition from assisted performance to independent achievement. The teacher must avoid two ever-present dangers, boredom and failure, both of which are outside that ideal zone. Some frustration is permitted, but the learner must be actively engaged, never passive or overwhelmed (see Figure 2.5).

To make this rather abstract-seeming process more concrete, let’s take a simple example—a father teaching his 5-year-old daughter to ride a bicycle. He probably begins by slowly rolling her along, supporting her weight while telling her to keep her hands on the bars and her feet on the pedals, to push the right and left pedals in rhythm, and to look straight ahead. As she becomes more comfortable and confident, he begins to roll her along more quickly, noting out loud that she is now able to keep her legs pumping in a steady rhythm. Within another lesson or two he is jogging beside her, holding on to just the handlebar. When he senses that, with a little more momentum, she could maintain her balance by herself, he urges her to pedal faster and slowly loosens his grip until, perhaps without her even realizing it, she is riding on her own.

Note that this is not instruction by rote. First, some children need more assurance than others; from the start the instruction process is modified for the particular learner. Second, even knowing the child, a parent needs to listen and
sense exactly whether more support or more freedom is needed at each moment, so the process is constantly modified. And third, such skills are almost impossible to transmit unless the teacher has mastered them: If a father intellectually understands the general principles but does not know how to ride, he is best advised to let his bike-riding wife do the instructing.

Such excursions into and through the zone of proximal development are commonplace, not only in childhood but throughout life. Ideally, the learning process follows the same general pattern in all instances: The mentor, sensitively attuned to the learner’s ever-shifting abilities and motivation, continually urges the learner on to new levels of competence, while the learner asks questions and shows signs of progress that guide and inspire the mentor. The particular skills and processes vary enormously from culture to culture, but the overall social engagement is the same.

Sociocultural theorists have been criticized for overlooking developmental processes that are not primarily social. Vygotsky’s theory, in particular, has been viewed as neglecting the role of genes in guiding development, especially with regard to neurological maturation in mental processes (Wertsch, 1985; Wertsch & Tulviste, 1992). The other emerging theory, which we will now discuss, begins with genetics.

**Epigenetic Systems Theory**

Epigenetic systems theory emphasizes the interaction of genes and the environment, an interaction that is seen as dynamic and reciprocal (Dent-Read & Zukow-Goldring, 1997; Goldsmith et al., 1997). This is the newest developmental theory, but it builds on several established bodies of research. Many disciplines of the natural sciences, including evolution, genetics, and ethology, provided a foundation for this theory. Further, both Erikson and Piaget described aspects of their theories as “epigenetic.”

**Before and After the Genes**

To understand what is involved in this theory, let us begin by examining the root word *genetic* and the prefix *epi*. The word *genetic* refers both to the genes that make each person (except monozygotic twins) unique and to the genes that each human has shared with all other humans for hundreds of thousands of years. Many of our basic “human” genes, about 98 percent of them, are also shared with other primates (Gibbons, 1988).

In emphasizing this genetic foundation, epigenetic systems theory stresses that we have powerful instincts and abilities that arise from our biological heritage. Even the timing and pace of certain developmental changes are genetically guided.

The fact that genes substantially affect every aspect of human behavior was at first unknown and then disputed for most of the twentieth century. (That explains why the earlier grand theories did not give heredity a substantial role in explaining human development.) Now research has shown that every psychological as well as every physical trait, from blood type to bashfulness, from metabolic rate to moodiness, from voice tone to vocational aptitude, is influenced by genes. Molecular genetics is beginning to explain exactly which genes interact with which factors to produce which traits (McGuffin et al., 2001).

No longer ignored, the power of genes is now sometimes exaggerated. That is an error that epigenetic systems theory seeks to avoid—as is evident in the prefix *epi*, which means (among other things) “before,” “after,” “on,” and “near.” Thus, *epigenetic* refers to all the factors that affect the expression of the genetic instructions. Some are stress factors, such as injury, temperature, and crowding.
Some are facilitating factors, such as nourishing food, loving care, and freedom to play. These and other epigenetic factors are part of, or arise from, the environment in which the organism develops, from the first cell to the complete organism, from the moment after conception to the moment before death.

Obvious and direct epigenetic effects are easier, and more ethical, to find in lower animals than in people. For example, some species of animals develop abnormal facial features or change the color of their fur (all genetic traits) depending on environmental conditions. One amazing example occurred when experimenters incubated a clutch of alligator eggs at various temperatures. All those which developed at about 32°C Centigrade became male; all that developed below that temperature became female (Ferguson & Joaen, 1982).

Many other epigenetic factors have been shown to affect human body and brain development, especially in the early months (Dawson et al., 2000). One expert explains, "Brain development is not just a genetic process but an epigenetic one." Even identical twins, who have identical genes, are born with different brain structures, because of the "epi" aspects of genetics (Johnson, 1999).

