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2

Theories of Development

Learning Questions

- 2.1** What are basic characteristics of child development theories?
- 2.2** What are the hypotheses and modern applications of the major child development theories?
- 2.3** How do historical and cultural context influence theories of child development?

TEST YOUR KNOWLEDGE

Test your knowledge of child development by deciding whether each of the following statements is *true* or *false*, and then check your answers as you read the chapter.

1. **T** **F** Research cannot tell us whether a theory is true or false.
2. **T** **F** The bulk of your personality is fixed and established by the time you enter adolescence.
3. **T** **F** Freud's psychoanalytic theory is based on outdated ideas, so it is not relevant to the field of child development today.
4. **T** **F** The best way to establish and maintain a behavior is to reward people every time they exhibit that behavior.
5. **T** **F** The best way to get rid of an undesirable behavior in a child is to punish the child for doing it.
6. **T** **F** Young children can learn math more effectively from games such as pick-up sticks than from working out written arithmetic problems.
7. **T** **F** Darwin's concept of the "survival of the fittest" means that the strongest animal is most likely to survive.
8. **T** **F** Infants must have skin-to-skin contact with their mother within the first few hours after birth in order for the infant to bond with the mother.
9. **T** **F** The best way to study children is through carefully controlled experiments in a laboratory setting.
10. **T** **F** A good theory should be universal, applying to all children in all situations.

Correct answers: (1) T, (2) F, (3) F, (4) F, (5) F, (6) T, (7) F, (8) F, (9) F, (10) F

When we observe and work with children and adolescents, we want to make sense out of what we see. The explanations we develop about why children behave in certain ways can become theories. We begin this chapter with a discussion of why theories are an important basis for our understanding of development. We next discuss some of the major theories that have influenced how we understand child development today. Although some of these theories have their origins in the late 19th or early 20th centuries, each also has modern applications that we describe in this chapter. We present these theories here as a broad introduction to the variety of ideas that lie behind modern research and practice with children; however, you will read much more about these and other theories as they are applied to specific topics discussed in the rest of this book.

Why Theories of Development Are Important

>> LQ 2.1 What are basic characteristics of child development theories?

To understand how and why children develop the way they do, it is not enough simply to observe them. Our observations should lead us to explanations that allow us to predict how they will behave. These explanations can be organized into a **developmental theory**. As we said in Chapter 1, we all have our own personal theories about various aspects of human behavior, but the theories that we use to build a scientific understanding about child and adolescent development must be public and testable. Theories in any science serve two important functions: They help us *organize* the knowledge that we already have and they help us *make predictions* that we then can investigate and test.

Most theories can never be proven beyond a shadow of any doubt, but the scientific process allows us to gather evidence that supports or opposes the truth of these ideas. For example, some say Darwin's theory of evolution is not a proven fact, and technically this is true. However, the enormous body of evidence that supports its ideas outweighs the evidence against it. Consequently, evolutionary theory is widely accepted in scientific circles today. On the other hand, other theories have come and gone as evidence piled up that did not fit with the predictions they made. For example, from the 1930s until the 1970s adherents to psychoanalytic theory, which you will learn about in the next section, proposed that inadequate early mothering was the cause

T/F #1

Research cannot tell us whether a theory is true or false. **True**

of the severe mental illness known as schizophrenia (Harrington, 2012). However, as research continued, it became clear that the more likely culprit in the development of schizophrenia is the interaction of genetic endowment and environmental influence (Jaffe et al., 2016). This new understanding had a profound effect on the ways in which help was offered to people with schizophrenia and their families. Instead of blaming the mothers for their child's disorder, therapists now began to build support and work with the families for the benefit of their child, while the child usually received medication designed to alleviate their symptoms (Johnston, 2013). You will learn more about how theories have changed as research evidence confirmed or disconfirmed their ideas when you read the **Journey of Research** features found throughout this book.

Developmental theories differ from one another in several ways. In Chapter 1 you learned that some theories describe development as a series of quantitative changes that happen little by little, smoothly over time, while other theories describe development as a series of large qualitative changes that occur at certain ages and alter the nature of the child or adolescent in significant ways. Another characteristic of different theories is whether they describe developmental change as resulting from internal processes such as biological and cognitive development or from external processes as the environment shapes how children develop. As you read about each theory in this chapter, keep these questions in mind:

1. How does the theory describe development? Does change occur quantitatively, in small steps, or qualitatively, in distinct stages?
2. What drives development? Is it the product of internal processes such as biological and cognitive growth, or environmental influences, or a combination of these factors?

You will be able to check your answers to these questions using Table 2.3 after you have read about the different theories.

CHECK YOUR UNDERSTANDING

Knowledge Questions

1. What two functions do theories serve in science?
2. What are two ways in which theories of development differ from each other?

Critical Thinking

What is the relationship between theory and truth?

Theories of Child and Adolescent Development

>> LQ 2.2 What are the hypotheses and modern applications of the major child development theories?

As we begin this description of developmental theories, it is important to understand that theoretical ideas do not exist in a vacuum. The influential theorists in the field of child development developed their ideas while living in a particular culture at a particular point in history, and their ideas about child development reflect these influences. However, each of these theories has been tested over time, retaining the concepts and principles that continue to be useful, and losing or changing those that don't. In different ways, each of these theories has helped to shape the type of questions we ask, the type of research we conduct, and the interpretation we place on our findings.

We begin with theories developed earliest in the history of the study of child development and end with some of the most recently developed theories. Not all of these theories are the subject of current research, but the section on modern applications that follows the presentation of each theory gives information about how they are being used today.

Psychoanalytic Theory

Psychoanalytic theory (*psyche* = the mind; *analysis* = detailed examination of the parts and structure of something) was the first theory to describe stages of development through childhood. In this theory, developed by Sigmund Freud (1856–1939), biological urges move each person through a series of stages that shape the personality. Although psychoanalytic theory has been very controversial throughout its existence, many of its concepts have become part of our assumptions about how the mind works.

Freud theorized that our personality is made up of three parts: the id, the ego, and the superego. According to Freud, we are all born with an **id**, which consists of our basic instinctual drives. The id seeks immediate gratification for all its urges. Infants want *what* they want, *when* they want it. As children grow older, they become aware of the reality of the world around them and begin to develop the ability to think and control their emotions. This ability to negotiate between the demands of basic drives and the real world is the job of the **ego**. Finally, sometime between the ages of 5 and 7, children begin to incorporate moral principles that work against the drive-motivated functioning of the id. These moral principles are maintained by the **superego**. Freud believed that children do not have any conscience, or internal sense of guilt that guides their actions, until they develop a superego. Figure 2.1 illustrates how these three parts of the personality operate within an individual.

FIGURE 2.1

Id, ego, and superego. In Freud's theory, the id is the part of the personality that wants immediate gratification of all its desires. The ego has the job of finding a realistic way to satisfy those needs. The superego is the part that contains the moral guides and restrictions on those desires.

ID	EGO	SUPEREGO
 <p>iStock/anatols</p> <p>"I want to eat all this candy—right now!"</p>	 <p>iStock/pick-uppath</p> <p>"Lots of candy will make me sick. One lollipop will be all right."</p>	 <p>iStock/soleg</p> <p>"A good girl wants to eat vegetables, not candy."</p>



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Freud's latency stage. Does this photo of boys interacting with boys and girls interacting with girls remind you of your experience in elementary school?

Freud's Psychosexual Stages

Freud believed our most basic drive is the sex drive. If you believe that biologically the goal of our lives is to pass on our genes, then you might agree with Freud that the sex drive is central to everything else. Along with this, Freud believed that many of our thoughts and feelings about sexuality are hidden in our **unconscious mind**, the part of our mind of which we are unaware. He outlined five stages in child and adolescent development, which he called **psychosexual stages**. At each of these stages, sexual energy is invested in a different part of the body, and gratification of the urges associated with those areas of the body is particularly pleasurable. Freud believed that the way these urges are handled during each of these stages determines the nature of an adult's personality and character.

During the **oral stage** (birth to about 18 months of age) infants derive a great deal of satisfaction from activities that stimulate their mouth, lips, or tongue. This is why they often immediately put anything they get their hands on into their mouth. During the **anal stage** (18 months to 3 years) the pleasure center moves to the anus, and issues of toilet training become central. Children's task at this age is to learn to control their bodily urges to conform to society's expectations. During the **phallic stage** (3 to 6 years) sexual energy becomes focused on the genitals. Boys and girls develop what has been called "the family romance." Boys imagine marrying their mother when they grow up and girls imagine marrying their father. To move on to the next psychosexual stage, children must learn to give up these desires and begin to identify with, or want to be like, the parent of the same sex.

The **latency stage** occurs between 6 and 12 years of age. *Latent* means inactive, and Freud (1953) believed that during this time the sex drive goes underground. Children move from their fantasies in the phallic period of marrying their parent to a new realization that they must take the long road toward learning to become a grown-up. The sex drive provides energy for the learning that must take place, but the drive itself is not expressed overtly. Children transfer their interest from parents to peers (Freud, A., 1965). At this age children who had cross-sex friendships often relinquish them as each sex professes disgust for the other. This separation of the sexes begins to change at about age 12, when young adolescents enter the **genital stage**. At this point, sexual energy becomes focused on the genital area, and a more mature sexual interest develops between peers.

Erikson's Psychosocial Stages

Many followers of Freud further developed aspects of his theory, but one of the most influential was Erik Erikson (1902–1994). Erikson believed that issues of the ego are more important than those linked with the id and instinctual drives. He believed that the development of identity is the central issue for children and adolescents. At each stage in his theory a conflict arises rooted in the social experiences typical at that stage of development. For this reason, Erikson's theory is said to describe **psychosocial stages** (as compared to Freud's *psychosexual stages*). The way in which children resolve the conflict at each stage lays the groundwork for the next stage of their development.

