



Social learning theory recognizes that children acquire many skills through modeling. By observing and imitating her mother's behavior, this Vietnamese preschooler is becoming a skilled user of chopsticks.

Several kinds of social learning theory emerged. The most influential, devised by Albert Bandura, emphasized *modeling*, otherwise known as *imitation* or *observational learning*, as a powerful source of development. Bandura (1977) recognized that children acquire many favorable and unfavorable responses by watching and listening to others around them. The baby who claps her hands after her mother does so, the child who angrily hits a playmate in the same way that he has been punished at home, and the teenager who wears the same clothes and hairstyle as her friends at school are all displaying observational learning.

Bandura's work continues to influence much research on children's social development. However, like the field of child development as a whole, today his theory stresses the importance of *cognition*, or thinking. Bandura has shown that children's ability to listen, remember, and abstract general rules from complex sets of observed behavior affects their imitation and learning. In fact, Bandura's (1992, 2001)

most recent revision of his theory places such strong emphasis on how children think about themselves and other people that he calls it a *social-cognitive* rather than a social learning approach.

According to this view, children gradually become more selective in what they imitate. From watching others engage in self-praise and self-blame and through feedback about the worth of their own actions, children develop *personal standards* for behavior and a *sense of self-efficacy*—the belief that their own abilities and characteristics will help them succeed. These cognitions guide responses in particular situations (Bandura, 1999, 2001). For example, imagine a parent who often remarks, "I'm glad I kept working on that task, even though it was hard," who explains the value of persistence, and who encourages it by saying, "I know you can do a good job on that homework!" Soon the child starts to view herself as hardworking and high achieving and selects people with these characteristics as models. In this way, as children acquire attitudes, values, and convictions about themselves, they control their own learning and behavior.

CONTRIBUTIONS AND LIMITATIONS OF BEHAVIORISM AND SOCIAL LEARNING THEORY • Behaviorism and social learning theory have had a major applied impact. Behavior modification consists of procedures that combine conditioning and modeling to eliminate undesirable behaviors and increase desirable responses. It has been used to relieve a wide range of serious developmental problems, such as persistent aggression, language delays, and extreme fears (Pierce & Epling, 1995; Wolpe & Plaud, 1997). But it is also effective in dealing with common, everyday difficulties, including poor time management; unwanted habits, such as nail biting and smoking; and anxiety over such recurrent events as test-taking, public speaking, and medical and dental treatments. In one study, preschoolers' anxious reactions during dental treatment were reduced by reinforcing them with small toys for answering questions about a story read to them while the dentist worked. Because the children could not listen to the story and kick and cry at the same time, their disruptive behaviors subsided (Stark et al., 1989).

Nevertheless, modeling and reinforcement do not provide a complete account of development. Many theorists believe that behaviorism and social learning theory offer too narrow a view of important environmental influences. These extend beyond immediate reinforcements and modeled behaviors to children's rich physical and social worlds. Finally, behaviorism and social learning theory have been criticized for underestimating children's contributions to their own development. However, in emphasizing cognition, Bandura is unique among theorists whose work grew out of the behaviorist tradition in granting children an active role in their own learning.

Piaget's Cognitive-Developmental Theory

If one individual has influenced the contemporary field of child development more than any other, it is Swiss cognitive theorist Jean Piaget (1896–1980). North American investigators had

theorists accept the *clinical method*, which synthesizes information from a variety of sources into a detailed picture of the personality of a single child. (We will discuss the clinical method further at the end of this chapter.) Psychoanalytic theory has also inspired a wealth of research on many aspects of emotional and social development, including infant–caregiver attachment, aggression, sibling relationships, child-rearing practices, morality, gender roles, and adolescent identity.

Despite its extensive contributions, the psychoanalytic perspective is no longer in the mainstream of child development research (Cairns, 1998). Psychoanalytic theorists may have become isolated from the rest of the field because they were so strongly committed to the clinical approach that they failed to consider other methods. In addition, many psychoanalytic ideas, such as psychosexual stages and ego functioning, are so vague that they are difficult or impossible to test empirically (Thomas, 2000; Westen & Gabbard, 1999). Nevertheless, Erikson's broad outline of psychosocial change captures the essence of personality development during childhood and adolescence. Consequently, we will return to it in later chapters.