As development progresses, most people move along the course set by earlier genetic-environmental interactions. However, a suddenly different context may totally change the epigenetic patterns that are already in place (Tarter et al., 1999). For example, it is well known that a person’s propensity to become addicted to drugs is affected by genes. That genetic potential is further developed through exposure to an addictive drug. However, as one team of researchers explains:

> Within the epigenetic model, each intermediary phenotype [genetic manifestation] is an outcome as well as a precursor to a subsequent outcome contingent on the quality of person-environment interactions. . . . Indeed, sudden shifts . . . can occur. In this regard, it is noteworthy that 86 percent of regular heroin users among soldiers in Vietnam abruptly terminated consumption upon return to the United States (Robins, Helzer, & Davis, 1975). In effect, a substantial change in the environment produced a major phenotype change.

[Tarter et al., 1999, p. 672]

**Adaptation of the Genes**

So far we have focused on epigenetic factors within individuals. However, some epigenetic factors relate to the evolutionary adaptation of the entire human species. Over the generations, the frequency of some genetic traits in a population increases and others become rarer. This process is called **selective adaptation**.

As a result of selective adaptation over centuries, species have developed certain specific traits—such as plumage or rituals or songs—that have a decidedly genetic origin and that enhance the ability to mate and reproduce. Experimental research has shown, for example, that deafening a baby bird temporarily so that it cannot learn the melody of local birdsong results in an impaired ability to mate later on. This finding demonstrates that both the genetic and the epigenetic are crucial. Indeed, an estimated 90 percent of all species that have existed at one time or another have become extinct because their genes did not adapt adequately to environmental change and their reproduction fell below the replacement rate (Buss et al., 1998).

Humans have adapted well thus far, so their numbers keep rising. In fact, some think, our epigenetic adaptability is the most crucial human quality distinguishing us from other animal species. Specific epigenetic factors within humans are hard to pin down by experiments, partly because both human genes and the

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*selective adaptation* The idea that humans and other animals gradually adjust to their environment; specifically, the process by which the frequency of particular genetic traits in a population increases and others decrease over generations, depending on whether a given trait contributes to the survival of the species.
human context are more diverse than those of nonhuman animals and partly because ethical research on human epigenetic factors is difficult to perform (Gottlieb et al., 1998).

There is no doubt, however, that humans vary in the pathways they follow from their genetic base, depending on the conditions in which they live. Some genes are never expressed; others are made more potent in response to the environment. Many psychological disorders, including schizophrenia, autism, antisocial personality disorder, and depression, have a genetic component, but none of them are purely genetic; they are all epigenetic (Reiss & Neiderhiser, 2000; Rutter & Shute, 2000; Sanchez et al., 2001). As an example, the rate of schizophrenia among people of West Indian descent living in England is significantly higher than the rate among native-born people in England or among West Indians living out their lives in the West Indies (Jamaica, Trinidad, the Bahamas). The probable cause is psychosocial stresses that are greater for West Indians in England than for other groups (McKenzie & Murray, 1999).

A more familiar example is height. Each person is genetically programmed to grow to a certain height. That person can overeat and stretch every day but will not grow taller. However, a child who is not adequately nourished will be several inches shorter than the genetic potential would have allowed. Thus, on an individual level, the genes for height combine with influences from the early environment to yield an individual’s eventual height. On a species level, we humans are taller than our genetic cousins the chimpanzees because greater height was adaptive for humans.

**Systems That Support Development**

Finally, this theory also emphasizes systems. The critical aspect of a system, as scientists use the term, is that change in one part of the system causes corresponding adjustments and changes in every other part (an idea so basic to our current understanding of development that it was introduced at the beginning of Chapter 1). This is true for the biological systems that foster the development of an individual (e.g., the cardiovascular system), the systems that support an entire species (in an ecosystem), and the systems that govern all nature (Magnusson, 1996, 2000; Masterpasqua, 1997; Lewis & Granic, 2000).

One example of how the environment causes a systemic change is the effect of human handling on rat pups. It has long been realized that rats become smarter if they are frequently held when they are young. Some scientists thought that the rats learned from their early human involvement. Not so. More recent research shows exactly how handling produces systemic change: Handling increases the mother’s licking and grooming of her pup, which leads to decreased release of stress hormones, which leads to increased tolerance of potentially stressful conditions, which, in adulthood, leads to less brain degeneration than in unhandled rats (Sapolsky, 1997). Obviously, none of these changes could occur as a direct result of genes, but all of them are part of an elaborate, systemic interaction between nature and nurture.

This example raises important questions for humans, which the researcher wryly addressed:

> It is a rare parent of a newborn who does not feel panic built around the consequences that her or his actions now have. Developmental studies have indicated that the quality, quantity, and timing of infant stimulation can have long-lasting effects—and soon the anxious parent is convinced that one lullaby sung off-key ensures that a child will not only one day be a sociopath, but will also never use dental floss. If mothers of newborn rats harbor similar anxieties, a report by Liu and colleagues affirms their worries: The authors show that subtle stimulation in a rat’s infancy has marked consequences that are probably life-long.

[Sapolsky, 1997, p. 1620]
ethology The study of patterns of animal behavior, particularly as that behavior relates to evolutionary origins and species survival.