For example, Erikson believed that infants have to establish trust in the world around them, so he called the developmental issue for infants *trust versus mistrust*. Infants are totally dependent on the adults who care for them. When their caregivers are dependable and reliably meet the infants' needs, they learn to trust the world and feel safe and secure in it. However, when caregivers are inconsistent in providing care or are emotionally unavailable, infants develop a sense of mistrust in the world. These early experiences can color the way the individual approaches social relationships later in development. In a similar way, each subsequent developmental stage presents a different developmental conflict. For instance, the way infants resolve the issue of trust versus mistrust sets the stage for the way they will go on to deal with issues of

autonomy versus shame and doubt as they become more independent from their parents in the next stage.

Of course, none of us has a completely positive or completely negative set of experiences; therefore, we can think of the two possible outcomes of each stage as two sides of a seesaw, with one side higher than the other but both actively in play. For example, we will all have some trust and some mistrust in our relationships; it is the balance of the two that lays the foundation for later development.

The other important aspect of Erikson's theory is that he believed development does not stop in adolescence. He went beyond Freud's stages to add three stages of adulthood. He was the first theorist to recognize that we continue to grow and develop throughout our lives. Erikson's eight psychosocial stages are described briefly in comparison to Freud's psychosexual stages in Table 2.1.

T/F #2

The bulk of your personality is fixed and established by the time you enter adolescence.
False

Modern Applications of Psychoanalytic Theory

While some concepts in psychoanalytic theory have been supported by research, others have not. Although Freud's psychoanalytic theory has been controversial, ideas that come from it are still very influential, particularly in the study of mental and emotional disorders (for example, see Behrendt, 2012). Many psychotherapists continue to use therapy based on Freud's idea that inner conflicts from earlier life experiences, especially early trauma, form the basis for later psychological symptoms, and bringing those inner conflicts from the unconscious mind into consciousness is therapeutic.

T/F #3

Freud's psychoanalytic theory is based on outdated ideas, so it is not relevant to the field of child development today. **False**

TABLE 2.1

A comparison of Freud's and Erikson's stages of development.

AGES	FREUD'S PSYCHOSEXUAL STAGES		ERIKSON'S PSYCHOSOCIAL STAGES	
Infancy	Oral	Pleasure is focused on the mouth and "taking in."	Trust versus mistrust	Infants develop trust in their caregivers and in their own ability to cope or they develop a sense of hopelessness.
Toddlerhood	Anal	Pleasure is focused on the anal region and control of one's own body and its products.	Autonomy versus shame and doubt	Toddlers begin to take control of their own activities but if thwarted they hold back.
Early Childhood	Phallic	Pleasure is focused on the genital area; development of the "family romance."	Initiative versus guilt	Children display exuberant activity or they show overcontrol of their behavior.
Middle Childhood	Latency	Sexual energy goes underground as children focus on peers and learning.	Industry versus inferiority	Children learn the tasks of society or they develop a sense of inadequacy.
Adolescence	Genital	Sexual energy reaches adult level, with focus on intimate relationships.	Identity versus role confusion	Adolescents integrate previous experiences to form an identity or they feel confusion about their role in society.
Early Adulthood			Intimacy versus isolation	Young adults develop an ability to form close relationships or they fear and avoid relationships.
Middle Adulthood			Generativity versus stagnation	Older adults guide the next generation or they are preoccupied with their own needs.
Later Adulthood			Ego integrity versus despair	Seniors achieve a sense of meaning in life or they feel their life has not been worthwhile and they fear death.

Sources: Compiled from Kahn (2002) and Erikson (1963).



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Toddlerhood: Autonomy versus shame and doubt.

According to Erik Erikson, toddlers develop a sense of autonomy or being able to do things on their own when supported and encouraged by their parents. However, when adults are overly critical or impatient, toddlers can feel shame and doubt in their abilities.

On the other hand, Freud's theory is not frequently the subject of current research in child development.

Erikson's ideas also have remained influential because they reflect many of the ways we think about development today, as outlined in Chapter 1. The role Erikson gives to the influence of culture, the environment, and social experiences on development fits well with our current interest in understanding the contexts in which development occurs. His portrayal of the child as an active participant in shaping his or her own development and the incorporation of both change (as reflected in different crises in each of the stages) and stability (as seen in the idea that later stages continue to be influenced by the resolution of earlier issues) also dovetails with our current thinking. Research has shown

that successfully resolving the developmental crises at each of Erikson's stages has been linked to resilience, including the ability to cope with stress (Svetina, 2014). Throughout this book you will read more about resilience and stress as it affects children throughout infancy, childhood, and adolescence. Erikson's theoretical ideas continue to be influential because they have been used as a framework for parenting advice (Fletcher & Branen, n.d.) and in the treatment of children with emotional disturbance (Turns & Kimmes, 2014).

CHECK YOUR UNDERSTANDING

Knowledge Questions

1. What are the three parts of the personality according to Freud?
2. What drive does Freud say is most important for human development?
3. How do the stages in the theories of Freud and Erikson differ?

Critical Thinking

Many toddlers can be quite stubborn, resulting in what is often called the "Terrible Twos." How do you understand this behavior from the different points of view of Freud and Erikson?

Learning Theories

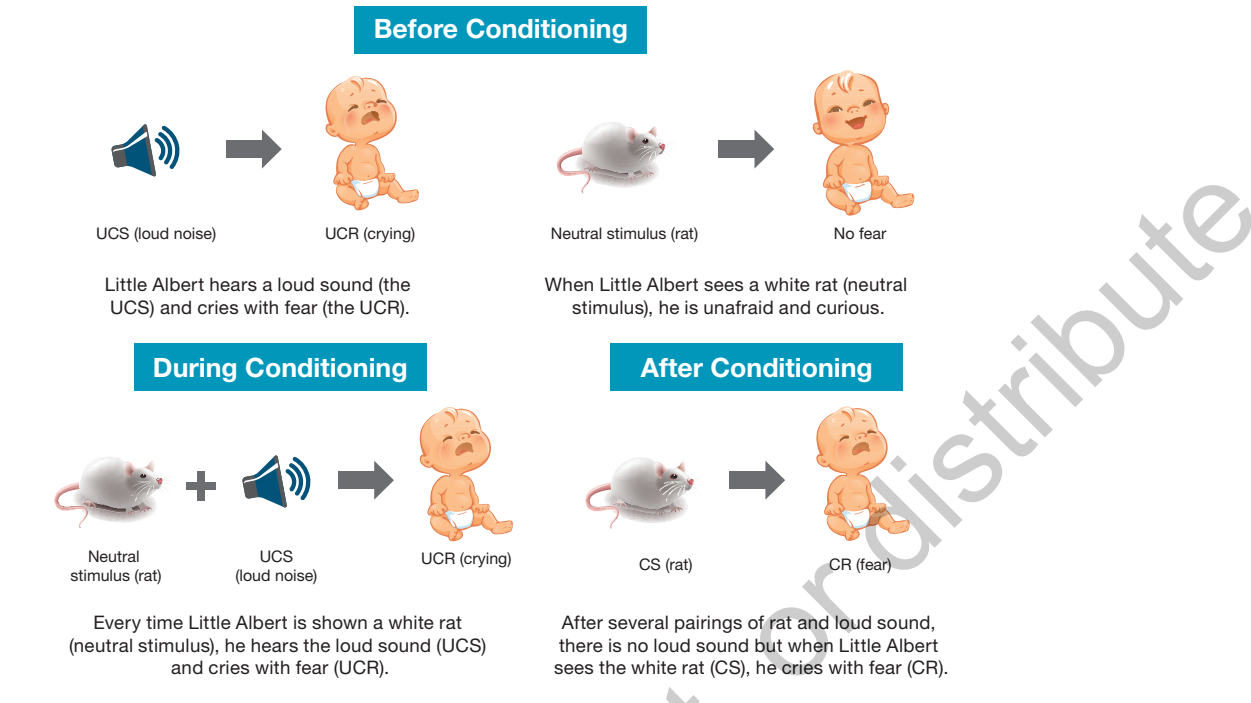
A very different school of thought about how children develop is offered by the learning theories. Whereas psychoanalytic theory focuses on internal processes of the mind, the learning theories focus on observable behavior. These theories are based on the link between the stimulus (an event in the external environment) and the response of the child. In the following sections, we describe the theories known as behaviorism (which is based on principles of classical conditioning and operant conditioning) and social cognitive theory (which is based on principles of modeling and imitation).

Watson and Classical Conditioning

John B. Watson (1878–1958) is the father of the theory he called **behaviorism**. He concentrated on what he could see: behavior, or what people *do*. The modern academic field of psychology was just emerging, and psychologists in America were trying hard to establish the field as an experimental science, with testable predictions based on observable phenomena rather than unseen concepts such as Freud's unconscious mind.

FIGURE 2.2

Classical conditioning



Watson studied the ways in which the environment influences human behavior. He drew upon earlier work by the Russian physiologist Ivan Pavlov on a process called **classical conditioning** and carried out an experiment with a 9-month-old infant known only as Little Albert. Applying the principles of classical conditioning, Watson demonstrated that he could produce fear in a human infant in response to a particular stimulus (Watson & Rayner, 1920).

Watson found that Little Albert, like many infants, was frightened by sudden, loud sounds. However, he was not frightened when Watson showed him a white rat. You can think of conditioning as a type of learning, so when we refer to something as unconditioned, it means you don't have to learn it because your response is automatic. For Little Albert, the loud sound was an unconditioned stimulus (UCS) because his fear was automatic, an unconditioned response (UCR). Watson then carried out the process of classical conditioning by making the loud sound every time he showed Albert the white rat. Little Albert cried because of the loud sound, but soon began to express fear by crying as soon as he saw the white rat. Eventually Watson stopped making the loud sound, and yet every time he showed Little Albert the white rat, the infant continued to show fear. In this process, the white rat became the conditioned stimulus (CS) and Albert's fear of the white rat became the conditioned response (CR). The fear also generalized to other furry creatures. Figure 2.2 illustrates the process of classical conditioning.