Behaviorism and Social Learning Theory

As the psychoanalytic perspective gained prominence, child study was also influenced by a very different perspective. According to behaviorism, directly observable events—stimuli and responses—are the appropriate focus of study. American behaviorism began with the work of psychologist John Watson (1878–1958) in the early twentieth century. Watson wanted to create an objective science of psychology and rejected the psychoanalytic concern with the unseen workings of the mind (Horowitz, 1992).

TRADITIONAL BEHAVIORISM • Watson was inspired by Russian physiologist Ivan Pavlov's studies of animal learning. Pavlov knew that dogs release saliva as an innate reflex when they are given food. But he noticed that his dogs were salivating before they tasted any food—when they saw the trainer who usually fed them. The dogs, Pavlov reasoned, must have learned to associate a neutral stimulus (the trainer) with another stimulus (food) that produces a reflexive response (salivation). As a result of this association, the neutral stimulus by itself could bring about a response resembling the reflex. Eager to test this idea, Pavlov successfully taught dogs to salivate at the sound of a bell by pairing it with the presentation of food. He had discovered *classical conditioning*.

Watson wanted to find out if classical conditioning could be applied to children's behavior. In a historic experiment, he taught Albert, an 11-month-old infant, to fear a neutral stimulus—a soft white rat—by presenting it several times with a sharp, loud sound, which naturally scared the baby. Little Albert, who at first had reached out eagerly to touch the furry rat, soon cried and turned his head away when he caught sight of it (Watson & Raynor, 1920). In fact, Albert's fear was so intense that researchers eventually challenged the ethics of studies like this one. Consistent with Locke's *tabula rasa*, Watson concluded that environment is the supreme force in development. Adults can mold children's behavior, he thought, by carefully controlling stimulus–response associations. And development is a continuous process, consisting of a gradual increase with age in the number and strength of these associations.

Another form of behaviorism was B. F. Skinner's (1904–1990) *operant conditioning theory*. According to Skinner, the frequency of a behavior can be increased by following it with a wide variety of *reinforcers*, such as food, praise, a friendly smile, or a new toy. It can also be decreased through *punishment*, such as disapproval or withdrawal of privileges. As a result of Skinner's work, operant conditioning became a broadly applied learning principle. We will consider these conditioning techniques further when we explore the infant's learning capacities in Chapter 5.

SOCIAL LEARNING THEORY • Psychologists quickly became interested in whether behaviorism might offer a more direct and effective explanation of the development of children's social behavior than the less precise concepts of psychoanalytic theory. This sparked the emergence of several approaches that built on the principles of conditioning, offering expanded views of how children and adults acquire new responses.

TABLE 1.3

Piaget's Stages of Cognitive Development

STAGE	PERIOD OF DEVELOPMENT	DESCRIPTION
Sensorimotor	Birth–2 years	Infants “think” by acting on the world with their eyes, ears, hands, and mouth. As a result, they invent ways of solving sensorimotor problems, such as pulling a lever to hear the sound of a music box, finding hidden toys, and putting objects in and taking them out of containers. Preschool children use symbols to represent their earlier sensorimotor discoveries. Development of language and make-believe play takes place. However, thinking lacks the logic of the two remaining stages.
Preoperational	2–7 years	Children’s reasoning becomes logical. School-age children understand that a certain amount of lemonade or play dough remains the same even after its appearance changes. They also organize objects into hierarchies of classes and subclasses. However, thinking falls short of adult intelligence. It is not yet abstract.
Concrete operational	7–11 years	The capacity for abstraction permits adolescents to reason with symbols that do not refer to objects in the real world, as in advanced mathematics. They can also think of all possible outcomes in a scientific problem, not just the most obvious ones.
Formal operational	11 years and older	



Jean Piaget

mouthed, kicked, or searched for. From their responses, Piaget derived his ideas about cognitive changes during the first 2 years. In studying childhood and adolescent thought, Piaget took advantage of children’s ability to describe their thinking. He adapted the clinical method of psychoanalysis, conducting open-ended *clinical interviews* in which a child’s initial response to a task served as the basis for the next question Piaget would ask. We will look more closely at this technique when we discuss research methods later in this chapter.