We will soon discuss the implications of such research for humans. We already know, however, that each individual is (among other things) an epigenetic system, continually adjusting to a never-ending flux of proteins, hormones, and electrical charges that occur in response to biochemical and physical forces inside and outside the body. Genes form the foundation of that system, but they never act alone (Goldsmith et al., 1997).

Each body cell is a system in itself, with numerous proteins and genetic instructions; all the cells and genes within one person are also a system; and the collections of all the people in a family, in a culture, and in the world are systems as well. The conclusion that “individual development is most appropriately viewed as a hierarchically organized system” represents “the triumph of epigenesis” over the archaic idea that everything is determined by the genes (Gottlieb et al., 1998).

As you remember from the dynamic systems approach described in Chapter 1, each society and each species is also a system, gradually shaping its common genetic heritage in such a way as to adapt to the changing world. Humans depend on each other, not only economically and politically but also for survival. Survival, apparently, is why I adore my children.

In Person

My Beautiful, Hairless Babies

The epigenetic systems approach focuses on both the “micro” interactions of genes at the individual level and the “macro” genetic systems that have developed within the species over time. In the latter respect, epigenetic theory builds on a well-established theory called ethology (Hinde, 1983). Ethology is the study of patterns of animal behavior, particularly as that behavior relates to evolutionary origins and species survival.

The ethological perspective has particular relevance for infancy, not just that of rat pups, as discussed in the text, but that of human babies as well. Many of the instinctive behaviors of young infants and their caregivers tend to promote survival (Marvin, 1997).

Infant Instincts

Infants come into the world already equipped with social predispositions and social skills that help ensure their nurturing and development. For example, they can distinguish the sounds and rhythms of speech, recognize the facial expressions of fear and pleasure, and distinguish one person from another by smell, by touch, and by sound. Despite being so obviously immobile and helpless, human infants are genetically programmed to display reflexes, including the grasping, clinging, crying, and grunting that summon adults or keep them nearby. In the beginning, infants accept help from anyone—a good survival strategy in the centuries when women regularly died in childbirth. By the time they are able to crawl, however, infants have become emotionally attached to their specific caregivers, as well as fearful of unfamiliar situations.

Over the course of human history, infants who stayed near nurturing and protecting adults were more likely to survive. Hence, selective adaptation produced this genetic makeup to keep infants safe from harm.

Adult Impulses

Correspondingly, caregiving adults are genetically equipped to nurture babies. Logically, no reasonable adult would ever put up with being a parent. It is irrational to endure the sleepless nights, dirty diapers, and frequent cries of a baby, or the rebellion of a teenager, or all the tribulations of the years in between. Fortunately, however, genetic impulses are not logical. Humans are programmed to cherish and protect children. As the mother of four, I have been surprised by the power of this programming many times. With my first-born, I asked my pediatrician if she wasn’t one of the most beautiful, perfect babies he had ever seen.

“Yes,” he said, with a twinkle in his eyes, “and my patients are better looking than the patients of any other pediatrician in the city.”

With my second newborn, the hospital offered to sell me a photo of her—hairless, chinless, and with swollen eyelids—at 1 day old; I glanced at it and said “no.” The photo didn’t look at all like her—she looked almost ugly. I was similarly enamored of my third and fourth. For the fourth, however, a new thought came to me: I am not only a woman who loves her
children; I am a woman who loves her sleep, a genetic trait I have shown all my life; my mother called me “a good napper.” In the predawn hours, as I roused myself yet again to feed my fourth baby, I asked myself how selective forgetting had allowed me, once again, to choose a disruptive addition to my life that was guaranteed to deprive me of my precious slumber. The answer, of course, is that some instincts are even stronger than the instinct for self-preservation.

Open Wide Caregivers and babies elicit responses from each other that ensure survival of the next generation. The caregiver's role in this vital interaction is obvious, but ethology has shown that infants starve if they do not chirp, meow, whine, bleat, squeal, cry, or otherwise signal hunger, and then open their mouths wide when food arrives. Both the baby birds and 5-month-old Jonah obviously know what to do.

Comparisons and Controversies
Each of the theories presented in this chapter has contributed a great deal to the study of human development (see Table 2.3).

- **Psychoanalytic theory** has made us aware of the importance of early childhood experiences and of the impact of the “hidden dramas” that influence daily life.
- **Behaviorism** has shown us the effect that the immediate environment can have on behavior.
- **Cognitive theory** has brought us to a greater understanding of how intellectual processes and thinking affect actions.
- **Sociocultural theory** has reminded us that development is embedded in a rich and multifaceted cultural context.
- **Epigenetic systems theory** emphasizes the inherited forces that affect each person—and all humankind—within particular contexts.