It's easy to think of examples of classical conditioning in everyday life. A child who gets sick after eating asparagus may later find that just seeing asparagus brings on a queasy feeling. The sick feeling has become classically conditioned to the sight of that vegetable. Classical conditioning can also instill positive feelings. To check whether you understand the steps of the classical conditioning process, try **Active Learning: Understanding the Process of Classical Conditioning**.

ACTIVE LEARNING

Understanding the Process of Classical Conditioning

Read the following paragraph and then answer the questions below.

Every time your roommate leaves the room he says "Goodbye!" and loudly slams the door, making you flinch. After this happens a number of times, your roommate says to you, "Gotta go now. Goodbye!" and you realize that you are flinching even before you hear the door slam. Can you identify all the elements in this classical conditioning paradigm listed below?

Unconditioned stimulus (the stimulus that naturally is tied to a response that you can't control):

Answer: Originally, the unconditioned stimulus always produces the unconditioned response. In this case, the slamming door made you flinch, so the slam is the unconditioned stimulus and the flinch is the unconditioned response. However, over time the slam has been paired with your roommate saying "Goodbye!" You didn't originally flinch when he said it, so goodbye was originally a neutral stimulus. With repeated pairings with the slamming door, goodbye has become a conditioned stimulus and your flinch has become a conditioned response to hearing "goodbye."

Unconditioned response (the response that is automatic):

Conditioned stimulus (the stimulus that is paired with the unconditioned stimulus):

Conditioned response (the response you have learned):

One of the dangers of this type of learning is that once a negative conditioned (or learned) response has been established, people understandably avoid the stimulus that produces the unpleasant response so they don't have the opportunity to find out that they really have nothing to fear. If you once get very sick after eating asparagus, you avoid it in the future and never find out that it had nothing to do with your illness. Classically conditioned fears can be so powerful that they begin to limit what people who experience them are able to do. This type of unreasonable fear is called a **phobia**.

People who experience phobias go to extremes to avoid the object of their fears, but psychologists can use classical conditioning to treat phobias by exposing patients to their feared situations in a controlled way. This idea began when Mary Cover Jones (1924) followed Watson's experiment with Little Albert with a study of a 2-year-old boy who seemed to have the exact phobias of rats, rabbits, and other furry objects

that Watson claimed he had conditioned into Little Albert. Jones was able to undo these fears by *deconditioning* the child; she presented him with candy at the same time a rabbit was brought to him and encouraged imitation when he saw another child holding the rabbit. Today, people who are being deconditioned are first trained in relaxation techniques. Next they are exposed to the object or situation they fear in a series of gradual steps from least frightening to most frightening, and they use their relaxation techniques to reduce their anxiety at each step until the stimulus no longer evokes the fear response.

Modern Applications of Classical Conditioning

Today, virtual reality is being used in the treatment of children with anxiety disorders to expose them to feared

stimuli in a controlled way they can tolerate. Although the amount of research on this approach has been limited, it has been shown to be helpful for children with fears as different as school phobias and phobias of spiders (Bouchard, 2011; Bouchard, Weiderhold, & Bossé, 2014). Rather than placing the child in a completely virtual environment, it is now also possible to add images of feared elements, such as a spider, to a child's view of the real environment, a technique that is known as *augmented reality* (Baus & Bouchard, 2014). This is a promising new way to treat phobias.



Treating phobias with augmented reality. If you had an unreasonable fear of spiders, exposure to this realistic image of a spider projected onto your hands while you use relaxation techniques could help to overcome that fear.

Skinner and Operant Conditioning

B. F. Skinner (1904–1990) further developed the theory of behaviorism by introducing the idea of **operant conditioning**. While studying rat behavior he noticed that the rats were affected not by what came before their behavior, as was true of classical conditioning, but by what came after (Vargas, 2005). He concluded that spontaneous behaviors are controlled by the environment’s response to them. He defined a **reinforcement** as anything that occurs after a behavior that increases the likelihood that the behavior will continue or happen again.

Reinforcement can be either positive or negative, but both types make a behavior more likely to happen. While it is easy to think of examples of positive reinforcement, understanding negative reinforcement is more difficult. **Positive reinforcement** occurs when you get something you want and like. **Negative reinforcement** occurs when something you find disagreeable is removed following a behavior. For example, when a parent picks up a crying baby and the baby stops crying it becomes more likely the parent will respond this way again when the baby cries. Figure 2.3 illustrates the difference between these two types of reinforcement.

FIGURE 2.3

Illustration of positive reinforcement and negative reinforcement

Positive Reinforcement	
	
Positive reinforcement makes a behavior more likely to continue. Awarding a trophy for academic performance will make it more likely this boy will continue to work hard in school.	
Negative Reinforcement	
	
Negative reinforcement also makes a behavior more likely to continue. Listening to a crying baby is difficult. When this mother finds that holding her baby stops the crying, she is likely to continue to hold her baby.	

Skinner described several concepts related to reinforcement that help us understand how the process works. One is the process of **shaping behavior**. You cannot reinforce a behavior unless that behavior occurs. For example, you cannot reinforce positive peer interaction if a child does not interact with his peers. However, Skinner showed that a behavior could slowly be “shaped” through reinforcement of behaviors that progressively get more and more like the behaviors desired. To shape the behavior of a child who does not interact with peers, you could begin by rewarding the child when he is simply near another child. The next step might be to reinforce the child only when he looks at the other child, and finally the reinforcement might only be provided when he speaks while looking at the child. Eventually, the reward would be contingent only on true interaction with a peer.

If reinforcement increases the likelihood that a behavior will occur, you might think that the most effective way to establish and maintain a behavior would be to reinforce a child every time she performs that behavior. However, although continual reinforcement does a great job of establishing a behavior, when the reinforcement stops the behavior is likely to stop as well. Skinner found that less frequent reinforcement is more effective for maintaining a behavior. For example, gamblers at a slot machine are reinforced with winnings on a random schedule, and this is very effective at prolonging how long they stay and gamble.

You can test the effects of reinforcement by trying **Active Learning: Reward Yourself!**

T/F #4

The best way to establish and maintain a behavior is to reward people every time they exhibit that behavior.

False

ACTIVE LEARNING

Reward Yourself!

Of course, you already know that reading your textbook helps boost your grades (and presumably increases your learning). Although grades themselves are a form of reinforcement, they are quite long-term, and many people need a more immediate reinforcer to do what is needed to achieve them. If you are someone who does not stay current with your class readings, set up a reinforcement program for yourself. First, keep track of how many pages of reading you are currently doing in a week. Next, choose a reward you

know to be effective for you and keep track of your progress when you consistently reward your reading. For example, see how many pages you should be reading during a given week. For every 5 or 10 pages that you read, give yourself a treat, such as listening to one or two of your favorite songs. Again, keep track of the number of pages you are reading during a week. Did you end up reading more when you gave yourself a reinforcement that depended upon your behavior?

If reinforcement increases the likelihood of a response, **punishment** is intended to decrease it. Punishment consists of administering an undesirable consequence (such as a spanking) or taking away a desired consequence (such as “no dessert because you didn’t eat your dinner”) in response to an unwanted behavior. However, Skinner (1953) believed that a more effective way to control behavior is to ignore undesirable behavior rather than punish it, a process he called **extinction**. For example, if a child is looking for any response from a parent, even yelling or spanking when the child misbehaves may unintentionally reinforce the undesirable behavior because the child is getting the parental attention that she wants. In this case, ignoring the child when she misbehaves, but giving her attention when she behaves well, should help extinguish the misbehavior. Figure 2.4 shows examples of punishment and extinction. You will read more about problems associated with the use of punishment in Chapter 13.

T/F #5

The best way to get rid of an undesirable behavior in a child is to punish the child for doing it. *False*

Modern Applications of Operant Conditioning

An approach called **applied behavior analysis (ABA)**, based on operant conditioning techniques, is used with children in schools (Zoder-Martell, Dieringer, & Dufrene, 2017) and with children in special populations to increase adaptive behaviors and decrease maladaptive ones (Irwin & Axe, 2019). A therapist first observes a child to determine where, when, and how often a problematic behavior is occurring and then identifies the rewards or reinforcements the child is getting from it. After setting a goal for reducing the problematic behavior, the therapist implements changes in the child’s environment that reduce the unintended reinforcement of the undesired

FIGURE 2.4

Punishment and Extinction

Punishment 1: Negative consequence—This boy receives a scolding for misbehaving.

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Punishment 2: Removal of a reward—This boy didn't eat his dinner, therefore he doesn't receive dessert.

iStock/LumiNola



Extinction: Ignoring temper tantrums leads to a decrease in their occurrence.

iStock/snapphoto



behavior and contingently reinforce desired behavior. For example, a child might be annoying peers in a classroom because it gets him sent to detention, where he doesn't have to do his classwork. In this case, the way this behavior was being dealt with was unintentionally rewarding the misbehavior by getting the student out of doing his work. The intervention might be that the classroom teacher ignores the misbehavior whenever possible so the behavior isn't reinforced, or there are negative consequences for it, such as being required to do something else the child doesn't like to do when he is not doing his classwork. At the same time, the child would receive reinforcements such as positive attention or small rewards for appropriate behaviors, such as when the child is paying attention to his work. This procedure has been used

successfully with autistic children to improve IQ, language, and sociability (Irwin & Axe, 2019), as well as to reduce behavioral problems in children with multiple disabilities (O'Mea, 2013).