CONTRIBUTIONS AND LIMITATIONS OF PIAGET’S THEORY • Piaget’s cognitive-developmental perspective convinced the field that children are active learners whose minds



In Piaget’s concrete operational stage, school-age children think in an organized, logical fashion about concrete objects. This 6-year-old girl and 7-year-old boy understand that the amount of milk remains the same after being poured into a differently shaped container, even though its appearance changes.



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In Piaget’s preoperational stage, preschool children represent their earlier sensorimotor discoveries with symbols. Language and make-believe play develop rapidly. These 4-year-olds create an imaginative play scene with dress-up clothes and the assistance of a cooperative family pet.

In Piaget’s sensorimotor stage, babies learn by acting on the world. As this 1-year-old bangs a mallet on a xylophone, he discovers that his movements have predictable effects on objects and that objects influence one another in regular ways.

been aware of Piaget’s work since 1930. However, they did not grant it much attention until the 1960s, mainly because his ideas were very much at odds with behaviorism, which dominated psychology in the middle of the twentieth century (Zigler & Gilman, 1998). Piaget did not believe that children’s learning depends on reinforcers, such as rewards from adults. According to his cognitive-developmental theory, children actively construct knowledge as they manipulate and explore their world.

PIAGET’S STAGES • Piaget’s view of development was greatly influenced by his early training in biology. Central to his theory is the biological concept of *adaptation* (Piaget, 1971), just as structures of the body are adapted to fit with the environment, so structures of the mind develop to better fit with, or represent, the external world. In infancy and early childhood, Piaget claimed, children’s understanding is different from adults’. For example, he believed that young babies do not realize that an object hidden from view—a favorite toy or even the mother—continues to exist. He also concluded that preschoolers’ thinking is full of faulty logic. For example, children younger than age 7 commonly say that the amount of milk or lemonade changes when it is poured into a different-shaped container. According to Piaget, children eventually revise these incorrect ideas in their ongoing efforts to achieve an *equilibrium*, or balance, between internal structures and information they encounter in their everyday worlds.

In Piaget’s theory, as the brain develops and children’s experiences expand, they move through four broad stages, each characterized by qualitatively distinct ways of thinking. Table 1.3 provides a brief description of Piaget’s stages. In the *sensorimotor stage*, cognitive development begins with the baby’s use of the senses and movements to explore the world. These action patterns evolve into the symbolic but illogical thinking of the preschooler in the *preoperational stage*. Then cognition is transformed into the more organized reasoning of the school-age child in the *concrete operational stage*. Finally, in the *formal operational stage*, thought becomes the complex, abstract reasoning system of the adolescent and adult.

PIAGET’S METHODS OF STUDY • Piaget devised special methods for investigating how children think. In the early part of his career, he carefully observed his three infant children and also presented them with everyday problems, such as an attractive object that could be grasped,

Recent Theoretical Perspectives

New ways of understanding the child are constantly emerging—questioning, building on, and enhancing the discoveries of earlier theories. Today, a burst of fresh approaches and research emphases is broadening our understanding of children's development.

Information Processing

During the 1970s, researchers turned to the field of cognitive psychology for ways to understand the development of children's thinking. The design of digital computers that use mathematically specified steps to solve problems suggested to psychologists that the human mind might also be viewed as a symbol-manipulating system through which information flows—a perspective called information processing (Klahr & MacWhinney, 1998). From presentation to the senses at input to behavioral responses at output, information is actively coded, transformed, and organized.

Information-processing researchers often use flowcharts to map the precise steps individuals use to solve problems and complete tasks, much like the plans devised by programmers to get computers to perform a series of "mental operations." Let's look at an example to clarify the usefulness of this approach. In a study of problem solving, a researcher provided a pile of blocks varying in size, shape, and weight and asked school-age children to build a bridge across a "river" (painted on a floor mat) that was too wide for any single block to span (Thornton, 1999). Figure 1.3 shows one solution to the problem: Two planklike blocks span the water, each held in place by the counterweight of heavy blocks on the bridge's towers. Whereas older children easily built successful bridges, only one 5-year-old did. Careful tracking of her efforts revealed that she repeatedly tried unsuccessful strategies, such as pushing two planks together and pressing down on their ends to hold them in place. But eventually, her experimentation triggered the idea of using the blocks as counterweights. Her mistaken procedures helped her understand why the counterweight approach worked.