In order, these five theories present us with: the unconscious processes; the environment; the intellect; the culture; and the genes. No comprehensive view of development can ignore any one of these factors.
### TABLE 2.3 Five Perspectives on Human Development

<table>
<thead>
<tr>
<th>Theory</th>
<th>Basic Focus</th>
<th>Fundamental Depiction of What People Do</th>
<th>Emphasis on Early Years?</th>
<th>Relative Emphasis on Nature or Nurture?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychoanalytic</td>
<td>Psychosexual (Freud) or psychosocial (Erikson)</td>
<td>Battle unconscious impulses and overcome major crises</td>
<td>Yes (especially in Freudian theory)</td>
<td>More nature (biological, sexual impulses are very important, as are parent-child bonds and memories)</td>
</tr>
<tr>
<td>Behaviorism</td>
<td>Conditioning through stimulus and response</td>
<td>Respond to stimuli, reinforcement, and models in the environment</td>
<td>No (conditioning and reconditioning are lifelong)</td>
<td>More nurture (direct environmental influences produce various behaviors)</td>
</tr>
<tr>
<td>Cognitive</td>
<td>Thinking, remembering, analyzing</td>
<td>Seek to understand experiences while forming concepts and cognitive strategies</td>
<td>No (new concepts and control processes are developed throughout life)</td>
<td>More nature (person’s own mental activity and motivation are key)</td>
</tr>
<tr>
<td>Sociocultural</td>
<td>Social context, expressed through people, language, customs</td>
<td>Learn the tools, skills, and values of society through apprenticeships</td>
<td>Yes (family and school acculturation are critical)</td>
<td>More nurture (interaction of mentor and learner, within cultural context, is pivotal)</td>
</tr>
<tr>
<td>Epigenetic</td>
<td>Genes and their expression, in individuals and species</td>
<td>Express impulses, interests, and patterns inherited from ancestors and developed from childhood</td>
<td>Yes (early biochemical forces alter the manifestation of genes)</td>
<td>Nature begins the process: nurture affects it via hormones, enzymes, toxins, and selective adaptation</td>
</tr>
</tbody>
</table>

Each theory has had its critics. Psychoanalytic theory has been faulted for being too subjective; behaviorism, for being too mechanistic; cognitive theory, for undervaluing genetic differences; sociocultural theory, for neglecting individuals; and epigenetic systems theory, for neglecting society.

At the beginning of this chapter we noted that theories are not meant to be correct in every detail but are intended to be useful, to provide a perspective that might not otherwise come to mind. Let us now apply these five theories to the three controversies mentioned in Chapter 1 (page 21), to see how useful they really are.

### Continuity Versus Discontinuity

The first major controversy is whether development is *continuous*, with children growing a little day by day, or *discontinuous*, with growth occurring in spurts or stages. Each of the five theories answers this question in a distinct way.

Freud and Erikson described distinct stages, and Piaget was also a stage theorist. Piaget said that the transitions between his four stages occurred at about ages 2, 6, and 11—about the same ages at which Freud and Erikson also said new stages began. However, Freud and Erikson added a stage in toddlerhood, and Erikson added three more in adulthood. Moreover, although they were all stage theorists, who saw biology as a potent force, they each focused on different things—Freud on body parts and sex, Erikson on the relationship between personality and social context, and Piaget on thought processes. These differences pale when compared with the third grand theory, behaviorism, which has no stages at all, but instead insists that the same principles of learning apply to every human and other animal, of every age, and that any variations occur because of the environment, not the person.
The two emergent theories also differ. According to sociocultural theory, each culture constructs its own stages, setting an ideal time for weaning from the breast, for school, for having a first baby, for resuming sex after a baby is born. These social clocks vary depending on the place and time: A first pregnancy, for instance, was once expected at about age 18, but now most cultures expect first pregnancies several years later. Thus, stages exist, but they are set by a social clock, not by the maturation of the individual.

According to epigenetic systems theory, growth begins internally, with genetic forces, not society. The first days, months, and years of life, when the most plasticity is present, is the time when cognitive enrichment, emotional security, and adequate nutrition are especially important, because many epigenetic effects occur between conception and age 2. Similarly, at puberty, genes for sexual arousal mature. Parents must teach teens about contraception, become vigilant chaperones, or expect a grandchild, because the emerging genetic forces unleash a new set of compulsions that cannot be ignored. Thus, the epigenetic systems perspective includes intervals that resemble stages—called sensitive phases, time windows, or critical periods—but these are unlike the stages described by any other theory.

The basic issue—whether development occurs gradually or in stages—is not just theoretical. If there are stages, then parents must adjust to whatever stage their children are in at any given time. The toddler’s temper, the school-age child’s collection of beach rocks, the teenager’s rebellion are all “just a stage,” something that will be outgrown. If there are no stages, then societies and parents need to be continuously active in guiding a child; every day, every year, is equally crucial.

**Normal Difference or Harmful Deficit?**

The second major controversy is whether differences between children are normal variations or problematic deficits. This controversy arises from a painful history known to every developmentalist. Until the last decade or so, “deficit-oriented models and comparative studies have dominated research” (Fisher et al., 1998). Most research focused on white, middle-class, native-born children in wealthy nations; children who were from other cultures or who were poorer were found to be deficient because they deviated from the norms set for middle-class, majority children. For instance, “culturally deprived” children were slower to develop language, more likely to be physically punished, less likely to do well in school.