Bandura and Social Cognitive Theory

Albert Bandura, who was originally trained as a behaviorist, was dissatisfied with some of the ideas that grew out of behaviorism because it is difficult or impossible to identify either stimuli or reinforcements for the entire range of human behavior. Bandura (1986) proposed that, in addition to classical and operant conditioning, we learn through imitation. He believed that people can learn new behaviors simply by watching others rather than by receiving direct reinforcement of their own behaviors from the environment.

Bandura's earliest work showed how children can learn by direct observation. In his classic experiment, one group of children observed a videotape of an adult acting aggressively to a Bobo doll (a large inflated figure of a clown that is weighted on the bottom), hitting it, kicking it, throwing it, and striking it with a toy hammer (Bandura, Ross, & Ross, 1963). These children and another group of children who had not seen the video were then brought individually into a room containing the Bobo doll and other toys. The children who had seen the adult attacking the Bobo doll were much more likely to imitate the adult's violent behavior in the video. In contrast, the children who hadn't seen the adult model attacking the Bobo doll were less likely to carry out these aggressive acts. Bandura concluded that observing a model may provoke a more generalized response based on the children's understanding of what was happening. In this case, they may have specifically seen the adult hit the Bobo doll, but they also understood that the generalized idea was to be aggressive to the doll.

Bandura initially called his theory a *social learning theory* because the learning occurs as the result of watching other people, but he later placed greater emphasis on the cognitive, or thinking, aspects of behavior development. He renamed his theory **social cognitive theory** to emphasize that all experiences that people have in their environment are filtered through the way they think about them.



Albert Bandura

Bandura's experiment on modeling. What did this boy and girl learn by watching the adult in the film at the top?

Modern Applications of Social Cognitive Theory

In more recent years, Bandura's research based on social cognitive theory has focused on **self-efficacy**, or "the core belief that one has the power to influence one's own functioning and life circumstances" (Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001, p. 125). The concept of self-efficacy is related to the field of positive psychology, described in Chapter 1. The focus is on what people can accomplish rather than what their limitations are. Using social cognitive theory, interventions have been developed to promote self-efficacy. For example, in Mexico, a television drama series was developed that addressed issues of illiteracy, showing people struggling at first, but then successfully reading. At the end of the series, a well-known actor told viewers about a self-study program for literacy development. The next day 25,000 people showed up to enroll in the program (Bandura, 2008). Clearly, people felt more positively about their ability to learn to read after observing a model doing so successfully.

CHECK YOUR UNDERSTANDING

Knowledge Questions

1. According to behaviorism, what is the most important influence on human behavior?
2. How are classical and operant conditioning similar and how are they different?
3. What is the basic learning principle of social cognitive theory?

Critical Thinking

Identify a behavior in a child that you think needs to be changed (for example, leaving clothes on the floor). Describe how you could use shaping to move this behavior toward what you wanted it to be.

Theories of Cognitive Development

The following theories focus on cognition, consisting of processes of the mind, including thinking and learning. We introduce these theories here and then examine them further in Chapter 7, where we discuss cognitive development.

Piaget's Cognitive Developmental Theory

Jean Piaget (1896–1980) was a Swiss scientist who studied children's thinking using what is called the *clinical method*. He encouraged children to talk freely in response to his interview questions and learned about their thoughts from a detailed analysis of what they said (Piaget, 1955/1973).

Piaget believed we are constantly learning about and adapting to our environment by organizing the world in ways we can understand. The units we use to organize our understanding are called **schemas**. They consist of a concept and all the associations to that concept that we have developed through our past experiences. For example, we all have a schema for gender, which contains all the expectations and associations we activate when we see women and men.

According to Piaget, adaptation consists of two processes: assimilation and accommodation. In **assimilation**, we take new information and put it into an existing schema, whether it really fits there or not. Take the example of a little boy who goes to the zoo and sees an elephant for the first time. He turns to his mother and says, "Look, it's a big doggy with two tails." This child does not have a schema that helps him make sense of an animal with both a trunk and a tail, so he tries to fit this new experience into one of his existing concepts. Will he always think the elephant is a strange dog? Of course not, and this is where the process of **accommodation** comes in. As his mother points out the



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Accommodating new information. This boy might think this elephant is a big dog the first time he sees it, but he will soon learn it is a new type of animal and will accommodate his thinking to include the category of elephant.

T/F #6

Young children can learn math more effectively from games such as pick-up sticks than from working out written arithmetic problems.

True

unique features of an elephant, the child accommodates this new information by creating a new schema, one for elephants. In Piaget's theory, a process he called **equilibration** is the constant seesaw between assimilation and accommodation. As we have new experiences and learn new things about the world, we assimilate new information into existing schemas when we can, but if the new information cannot be assimilated, it throws us into a state of disequilibrium. We then need to change our schemas to accommodate the information, so we can return to a state of equilibrium.

Like Freud and Erikson, Piaget believed that children change in qualitative ways from one age period to the next. The stages that he described are based on the way he believed children thought about and understood the world at each age level. In his theory, children are not just less knowledgeable than adults; rather, they think in qualitatively different ways at each developmental stage. Piaget described four stages of cognitive development: sensorimotor, preoperational, concrete operations, and formal operations. We describe these stages when we examine Piaget's theory in more depth in Chapter 7.

Modern Applications of Piaget's Theory

Criticism of Piaget's theory has focused largely on the methodology he used and his conclusions about when children enter each of the stages in his theory, but his greatest legacy may lie in his concept of **constructivism** (Newcombe, 2011). Remember that in Chapter 1 we talked about the issue of whether children are passive recipients of environmental influences or active participants in their own development.

Piaget believed that children are active learners, always working to *construct* their understanding of the world. Many teachers use Piaget's ideas as the basis for their teaching style (Hinde & Perry, 2007), and research in this area is ongoing. For example, Kamii and Rummelsburg (2008) gave first-grade students math-related activities to explore (such as pick-up sticks and group-based arithmetic games) instead of traditional math assignments (such as, "What is $2 + 2$?"). At the end of the year, these students scored higher on tests of mental arithmetic and logical reasoning than did similar students who had received teacher-directed, pencil-and-paper instruction. Active engagement in these activities encouraged the children to think about numbers rather than just repeating what they were told (Kamii, 2014).

Piaget also emphasized that physical, bodily activities during infancy are the basis for development of thought. This idea has appeared in recent years as part of the concept of **embodied cognition** (Kontra, Goldin-Meadow, & Beilock, 2012). In embodied cognition, thought and behavior are the outcome of a "conversation" among multiple "speakers," including the brain, activity of the body, and environmental stimuli and effects (Marshall, 2016). If you think of a conversation you have had with a group of friends, generally there is not one person who controls the conversation. Instead, each person shapes the topics, direction, and flow of the interaction. In similar fashion, embodied cognition models a complex interaction of many factors that all contribute to the flow and development of human thought and behavior.

Vygotsky's Sociocultural Theory

Lev Vygotsky (1896–1934), a Russian psychologist, had somewhat different ideas about cognitive development, emphasizing the importance of the social world and of culture in promoting cognitive growth. According to Vygotsky (1962/1986), learning first takes place in the interaction between people, then the individual internalizes that learning and it becomes a part of his own independent thinking.

Vygotsky was more interested in how a child's level of understanding could grow than in how the child currently functioned. He believed that looking at what the child is capable of learning in interaction with a skilled helper is a better indicator of his

level of cognitive development than just testing what he already knows. He developed the concept of the **zone of proximal development**, defined as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978a, p. 86).

Proximal refers to being near or close. A good teacher first determines what children already know and then challenges them to learn something near enough to what they already know so that they will be able to make sense of it, a process called **scaffolding**. A scaffold is a structure put around a building to allow people to work on it. In Vygotsky’s concept, adults help the “construction” of the child’s understanding by providing guidance and support (the scaffolding). Just as the scaffold comes down when a building is completed, so too the adult can step back when the child fully understands. For example, a 2-year-old may need you to hold her hand on the handle of a jack-in-the-box to make it play, but by age 3 she is likely to be able to do it by herself. Your input is no longer needed, and your “scaffolding” can come down. You will learn more about Vygotsky’s ideas in Chapter 7.

Modern Applications of Vygotsky’s Theory

Like Piaget’s theory, Vygotsky’s ideas have had a powerful influence in the field of education. One specific educational practice that developed out of Vygotsky’s ideas is known as **dynamic assessment**. In this approach, instead of testing what a child knows or can do at one particular time, the instructor asks a question to assess the child’s understanding of a concept. When a child answers the question incorrectly, the instructor starts with the most indirect help, such as a suggestion that the child think about whether he has seen a problem like this before. If this help is not enough, the adult will increase the level of direction, potentially ending by giving and explaining the correct answer. Some children will only need the small suggestion, while others need a more direct approach (see Alavi & Taghizadeh, 2014; Petersen, Chanthongthip, Ukrainetz, Spencer, & Steeve, 2017). We discuss this and other educational strategies based on Vygotsky’s theory in more detail in Chapter 8.