A variety of information-processing models exist. Some, like the one just considered, track children's mastery of one or a few tasks. Others describe the human cognitive system as a whole

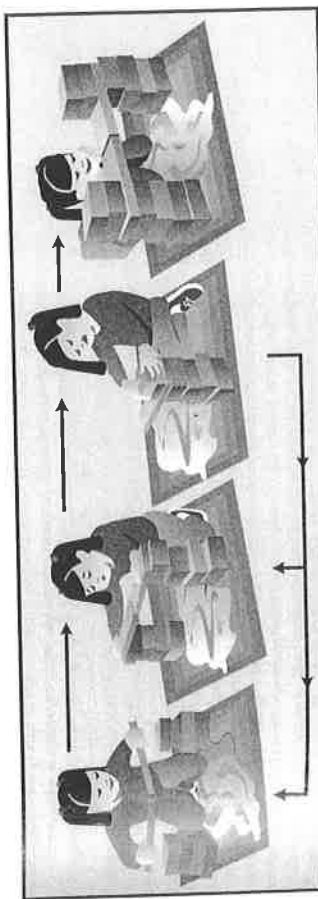


FIGURE 1.3

Information-processing flowchart showing the steps that a 5-year-old used to solve a bridge-building problem.

Her task was to use blocks varying in size, shape, and weight, some of which were planklike, to construct a bridge across a "river" (painted on a floor mat) too wide for any single block to span. The child discovered how to counterweight and balance the bridges. The arrows reveal that even after building a successful counterweight, she returned to earlier, unsuccessful strategies, which seemed to help her understand why the counterweight approach worked. (Adapted from Thornton, 1999.)

consist of rich structures of knowledge. Besides investigating children's understanding of the physical world, Piaget explored their reasoning about the social world. His stages have sparked a wealth of research on children's conceptions of themselves, other people, and human relationships. Practically speaking, Piaget's theory encouraged the development of educational philosophies and programs that emphasize children's discovery learning and direct contact with the environment.

Despite Piaget's overwhelming contributions, his theory has been challenged. Research indicates that Piaget underestimated the competencies of infants and preschoolers. When young children are given tasks scaled down in difficulty, their understanding appears closer to that of the older child and adult than Piaget assumed. This discovery has led many researchers to conclude

that the maturity of children's thinking may depend on their familiarity with the task presented and the complexity of knowledge sampled. Furthermore, many studies show that children's performance on Piagetian problems can be improved with training—findings that call into question Piaget's assumption that discovery learning rather than adult teaching is the best way to foster development. Finally, critics point out that Piaget's stage-wise account pays insufficient attention to social and cultural influences—and the resulting wide variation that exists in same-age children's thinking.

Today, the field of child development is divided over its loyalty to Piaget's ideas. Those who continue to find merit in Piaget's stages often accept a modified view—one in which changes in children's thinking are not sudden and abrupt but take place gradually (Case, 1998; Demetriou et al., 2002; Fischer & Bidell, 1998). Others have turned to an approach that emphasizes continuous gains in children's cognition: information processing. And still others have been drawn to theories that focus on the role of children's social and cultural contexts. We take up these approaches in the next section.



In Piaget's formal operational stage, adolescents can think logically and abstractly. These high school students, who have entered a science competition, must construct a lightweight model tower that can support up to 60 pounds. They solve the problem by thinking of all possible outcomes, not just the most obvious ones. Then they conduct systematic tests and observe their real-world consequences.

Ask YOURSELF

Cite similarities and differences between Freud's and Erikson's views of development.

REVIEW What aspect of behaviorism made it attractive to critics of psychoanalytic theory? How did Piaget's theory respond to a major limitation of behaviorism?

REVIEW A 4-year-old becomes frightened of the dark and refuses to go to sleep at night. How would a psychoanalyst and a behaviorist differ in their views of how this problem developed?

APPLY Although social learning theory focuses on social development and Piaget's theory on cognitive development, each has enhanced our understanding of other domains. Mention an additional domain addressed by each theory.

CONNECT