These differences once seemed to be deficits—and well-intentioned developmentalists hoped to help all children develop language more quickly, to encourage all parents to replace physical punishment with reasoning, to help everyone learn more in school. As we now see it, that attitude was arrogant and experts were too hasty, culturally insensitive, and prejudiced when they decided that differences were deficits. We now know that some cultures communicate more by touch than by talk, that some children develop better with stricter parenting than the middle-class ideal, that the reason for a child’s failure may lie with the teacher or the curriculum, not the child.

However, it is an easy escape from a hard problem to say that all children and families are fine and that every difference is equally beneficial. Remember Chapter 1’s discussion of research on where children sleep? There are many differences that do not seem to be deficits: Children may safely sleep beside their parents or in another room. But there are also differences that are more constructive than others: Children seem to develop best if a caregiver is within earshot at night, available to comfort the child. The more we learn, the more we realize that children grow in many wondrous and diverse ways, but also the more
we realize that some things—low birthweight, child neglect, and social isolation among them—are not harmless differences but damaging deficits. The challenge is identifying what is really harmful and what is not. Two difficult questions, related to our understanding of cultural diversity, remain:

- At what point does a difference become a deficit? Must the difference be quite large and obvious, and must the behavior be a pivotal one, or is any small deviation enough to be a deficit? The answer is not clear, even with physical characteristics: When is a child too short, too fat, too thin?
  Published norms, as in the height/weight tables that most pediatricians use, were based on thousands of middle-class European-Americans. If an African-American child is taller than normal at age 11 (and many are), is that a deficit? If a Pakistani child is shorter at age 6 (and most are), is that a deficit—even if it is normal for Pakistani children?

- This raises a second question: Can something be a deficit even if it is not a major deviation? In 1950, “only children” were unusual and were assumed to be spoiled or emotionally distressed. Today, single-child families are typical in many nations, including Italy, Germany, and China, and such children are found to be smarter, more confident, and more likely to graduate from college than their peers. Have historical circumstances changed, making “only” children no longer a deficit, or have research assumptions changed? A more problematic example is unmarried motherhood, which was once considered a serious deficit for the mother as well as the child but which is now widely accepted and quite common in some countries (see Figure 2.6).

FIGURE 2.6 Increasing Deficit or Merely Cohort Change? These are the percentages of all births, not just first births. In all these nations, the percentage of couples who live together without being married has increased dramatically in the past three decades, with many educated and financially stable couples choosing not to marry. No longer are births to unmarried mothers considered a sign of poverty and ignorance. Even the Crown Prince of Norway lived with his future wife and had a baby before they married.

Observational Quiz (see answer, page 60): Does the United States have more unwed mothers than any other developed nation?

<table>
<thead>
<tr>
<th>Country</th>
<th>1998-1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norway</td>
<td>40%</td>
</tr>
<tr>
<td>Iceland</td>
<td>30%</td>
</tr>
<tr>
<td>Britain</td>
<td>20%</td>
</tr>
<tr>
<td>France</td>
<td>15%</td>
</tr>
<tr>
<td>United States</td>
<td>10%</td>
</tr>
<tr>
<td>Italy</td>
<td>5%</td>
</tr>
</tbody>
</table>

Rate of Unmarried Motherhood in Six Developed Nations, 1998-1999


How do theories help us deal with such complex questions? All viable developmental theories are quite broad and flexible; none of them suggest that there is only one, narrow, right way to raise a child. Thus, they provide a guide to normal variations. Most differences are acceptable, and only a few are really harmful. The complication is that each theory has a different view of what constitutes a deficit.

- Psychoanalytic theory. Intimate maternal care is crucial for the first five years of a child's life. A deficit appears when a mother does not spend enough time with her child, or is not sufficiently responsive, for the pair to develop a close bond. Ideally, she breast-feeds until the baby is at least 1 year old, toilet trains relatively late, and tolerates the child's sexual
curiosity. As Erikson stressed, there are limits to permissiveness, but guidance is preferred over punishment as the parental response.

- **Behaviorism.** Many people (fathers, siblings, babysitters) can take care of the baby as well as the mother can. Feeding may occur in various schedules and modes, toilet training may be early or late, masturbation may be forbidden or encouraged. What is crucial is that the parents decide exactly what they want the child to learn and then use patience, modeling, and reinforcement to teach it step by step. For example, too much aggression in school is a deficit as an example of a behaviorist remedy, the Oregon Social Learning Center retains parents and teachers of such children, with specific behaviorist techniques that reinforce nonaggression (Reid et al., 2002).

- **Cognitive theory.** Children advance cognitively if they are encouraged to explore and discover. A deficit is evident if children are slow to develop or are so “good” that they are always quiet, never curious and talkative. Parents should listen, talk to, play with, and encourage their children; teachers should let children follow their own interests.

- **Sociocultural theory.** Each culture has its own approved system for raising children. Thus, any deficits identified under the first three theories—children who are afraid of their own sexual drives, or who are too aggressive, or who are too quiet—might be considered normal in some cultures. A deficit occurs when a child who has been raised by the standards of one culture does not function well in another. Immigrants who do not prepare their children for a new way of functioning may be creating a deficit, although at least some of the deficit may be blamed on the new culture (Suarez-Orozco & Suarez-Orozco, 2001). Docility, shyness, and “proper” manners may be a deficit in a brash, individualized culture.