Information Processing

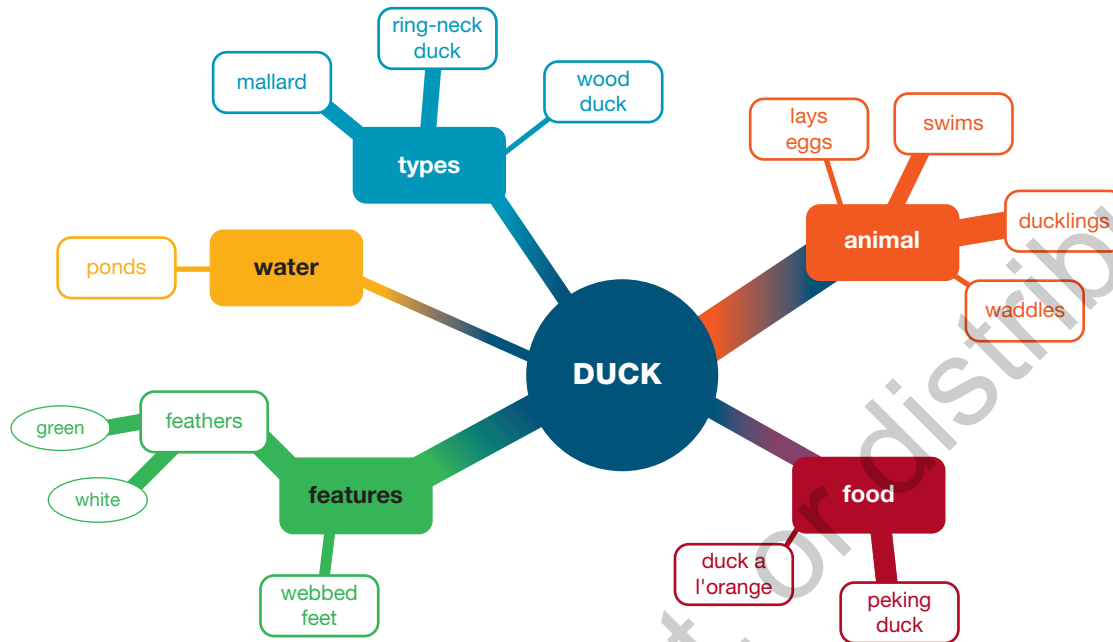
Whereas Piaget and Vygotsky provide more global concepts about cognition and its development, information processing theory breaks down the way we understand and use information into specific aspects of cognition, such as attention and memory. The earliest approach to information processing described cognition as a series of linear steps. First we pay attention to something, then we process or think about it, then we store it in memory where we can later retrieve and use it. This has been referred to as the **stores model** and is based on a view of the mind as functioning like a computer. However, the more we learn about cognition, the more complex it appears to be. In particular, the assumption that cognition is a linear, sequential process has been questioned.

A more current model is called the **connectionist** or **neural network model**. This way of thinking about information processing more closely reflects our current understanding that brain function consists of neurons, or nerve cells, operating through multiple simultaneous connections with other neurons. Instead of a sequential, step-by-step process, the connectionist approach models cognition as multiple, parallel processes occurring at the same time.

Using this model, you can think of memory as a neural network that consists of concept nodes interconnected by links, as shown in Figure 2.5. For example, when we see a white duck, different concept nodes may be activated. One node can represent a specific concept (*white*), one can represent a higher-order concept (*duck*), and one can represent a superordinate concept (*bird*), depending on how the neurons are activated (Robinson-Riegler & Robinson-Riegler, 2008). The concept nodes are analogous to nerve cells, or neurons, in the brain, and the links are connections between individual neurons. When information is stored in memory, it becomes a new node that is connected to other nodes in the network. Although each node is connected in some way to other pieces of information in our memory, the strength of these connections can vary, and learning involves changing the strength of these connections. When input comes into the system

FIGURE 2.5

Neural network model of memory. In the neural network approach to information processing, concepts are made up of information (or nodes) and the links that connect that information to represent a concept. The width of the links in this figure represents the strength of each connection.



(for example, the sight of a bird in flight), certain nodes are activated. If the links between those nodes are strong enough, the output is a concept (in this case, *bird*).

Unlike Piaget, who saw qualitative changes occurring in the way children think as they move from one stage to another, information processing looks at the gradual development of cognitive processes. In Chapter 7 you will read about recent research that examines development of attention, memory, and other processes through which we make sense of our world. You will also find related topics throughout the book. For example, the topic of social cognition, or how thinking is applied to social situations, appears in Chapter 12, where we discuss social development.

Modern Applications of Information Processing

Information processing theory has led to an enormous amount of research on growth and changes in cognitive processes during childhood and adolescence. A major advance in the study of cognitive development is the ability to link cognitive processes with changes in both the structure and the function of the brain and nervous system through the use of modern medical imaging technologies. This area of study, known as **developmental cognitive neuroscience**, allows us to understand how the developing brain both promotes and limits certain cognitive abilities. For example, the ability to think in an abstract way, rather than dealing only with the concrete world around us, develops throughout adolescence. Brain imaging studies have shown changes during adolescence in the activation of parts of the brain that deal with aspects of abstract thought (Dumontheil, 2014). Such studies support the idea that the immaturity of the adolescent brain limits cognitive abilities. Therefore, teachers, judges, and others should not expect teens to operate at the same level as adults. You will learn more about brain development and its relation to cognitive development in Chapters 6 and 7.

CHECK YOUR UNDERSTANDING

Knowledge Questions

1. According to Piaget, how do children construct their knowledge of the world?
2. How does dynamic assessment of children's abilities differ from traditional types of assessment?
3. How do the stores model and the connectionist model of information processing differ?

Critical Thinking

How might a 4-year-old, an 8-year-old, and a 16-year-old explain what makes plants grow? What do these differences show about how cognition develops?

Evolutionary Theory: Ethology

Charles Darwin's theory of evolution is based on the idea that living things that adapt to their environment, not necessarily the ones that are the biggest or strongest, are more likely to pass on their genes to the next generation. His focus was largely on physical characteristics, but the basic idea that human behavior that has adaptive value will persist is central to the field called ethology. Konrad Lorenz (1903–1989) is considered the father of modern **ethology**, which is the study of the adaptive value of animal and human behavior in the natural environment. As a zoologist studying animal behavior in Munich, Germany, Lorenz found that ducks and geese would *immediately* follow their mothers after they were born. This automatic behavior, called **imprinting**, is adaptive because the mother provides her offspring with food and protection from predators. If a newborn animal didn't do this, it would be unlikely the animal would survive to pass along its genes to the next generation. Lorenz showed that this behavior was innate and not learned. When he removed the mother goose, the newly hatched geese responded to him in the same way they would have responded to the mother goose by following him.

Some researchers attempted to apply the idea of imprinting to human behavior by claiming that infants must have skin-to-skin contact with their mother within the first few hours after birth for bonding, or love, to develop. Like many direct applications of animal behavior to humans, this has turned out not to be the case

T/F #7

Darwin's concept of the "survival of the fittest" means that the strongest animal is most likely to survive. **False**

T/F #8

Infants must have skin-to-skin contact with their mother within the first few hours after birth in order for the infant to bond with the mother. **False**



Konrad Lorenz and imprinting. Konrad Lorenz observed the behavior of geese (left) and demonstrated the presence of imprinting by removing the mother goose immediately after the babies were born and substituting himself. The goslings then followed him as though he were their mother (right).

Shutterstock/Shannon Jordan; Getty/Nina Leen

(Streep, 2015). Animal behavior can give us some ideas about human behavior, but the direct application of one to the other is usually too simplistic. Although there is no evidence for the concept of bonding in human beings, ethological principles contributed to our understanding of the slower, less automatic development of attachment between infant and parents during the first year of life. You will learn more about attachment in Chapter 10.

Modern Applications of Evolutionary Theory

A modern approach called *evolutionary developmental psychology* applies the principles and ideas of evolutionary theory specifically to questions of how and why children develop as they do (Frankenhuis, Panchanathan, & Nettle, 2016). Children's behavior (such as aggression, altruism, and attachment) is seen as an adaptation to the environment in two ways: (1) It is adaptive because it is a preparation for adult life, and (2) it is adaptive at their own stage of development and in their specific life circumstances.

One example of research based on an evolutionary developmental approach has focused on the age of onset of puberty in girls. Although puberty is largely controlled by genes, this research has shown that girls enter puberty at earlier ages when their parents have a high level of conflict with little support or satisfaction in their marriage, when their father is absent or severely dysfunctional, or when they have an insecure relationship with their mother at age 15 months (Belsky, Houts, & Fearon, 2010; Webster, Graber, Gesselman, Crosier, & Schember, 2014). Evolutionary developmental psychologists point to the idea that a girl with a dysfunctional childhood may not be able to count on reaching adulthood successfully; therefore, early puberty is an adaptation to her environment that may ensure that she will be able to pass on her genes by enabling her to get pregnant earlier in life.

CHECK YOUR UNDERSTANDING

Knowledge Questions

1. What role does adaptation play in the theory of evolution?
2. How do the processes of animal imprinting and human attachment differ?
3. Why might it be adaptive for a girl who has insecure family relationships to develop puberty at an earlier age?

Critical Thinking

If human infants do not automatically imprint on their mothers as some animals do, what behaviors do they have that ensure their parents will become attached to them and care for them?

Ecological Systems Theory

We tend to think of the study of ecology as focusing on plants and animals and their relationships to the environment, but in the 1970s, Urie Bronfenbrenner (1917–2005) applied the idea of the interaction of organisms with their environment to the field of developmental psychology to create a human **ecological systems theory**. Using this framework, he defined development as a function of the “interaction between the developing organism and the enduring environments or contexts in which it lives out its life” (Bronfenbrenner, 1975, p. 439). Bronfenbrenner believed we cannot understand the life course of an individual without understanding how that person interacts with all the different facets of his environment. He also believed that this is a dynamic process. All aspects of the environment affect the individual, and the individual affects all aspects of his environment.

Bronfenbrenner's theory is, in part, a criticism of some of the techniques of experimental psychology, in which children are tested in the laboratory and the results are then assumed to reflect how the child would act in a natural setting. He developed the concept of *ecological validity*, the idea that research findings should be able to generalize

to real-world settings. For example, a laboratory may be an excellent place to look at reactions in a well-controlled experimental setting, but it is not necessarily a good way to look at the everyday interactions of parent and child (Bronfenbrenner, 1977).

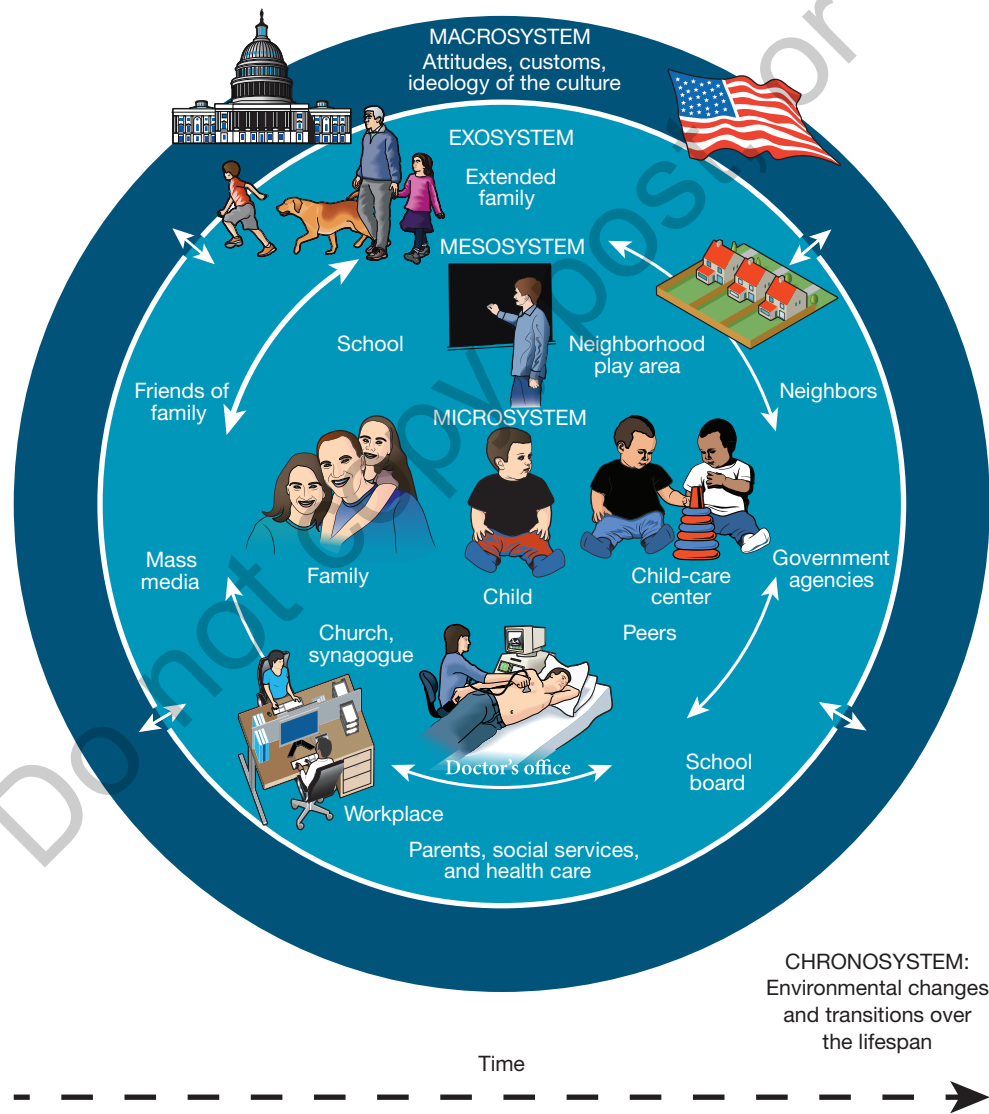
Bronfenbrenner (1977, 1986) proposed that individuals grow and develop within a nested set of influences that he divided into five systems—the microsystem, mesosystem, exosystem, macrosystem, and chronosystem—as shown in Figure 2.6. These systems are embedded one within the other, each influencing the other in a back-and-forth fashion.

The **microsystem** includes the face-to-face interactions that a person has in her immediate settings, such as home, school, or friendship groups. The interaction between a mother and a child forms a microsystem, as does the interaction between a child and a peer, or between a pair of siblings. The **mesosystem** brings together two settings that contain the child. For example, when parents meet and talk to a child’s teacher, the home setting interacts with the school setting, and this interaction influences her progress at school. The **exosystem** consists of settings that the child never enters (that is, ones that

T/F #9
 The best way to study children is through carefully controlled experiments in a laboratory setting. **False**

FIGURE 2.6

Bronfenbrenner’s ecological systems model. Think of the various systems in the ecological systems model as a set of nested environments, but with interactions both within a level and across levels. All of these interconnected systems change as a function of time, as represented by the chronosystem.



Source: Adapted from Bronfenbrenner & Morris (2006).

are *external* to the child) but that affect the child’s development nevertheless. For example, even if the child never goes to a parent’s workplace, what happens in that setting can have an effect on the child. A job that is so demanding that it leaves a parent exhausted at the end of the day affects how the parents will interact with their children when they come home. The **macrosystem** consists of cultural norms that underlie the institutions and activities that make up someone’s everyday life. For example, the macrosystem in the United States includes the ideology of democracy, as well as the value that is placed on individual achievement. The **chronosystem** consists of the events that take place at different times in a child’s life, as well as the time in history in which the child lives. For example, parental divorce affects a 2-year-old child much differently than a teenager. Also, the current experience of parental divorce, when it has become more common, is different than it would have been in 1940, when it was a relatively rare occurrence (Bronfenbrenner, 1986).

It will be easier for you to remember the various systems that make up ecological theory if you are able to recognize examples of each of them. **Active Learning: Examples of Ecological Systems** gives you a chance to do this.

ACTIVE LEARNING

Examples of Ecological Systems

Match each description below with the correct level of the ecological system that it represents. The levels are the microsystem, mesosystem, macrosystem, exosystem, and chronosystem.

EXAMPLE	SYSTEM LEVEL
1. The number of mothers with children under the age of 5 who were employed outside the home doubled between 1970 and 1990.	
2. A child’s parents go to school for a parent–teacher conference so they can find out how their child is doing.	
3. Native American parents raise their children to avoid interpersonal conflicts and to cooperate with others to work for the greater good.	
4. The child’s preschool teacher shows the child how to stack two blocks on each other.	
5. New parents in Australia are entitled to a year of paid parental leave after the birth of their baby.	
6. A parent gets a promotion and a big raise, but that also means that he will need to work longer hours.	
7. Parents invite a teen’s group of friends to their house to watch some movies.	
8. Fathers today take a more active role in parenting than fathers did in the past.	
9. A teenager and his best friend make plans for how they will spend time together on the weekend.	
10. A new mother spends some time with her friends, who tell her that she is too worried about caring for her baby and she should just relax and enjoy being a mother.	

Answers: (1) chronosystem, (2) mesosystem, (3) macrosystem, (4) microsystem, (5) macrosystem, (6) exosystem, (7) mesosystem, (8) chronosystem, (9) microsystem, (10) exosystem

Modern Applications of Ecological Theory

Ecological theory has expanded the range and number of characteristics that researchers include to more fully understand a child’s development within multiple contexts. For example, this theory helped researchers understand the full context in which immigrant children in the United States develop by examining the influences from family and peers (microsystems); the interaction of family, peers, and school (mesosystem); neighborhoods

(exosystem); and immigrant cultural values (macrosystem) as they apply to the transition from adolescence to adulthood (chronosystem; Paat, 2013).

Another legacy of human ecology is the application of theory to social policy. A human ecologist believes that all levels of society affect human development. The logical extension of this belief is to become involved in the creation of social policy, including legislation and programs at all levels of government. Bronfenbrenner himself was active in developing Head Start, a program designed to help disadvantaged children by providing interventions at several different levels. Head Start is not just an excellent educational program for children but also helps families with financial, social, educational, and psychological difficulties they might be experiencing. It also works hard to create links between the classroom setting and the child's home. You will read more about Head Start and its impact on children's lives in Chapter 8.



AP Photo/Peter Chelkva

Social policy in action. The development of the Head Start program was strongly influenced by Bronfenbrenner's ecological systems theory because it was designed to provide interventions at several of the levels described in the theory.

CHECK YOUR UNDERSTANDING

Knowledge Questions

1. Why is it important to understand children within the context of the world around them?
2. What are the five systems that make up Bronfenbrenner's ecological system?
3. Why does ecological systems theory play an important role in shaping social policy?

Critical Thinking

A 10-year-old child is overly aggressive in school. How could you intervene at different levels of the ecological system to help the child control this aggression?

Dynamic Systems Theory

As the study of children has become increasingly sophisticated, researchers have realized that development is a complex process that includes the interaction of biology, the environment, the way we control ourselves and interact with others, and the way we think about, or represent, our experiences in our minds (Sameroff, 2010). **Dynamic systems theory** states that all these different aspects of development interact and affect each other over time. In this theory, development is more like a jazz improvisation than a written piece of music (Spencer, Perone, & Buss, 2011). Each part adjusts to every other part as the child seeks solutions for developmental problems that arise, and each child creates a unique pattern of behavior as a result. Think of all the different ways that babies crawl: on all fours, scooting on their tummies, or pulling with one leg while in a sitting position. Each has solved the problem of how to get from here to there in their own unique way that has developed from their own abilities and their environment. A baby who learns on a smooth, slippery floor may develop a different way to crawl than one who learns on a deep carpet.

To illustrate how this process works, we can look at how Esther Thelen applied the theory of dynamic systems to the development of motor skills. Thelen found that the nature of physical development was flexible, not absolute. For example, newborn babies have a stepping reflex in which they appear to be walking when held upright, even though they cannot support their own weight. This reflex typically disappears at about 2 to 3 months of age, and the disappearance was initially thought to be a product of brain maturation. However, Thelen found these babies will begin stepping again if placed up to their chests in water so that their legs are not so heavy, which means that the disappearance of this reflex is not driven solely by brain development



Crawling takes many forms. There is no one right way to crawl. Babies figure out how to get from here to there based on their abilities and their environment. Crawling on slippery wooden floors presents different challenges than crawling in the grass.