- **Epigenetic systems theory.** Genes vary from person to person, so diversity is to be expected. But genetic expression is also influenced by the environment, especially early in life. Thus, a deficit would be any environmental condition that does not provide proper nurturance for the developing child: the mother’s drug abuse during pregnancy, lack of sensory stimulation in early infancy, too much fear and stress in toddlerhood, a depressed mother in early childhood. To keep these environmental deficits from impairing genetic expression, children in such homes should be cared for by someone else (perhaps a foster mother) or enrolled in early extensive day care.

As you can see, the solution to a deficit offered by epigenetic theory is the opposite of the solution offered by psychoanalytic theory. Similarly, a curious and talkative child who is doing well according to cognitive theory might not be doing well according to sociocultural theory, and so on. No wonder the difference/deficit issue is controversial: Each theory, and indeed each observer, sees different deficits. In practical terms, every parent has experienced the disapproval of a relative or friend, or even a stranger, for something their child did that seemed perfectly acceptable to them. (An excerpt from an article, supposedly by a meddlesome stranger, is reprinted here from the satirical newspaper The Onion.)

**Nature or Nurture?**

The very practical implications of the developmental theories we have been discussing are highlighted by the central controversy of human development: the debate over the relative influence of heredity and environment in shaping personal traits and characteristics. This debate is often called the nature—nurture controversy (Dixon & Lerner, 1999).

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Now, There’s a Stranger Who Could Use Some of My Child-Rearing Advice...

Take, for example, the mother I recently saw giving her child a Hi-C drink box. Concerned that she mistakenly thought Hi-C was made with real fruit juice, I told her that it’s largely artificial. Sadly, she felt threatened by my superior parenting skills and told me to “get lost.” I assured her that it was an understandable mistake for her to think Hi-C was real fruit juice. The product’s box, after all, deceptively features a bevy of oranges, apples, and grapes. I told her not to feel bad or embarrassed and then gently advised her to read labels more carefully in the future. “Anything called a ‘fruit drink’ or ‘juice cocktail’ is probably only 5 or 10 percent juice, at most,” I told her. “So you should really try to avoid those.”

Instead of thanking me for the free advice, this woman showered me with inductive and urged me to “get my own damn kids.”

—from The Onion, March 28, 2002, p. 9
**nature** A general term for the traits, capacities, and limitations that each individual inherits genetically from his or her parents at the moment of conception. Nature refers only to genes, not to other biological forces.

**nurture** A general term for all the environmental influences that affect development after an individual is conceived. Nurture includes the prenatal environment, as well as all the ecosystems described in Chapter 1.

Nature refers to the traits, capacities, and limitations that each person inherits genetically from his or her parents at the moment of conception. Body type, sex, and genetic diseases are obvious examples. Nature also includes a host of intellectual and personality characteristics that are powerfully influenced by genes (such as facility with numbers, attraction to novelty, sociability, and tendency to depression).

Nurture refers to all the environmental influences that come into play after conception, beginning with the mother's health during pregnancy and including all the individual's experiences in the outside world—in the family, the school, the community, and the culture at large.

The nature–nurture controversy has taken on many names, among them **heredity versus environment** and **maturation versus learning**. Under whatever name, the basic question remains: How much of any given characteristic, behavior, or pattern of development is the result of genes and how much is the result of experiences? Note that the question asks “How much?” not “Whether” or “Which ones?” All developmentalists agree that both nature and nurture interact to produce every specific trait; no characteristic develops as an exclusive response to either nature or nurture. Development is epigenetic, not merely genetic. Yet the specifics are hotly debated.

**An Example: The Origins of Sexual Orientation**

Let us look at the nature–nurture debate as illustrated by the question of how sexual orientation is determined. Most psychiatrists and psychologists once assumed that adult homosexuality resulted from unusual patterns in the mother–father–child relationship, a belief strongly endorsed by psychoanalytic theory. Other psychologists asserted that a person learned to be homosexual through reinforcement and modeling. The cognitive perspective held that a person’s concept of appropriate sexual interaction influenced his or her orientation—that the idea itself led to the action.

All these explanations from the three grand theories clearly emphasized nurture over nature. However, new research suggests that homosexuality is at least partly genetic (Bailey et al., 2000). For example, a man is more likely to be gay if his mother’s brother or his own brother—especially his identical twin—is homosexual (Hamer et al., 1993; Pool, 1993; Whitam et al., 1993). Further evidence that nature has a strong impact on sexual orientation comes from studies of children raised by lesbian mothers. Most of these children are heterosexual, in similar proportions to children raised by heterosexual parents (Golombok & Tasker, 1996). This finding supports an epigenetic perspective, in that any genetic factors that affect sexual orientation are not changed by the child’s family or cultural environment.