(Thelen, 1989). Infants stop stepping reflexively when their legs become too heavy for them to lift. Based on these observations, Thelen posited that the development of real walking is not just a matter of biological maturation but a coming together of many different experiences, bodily growth, and motivation. She showed that each infant explores and develops these abilities in different ways, depending on such individual characteristics as weight and activity level. Each child experiments with how to do things, and each action he takes influences what the next action will be, creating a pattern of development that is unique to that person.

Modern Applications of Dynamic Systems Theory

Dynamic systems theory considers characteristics of the whole child (including the nervous system, the musculoskeletal system, and the child's motivation or readiness) in the context of the environment, together with the nature of the task itself when examining development or planning an intervention (Darrach et al., 2011; Sauve & Bartlett, 2010). As we saw, the earliest work focused on motor development, but in recent years, dynamic systems theory has been used to promote the understanding of many different aspects of child development, including cognitive and language development (Parladé & Iverson, 2011; Samuelson, Jenkins, & Spencer, 2015). For example, infant communication can be seen as a dynamic system consisting of language, gesture, and emotion. When an infant wants a toy, she may point, look eager, and say the name of the toy. However, when one part of this system changes rapidly, coordination with the other parts may be disrupted. Sometime during the second year of life many (but not all) babies go through what is known as a vocabulary spurt, in which they suddenly begin to pick up new words much more quickly. Researchers have found that when this happens, language becomes decoupled from emotion and gesture. That is, the system is thrown out of equilibrium. Each infant must then find his way back to equilibrium with a new way of coordinating language, emotion, and gesture (Parladé & Iverson, 2011).

CHECK YOUR UNDERSTANDING

Knowledge Questions

1. How is human development similar to a jazz improvisation?
2. How does dynamic systems theory explain individual differences in children's development?

Critical Thinking

Earlier in this chapter you read about the concept of embodied cognition as a modern application of an aspect of Piaget's theory. How would embodied cognition also relate to dynamic systems theory?

Theories of Child Development in Historical and Cultural Context

>> LQ 2.3 How do historical and cultural context influence theories of child development?

As you have seen throughout this chapter, theories have a central role in our understanding of child development. However, as we said at the beginning of this chapter, it is important to understand that theoretical ideas do not appear in a vacuum. Although these theories influence our ideas about children, they also reflect the culture and time in history in which the theorists lived. If you stop and consider for a moment about how the world you live in today influences the way you think about children and how they develop, you will realize that our culture and our experiences so color our worldview that we might not even be aware of those influences unless we make a conscious effort to think about them.

Journey of Research: Theories in Historical Context is not a complete review of the history of developmental theories; it presents examples from several of the theories discussed in this chapter that illustrate how historical and social contexts influence the nature of theories. Following this feature we discuss the role that culture can play in the nature of theories about children and their development.

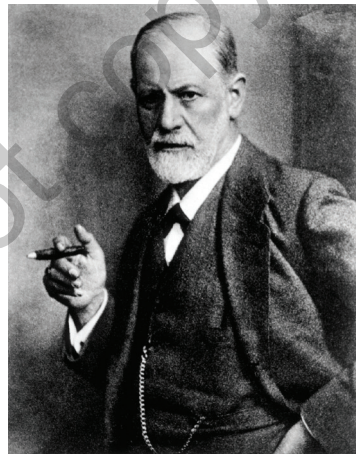
JOURNEY OF RESEARCH

Theories in Historical Context

Sigmund Freud and Psychoanalytic Theory

Some aspects of Freud's theory may seem quaint or even a bit strange to us today because they are based on beliefs about human sexuality that reflect the culture at the time in which Freud lived—the Victorian era in Germany during the late 19th century. This was a time in history when sexuality was treated as something private or even shameful. Sex was seen as a necessary evil for procreation within a marriage, and sex for pleasure was frowned upon (Goodwin, 2005).

In this context, Freud interpreted the mental disorders that he was seeing in his patients as the product of some sexual



Universal History Archive/Contributor

trauma—real or imagined—in their early experiences. He reasoned that if you cannot accept sexual feelings or thoughts, they will be pushed down into the unconscious, only to resurface from time to time in ways that disrupt your functioning (Goodwin, 2005). While this explanation may have made sense in the context of the Victorian era, it may have less relevance in cultures where sexual impulses are seen as a normal expression of our humanity.

John B. Watson and Behaviorism

Behaviorism came to prominence in America in the early part of the 20th century, at a time when the American public was looking to this new field of psychology for scientific principles to guide them on a number of topics, including parenting. You read about



George Rinhart/Contributor

(Continued)

(Continued)

the research Watson conducted on Little Albert while at Johns Hopkins University, but in addition to his writing as a scientist, he also responded to the public's interest in psychology by writing articles and books for the popular press.

His best-known book, *Psychological Care of the Infant and Child*, provided parents with advice on a number of issues (Bigelow & Morris, 2001). While he provided useful advice on topics such as misbehavior (prevent it by keeping children busy with other appropriate activities), punishment (not generally recommended), and the importance of having daily routines for children, his views on love and affection were definitely out of step with what we currently know about emotional development. Watson advised parents to avoid kissing, hugging, or letting their children sit on their lap for fear that coddling them would make them dependent and unable to cope in later life (Watson & Watson, 1928). As strange as this advice might sound to us, it actually reflected a widely held belief by both the public and other psychologists about what constituted good parenting (Bigelow & Morris, 2001). Watson's belief that parents could completely shape their children into the people they wanted them to be had so much appeal that his book remained one of the most popular parenting books for a number of years.

Jean Piaget and Cognitive Developmental Theory

Although Jean Piaget began his research at about the same time as John Watson, he worked in a very different cultural environment in Europe. While American psychologists were primarily focused on the testing and measurement of learning, often relying on rats or undergraduate students but rarely on children as their subjects, Piaget was conducting research using open-ended clinical interviews with children (Kessen, 1996). In the middle of an interview, he might suddenly change the questions he was asking to pursue something that the child had said that caught his interest (Piaget, 1969). He also spent a great deal of time observing the spontaneous behavior of children, including his own three children. His research did not contain statistics to back up his conclusions, and he used abstract concepts as explanations (Lerner, 2002). For these reasons, when his research was first published in the 1920s and 1930s, it received a cool reception in America

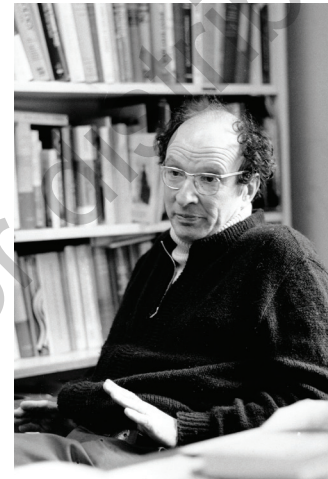


Patrick Grehan/Contributor

(Whitman, 1980), but by the 1960s, a reaction was developing to strict behaviorist approaches and their reduction of human behavior to a set of stimulus-response connections. American psychologists were engaged in studying the mind, cognition, and language and how they develop in children (Kessen, 1996). In this new climate, Piaget's ideas were now embraced for the richness with which they described children's ways of understanding their world.

Urie Bronfenbrenner and Ecological Systems Theory

Another reflection of the growing dissatisfaction with the direction in which psychology was going came from Urie Bronfenbrenner in an article written in 1977 in which he criticized what he saw as a narrow focus on collecting data for data's sake and a reliance on experimental designs that were so carefully controlled that they resulted in highly artificial situations that had little resemblance to the real life of children.



AP Images/Associated Press

His concern was that "much of contemporary developmental psychology is the science of the strange behavior of children in strange situations with strange adults for the briefest possible periods of time" (Bronfenbrenner, 1977, p. 513). Rather than seeing the environment as something that needs to be controlled, Bronfenbrenner believed that we should study behavior as it occurs embedded within a nest of environments and settings because each of these has its own impact on the process.

The 1960s and 1970s were a time of great social change in America, and part of this change was a growing appreciation of the pluralism and diversity of people's experiences. Some of Bronfenbrenner's theoretical ideas drew upon research he had conducted in Europe, China, Russia, and Israel. The 1960s was also a time when people were looking for societal change that would improve the human condition, and Bronfenbrenner took a leadership role in applying knowledge from developmental research to social policy. His ecological systems theory used a more holistic approach to draw attention to the immediate, as well as the distant, influences on development (Lerner, 2018). The continuing challenge for researchers today is to find ways to study the incredible complexity of multiple, interacting influences on development. The result of doing this, however, is a richer, more complete understanding of the process of human development.

Developmental Theory in a Cultural Context

Although some of the theories we have described take cultural differences into account, all were developed by European or American theorists and most are based on research with Western, middle-class families (Kärtner, 2015). As we said in Chapter 1, if we assume all societies must conform to Western values, we forget that different ideas and behaviors may be more adaptive for children growing up in different contexts and environments. In Chapter 1 you were given some examples of how cultural values affect specific parenting practices, but here we focus on how cultural values shape theories of child development.

We saw that Erikson’s theory focused on the development of autonomy and self-determination of the individual—characteristics that are valued in many Western cultures. However, developmental theory in some cultures focuses more on the integration of the individual into the social group. For example, Nsamenang and Lo-oh (2010) explain that in sub-Saharan Africa, the overarching theory of development “positions the child not in his or her sovereignty but as socially integrated in a human community” (p. 386). This means that children are seen primarily as participants in their cultural communities rather than as autonomous individuals with goals and behaviors defined by their own interests. To illustrate how this cultural difference is reflected in the developmental theories proposed by these theorists, compare Erikson’s stages described earlier in this chapter to the stages of development described by Nsamenang (2015) for African culture as shown in Table 2.2.

As you can see, child development as well as development through adulthood can be conceptualized very differently based on the values and beliefs found within different cultures.

T/F #10

A good theory should be universal, applying to children in all situations.

False



Stock/hadynyah

Developmental theories reflect cultural values. Sub-Saharan African theories of child development emphasize children’s connection to their community rather than the more individualistic approach of most Western theories.

TABLE 2.2

Comparing Erikson’s stages in the United States with Nsamenang’s stages of development in Africa. Erikson’s theory focuses on the development of the individual and Nsamenang’s theory focuses on social connection throughout development. How are these cultural perspectives different, and how are they similar?

ERIKSON’S STAGES	NSAMENANG’S STAGES	DESCRIPTION OF NSAMENANG’S STAGES
Trust vs. mistrust	The neonatal period	Happiness for the safe delivery of the infant and projection of the kind of person he or she should become through socialization
Autonomy vs. shame and doubt	Social priming	Increased communication, sharing and exchange between infant and caregivers

(Continued)

(Continued)

ERIKSON'S STAGES	NSAMENANG'S STAGES	DESCRIPTION OF NSAMENANG'S STAGES
Initiative vs. guilt Industry vs. inferiority	Social apprenticeship	Rehearsal of social roles needed in different aspects of life
Identity vs. role confusion	Social entree Social internment	Initiation rites associated with puberty Education for movement into adult roles and responsibilities
Intimacy vs. isolation Generativity vs. stagnation	Adulthood	Marriage and parenthood
Ego integrity vs. despair	Old age/death	Maximum social competence, wisdom Importance of grandchildren
	Ancestral and spiritual selfhoods	Status of the "loving dead" or the "dreaded evil dead"

Source: Adapted from Nsamenang & Tchombe (2011) and Erikson (1963).

CHECK YOUR UNDERSTANDING

Knowledge Questions

1. How does culture play a role in theories of child development?
2. How do a culture's values shape the conceptualization of the stages children go through?

Critical Thinking

Describe your cultural background. Now think about what goals you would have if you were (or are) raising a child. How do you think your goals are related to your cultural background?

Comparison of Developmental Theories

When we began this section on developmental theories, we asked you to keep in mind these important questions:

1. How does the theory describe development? Does change occur quantitatively, in small steps, or qualitatively, in distinct stages?
2. What drives development? Is it the product of internal processes such as biological and cognitive growth, or environmental influences, or a combination of these factors?

You can now use Table 2.3 to review the theories presented in this chapter and to see whether your answers to these questions about them were correct. In addition, the table provides a very brief statement of some major contributions each theory has made to the study of child development and some of the recent applications of each theory.

TABLE 2.3

Comparison of developmental theories.

THEORY (THEORISTS)	QUANTITATIVE OR QUALITATIVE CHANGE	INTERNAL PROCESSES AND/OR ENVIRONMENTAL INFLUENCES	CONTRIBUTION TO THE STUDY OF CHILD DEVELOPMENT	RECENT APPROACHES/ APPLICATIONS BASED ON EACH THEORY
Psychoanalytic theory (Freud and Erikson)	Qualitative: Freud has five stages. Erikson has eight stages.	Biology drives development and is affected by environmental experiences.	Children's unconscious thoughts and motivations help explain their behavior. Erikson's stages describe typical developmental issues from infancy through adolescence.	Psychotherapeutic approaches to treatment of psychological and emotional problems.
Behaviorism and social cognitive theory (Watson, Skinner, and Bandura)	Quantitative	Environment	Reinforcement is used to change children's problem behaviors. Imitation is central to children's learning.	Virtual and augmented reality treatment of phobias Applied behavior analysis Self-efficacy
Piaget's cognitive theory	Qualitative: Piaget has four stages.	Biology drives development of cognitive processes, and the environment shapes it.	Understanding children's active construction of knowledge shapes teaching approaches.	Activity-based learning Embodied cognition
Vygotsky's cognitive theory	Quantitative	Environment, in the form of culture and social influence, drives development of cognitive processes.	Scaffolding and the zone of proximal development form the basis for teaching approaches.	Dynamic assessment
Information processing	Quantitative	Biology and environment interact to influence cognitive processes.	Basic processes of cognitive development are central to understanding the process by which children learn.	Developmental cognitive neuroscience
Evolutionary theory - Ethology (Lorenz)	N/A	Biology underlies adaptation to the environment.	Children's behaviors are explained as a result of adaptation to the environment.	Evolutionary developmental psychology
Ecological theory (Bronfenbrenner)	Quantitative	A nesting of environmental influences is also affected by a child's characteristics.	Children interact with and are influenced by numerous levels of social influence.	Social policy applications such as the Head Start Program
Dynamic systems theory (Thelen)	Quantitative	Biological growth interacts with cognitive processes and environmental experiences.	Children's behavior results from a complex interaction of biological, environmental, cognitive, and social-emotional factors.	Ongoing research on aspects of cognitive development

Conclusion

The theories described in this chapter give you a solid foundation for understanding the source of most of the rest of the ideas presented in this book. As you continue to read, you will find other theories that pertain to specific areas of development and expand on the scientific exploration of the study of child development. Although you

might be tempted to say “I agree” or “I don’t agree” with any particular theory, it is important to base your opinions on reasoned arguments that can be tested. Thinking critically about your ideas is essential, and whether you accept one theory or another should ultimately depend on the evidence that supports or refutes each one. In the next chapter, we examine how researchers help us move toward a better understanding of human development.

CHAPTER SUMMARY

2.1 What are basic characteristics of child development theories?

Theories of development give us a model that allows us to organize what we know about development and predict how children will behave. Some theories propose that development occurs in stages, while others see development as a continuous process. Theories also differ in their emphasis on biological, environmental, and personal mechanisms that bring about growth and development.

2.2 What are the hypotheses and modern applications of the major child development theories?

- a. **Psychoanalytic theories.** In Freud’s psychoanalytic theory, sexual drive shifts from one area of the body to another as the child develops, forming the basis for five **psychosexual stages**. Erik Erikson believed the social world and the development of identity were driving forces for development through eight **psychosocial stages**. Freud’s theory has application in understanding and treating mental and emotional disorders. Erikson’s theory has helped us understand the influence of social experiences on development.
- b. **Behaviorism.** The theory of behaviorism states that the environment determines development. In **classical conditioning** an unconditioned stimulus is paired with a neutral stimulus. After repeated pairings, the neutral stimulus elicits a conditioned response. In **operant conditioning** something that follows a behavior affects the likelihood of that behavior happening again. **Reinforcement** (whether positive or negative) increases the behavior, while **punishment** and **extinction** decrease it. Classical conditioning has been used in the treatment of **phobias**. Operant conditioning has been used for classroom management and in **applied behavior analysis**.
- c. **Social cognitive theory.** Bandura’s social cognitive theory emphasizes the importance of imitation as a learning process. It has been applied in the study of **self-efficacy**.
- d. **Theories of cognitive development.** Piaget’s theory of cognitive development states that we are always trying to organize our understanding of the world by fitting new information into our current understanding, or accommodating new information by changing our concepts to fit that information. The idea that children actively construct their understanding of the world has significantly influenced the field of education. Vygotsky emphasized the role of social interaction and believed adults or more skilled peers build children’s knowledge through interaction. His theory has been applied through the use of **dynamic assessment** in educational settings. Two models of the theory of information processing are the **stores model** that likens the mind to a computer and portrays mental processing as a linear progression of steps, and the **connectionist** or **neural network model** that describes mental processing as a network of concept nodes that are interconnected by links similar to the connections between neurons in the brain. These models have helped us understand cognitive processes and are helping us learn about the structure and function of the brain.
- e. **Evolutionary theory.** Evolutionary theories help us understand how our behaviors help us to adapt to our environment. **Ethology** is the study of animal and human behavior in relationship to their adaptation to the natural environment.
- f. **Ecological systems theory.** Bronfenbrenner proposed that individuals grow and develop within a nested set of influences that he divided into five systems: **microsystem**, **mesosystem**, **exosystem**, **macrosystem**, and **chronosystem**. His theory has been applied

in research that considers multiple levels of influence on behavior and development, and in developing effective social policy.

- g. **Dynamic systems theory.** Dynamic systems theory examines the way all aspects of development—biological, cognitive, and social-emotional—influence one another in the context of environmental influence. Each child develops his own pattern of development based on individual differences in all of these areas.

2.3 How do historical and cultural context influence theories of child development?

Theories can influence our understanding of child development, but they are also shaped by the time and place in history and the culture in which the individuals who develop the theories live.

KEY TERMS

Accommodation 41	Ego 31	Positive reinforcement 37
Anal stage 32	Embodied cognition 42	Psychoanalytic theory 31
Applied behavior analysis (ABA) 38	Equilibration 42	Psychosexual stages 32
Assimilation 41	Ethology 45	Psychosocial stages 32
Behaviorism 34	Exosystem 47	Punishment 38
Chronosystem 48	Extinction 38	Reinforcement 37
Classical conditioning 35	Genital stage 32	Scaffolding 43
Connectionist or neural network model 43	Id 31	Schema 41
Constructivism 42	Imprinting 45	Self-efficacy 41
Developmental cognitive neuroscience 44	Latency stage 32	Shaping behavior 38
Developmental theory 29	Macrosystem 48	Social cognitive theory 40
Dynamic assessment 43	Mesosystem 47	Stores model 43
Dynamic systems theory 49	Microsystem 47	Superego 31
Ecological systems theory 46	Negative reinforcement 37	Unconscious mind 32
	Operant conditioning 37	Zone of proximal development 43
	Oral stage 32	
	Phallic stage 32	
	Phobia 36	