The sociocultural view would regard nurture as very important—not the immediate mother–father–child nurture, but the cultural context. Each society has its own standards and expectations for sexual behavior. Looking at various cultures, one can find places where every boy is expected to be homosexual during adolescence and other places where homosexuality is considered perverse (Schlegel & Barry, 1991). Both the epigenetic systems and the sociocultural theories raise the difficult question of whether sexual orientation is an inborn biological fact or a behavior of sexual expression. Is it possible for someone to be homosexual but not know it? Is our sexuality something we learn, something we are born with, or something that develops in the interaction between nature and nurture?

All five perspectives guide our thinking to some extent, making us wary of choosing a simple answer from only one theory. Indeed, virtually no social scientist today believes that a warped mother–son relationship causes homosexuality (as psychoanalytic theory might hold) or that homosexuality is encouraged by the
environment (behaviorism) or that homosexuality is logically chosen after intellectual reflection (cognitive theory). Thus, all three grand theories, at least in their simplest, all-inclusive versions, are inadequate for explaining sexual orientation.

Yet the evidence for a genetic influence on homosexuality is far from conclusive (Hamer, 1999; Rice et al., 1999). Culture may also play a role, as is evidenced by varying rates of homosexuality from nation to nation and from cohort to cohort (Bailey et al., 1993; Maddox, 1993).

The human implications of the question are profound, which illustrates again why the nature-nurture debate is often controversial. If homosexuality is primarily the result of culture, those who are concerned about the future sexual orientation of the young should look to the influence of school curriculum, television programming, and laws about marriage, because these all reflect culture. In contrast, if the primary influences on a person’s sexual orientation are genetic, different issues should be debated—and perhaps the debate itself is unnecessary.

Both of these positions may be too extreme for those who take “a developmental perspective.” According to two psychologists:

> Those who dichotomize sexual orientation into pure biological or social causation fall into a dangerous quagmire. To deny any role for biology affirms an untenable scientific view of human development. Equally harsh and deterministic would be to deny the significance of the environment.

(Savin-Williams & Diamond, 1997, p. 235)

**Policy and Practice**

Theories about nature and nurture are implicit in many public policies. They are interwoven into many controversies, not only the one concerning sexual orientation but also those concerning alcohol exposure before birth, class size and school learning, causes and consequences of teenage pregnancy, laws governing divorce, and attitudes regarding “welfare” or “social assistance.” Political philosophy affects a person’s preference for nature or nurture, difference or deficit, continuity or discontinuity. Using another example, one developmentalist explains, “Individual differences in aggression can be accounted for by genetic or socialization differences, with politically conservative scientists tending to believe the former and more liberal scientists the latter” (Lewis, 1997, p. 102).

On a more personal level, all prospective parents wonder just what influence their nurturing might have. Are they as significant as psychoanalytic and learning theories contend, or is the child’s own thinking the determining factor, as cognitive theory might claim? Perhaps the emerging sociocultural or epigenetic systems theories can provide insight, attributing much of a child’s behavior to either culture or genes. Indeed, for all three controversies, one can see that the theories aid us in contemplating ideas that our political, religious, or personality preferences might have ignored. In this way, at least, all five theories are useful for offering us new ideas to consider, even if we ultimately reject them. Developmental theories provide some perspective and values as a starting point. Scientific methods, as you learned in Chapter 1, guard against the undue influence of personal beliefs, and theories are one more tool toward the same goal.
Eclectic perspective The approach taken by most developmentalists, in which they apply aspects of each of the various theories of development rather than adhering exclusively to one theory.

Response for Students Age 20 or So
(from page 61): The age at puberty, the strength of the sex drive, and the tendency to seek (or avoid) spontaneous adventure are all genetic. A particular person might reach puberty early, at about age 11, and have a powerful drive for sexual satisfaction and a zest for risky adventure, all because of genes. A person with those genetic impulses would be much more likely to become pregnant before age 20 than a person who experienced puberty late, has a relatively weak sexual drive, and is temperamentally cautious.

Eclecticism and You
Until a new grand theory is tested and established, most developmentalists will continue to take an eclectic perspective. That is, rather than adopt any one of these theories exclusively, they make selective use of many or all of them. When 45 leaders in the field were asked to identify their approach to developmental studies, “clear theoretical labels were hard to come by,” with many describing themselves through some combination of terms, such as “cognitive social learning,” “social interactive behaviorist,” and even “social evolutionary cognitive behaviorism” (Horowitz, 1994, p. 243). The state of research in human development has been accurately characterized as “theoretical pluralism” because no single theory fully explains the behavior of humans as they go through life (Dixon & Lerner, 1999).

In later chapters, as you encounter elaborations and echoes of the five major theories and various minitheories, you will no doubt form your own opinion of the validity and usefulness of each. Probably you will also take an eclectic view—one that chooses the best from each theory to guide your exploration of development. You may even begin to devise a coherent, comprehensive, systematic approach of your own.

SUMMARY

What Theories Do
1. A theory provides a framework of general principles that can be used to guide research and explain observations. Each developmental theory interprets human development from a somewhat different perspective, but all developmental theories attempt to provide a context for understanding how individual experiences and behavior change over time. Theories are practical in that they aid inquiry, interpretation, and research.

Grand Theories
2. Psychoanalytic theory emphasizes that human actions and thoughts originate from powerful impulses and conflicts that often are not part of our conscious awareness. Freud, the founder of psychoanalytic theory, explained how sexual urges arise during childhood. Parents’ reactions to conflicts associated with these urges have a lasting impact on personality.
3. Erikson’s version of psychoanalytic theory emphasizes psychosocial contexts, with individuals shaped by the interaction of personal characteristics and social forces. Erikson described eight successive stages of psychosocial development, each of which involves a developmental crisis.
4. Behaviorists, or learning theorists, believe that the focus of psychologists’ study should be behavior, which can be observed and measured. This theory seeks to discover the laws that govern the relationship between events and the reactions they produce.
5. Behaviorism emphasizes various forms of conditioning—a learning process. In classical conditioning, a neutral stimulus becomes associated with a meaningful stimulus, and eventually the neutral stimulus alone produces the response first associated with the meaningful stimulus. In operant conditioning, certain responses, called reinforcers, are used to make it more likely that certain behaviors will be repeated.
6. Social learning theory recognizes that much of human behavior is learned by observing the behavior of others. The basic process is modeling, in which we first observe a behavior and then repeat it. Generally, the person being observed is admirable in some way, or the behavior is one that the observer is motivated to repeat.
7. All theories lead to research that tests various hypotheses. Harlow’s studies of mother love among baby monkeys revealed that comforting contact was more important than food in establishing the mother-infant bond.
8. Cognitive theorists believe that a person’s thought processes have an important effect on his or her understanding of the world, and thus on the person’s development. Piaget proposed that an individual’s thinking develops through four age-related periods.
9. Piaget believed that cognitive development is an active and universal process. Curiosity is guided by the search for cognitive equilibrium, which is a person's ability to explain a new situation with existing understanding. When disequilibrium occurs, people develop cognitively by modifying their understanding to cover the new situation.

**Emergent Theories**

10. Sociocultural theory explains human development in terms of the guidance, support, and structure provided by culture. For Vygotsky, learning occurs through the social interactions learners share with more knowledgeable members of the society. They guide learners through the zone of proximal development.

11. Epigenetic systems theory begins by noting that genes are powerful and omnipresent, potentially affecting every aspect of development. This theory also stresses an ongoing interaction between the genes and environmental forces, which can range from prenatal toxins to lifelong stresses. This interaction can halt, modify, or strengthen the effects of the genes, both within the person and, over time, within the species.

12. Epigenetic systems theory also focuses on the systems, within the individual as well as the species, that support development. In one such system, infants are born with various drives and reflexes that help ensure their survival, while adults are normally also equipped with innate predispositions to nurture babies, no matter what sacrifices might be required.

**Comparisons and Controversies**

13. Psychoanalytic, learning, cognitive, sociocultural, and epigenetic systems theories have each contributed to the understanding of human development, yet no one theory is broad enough to describe the full complexity and diversity of human experience.

14. Each of the five major theories reviewed here has a somewhat different position on the issues of development. The continuity-discontinuity controversy concerns the question of whether development occurs smoothly or in stages. The difference-deficit controversy asks when something that is unusual (a difference) becomes harmful (a deficit).

15. The nature-nurture controversy centers on how much influence heredity has on development, as compared to how much influence the environment has. Every researcher agrees, however, that both factors influence human development.

16. Each theory provides a useful perspective; none is complete in itself. Most developmentalists are eclectic, adopting aspects of various theories rather than following any single theory.

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**KEY TERMS**

- developmental theory (p. 35)
- grand theories (p. 36)
- minitheories (p. 36)
- emergent theories (p. 36)
- psychoanalytic theory (p. 36)
- behaviorism (p. 40)
- conditioning (p. 40)
- classical conditioning (p. 40)
- operant conditioning (p. 41)
- reinforcement (p. 41)
- social learning theory (p. 43)
- modeling (p. 43)
- self-efficacy (p. 44)
- cognitive theory (p. 44)
- cognitive equilibrium (p. 45)
- sociocultural theory (p. 48)
- apprenticeship in thinking (p. 49)
- guided participation (p. 49)
- zone of proximal development (p. 50)
- epigenetic systems theory (p. 51)
- selective adaptation (p. 52)
- ethology (p. 54)
- nature (p. 60)
- nurture (p. 60)
- eclectic perspective (p. 62)

**KEY QUESTIONS**

1. What functions does a good theory perform?
2. What is the major assumption of psychoanalytic theory?
3. What are the key differences between Freud's and Erikson's ideas concerning development?
4. What is the major focus of behaviorism?
5. What are the differences between classical conditioning and operant conditioning?
6. According to Piaget, how do periods of disequilibrium lead to mental growth?
7. What are the main differences among the grand theories?
8. According to sociocultural theory, how does development occur?
9. Give an example of guided participation that is not in the text.
10. According to epigenetic systems theorists, how can genetic instructions change?
11. What are the main differences between the two emergent theories?
12. What are the three main ongoing controversies in development?
13. Pick one controversy, and explain the different perspectives taken by the five theories.