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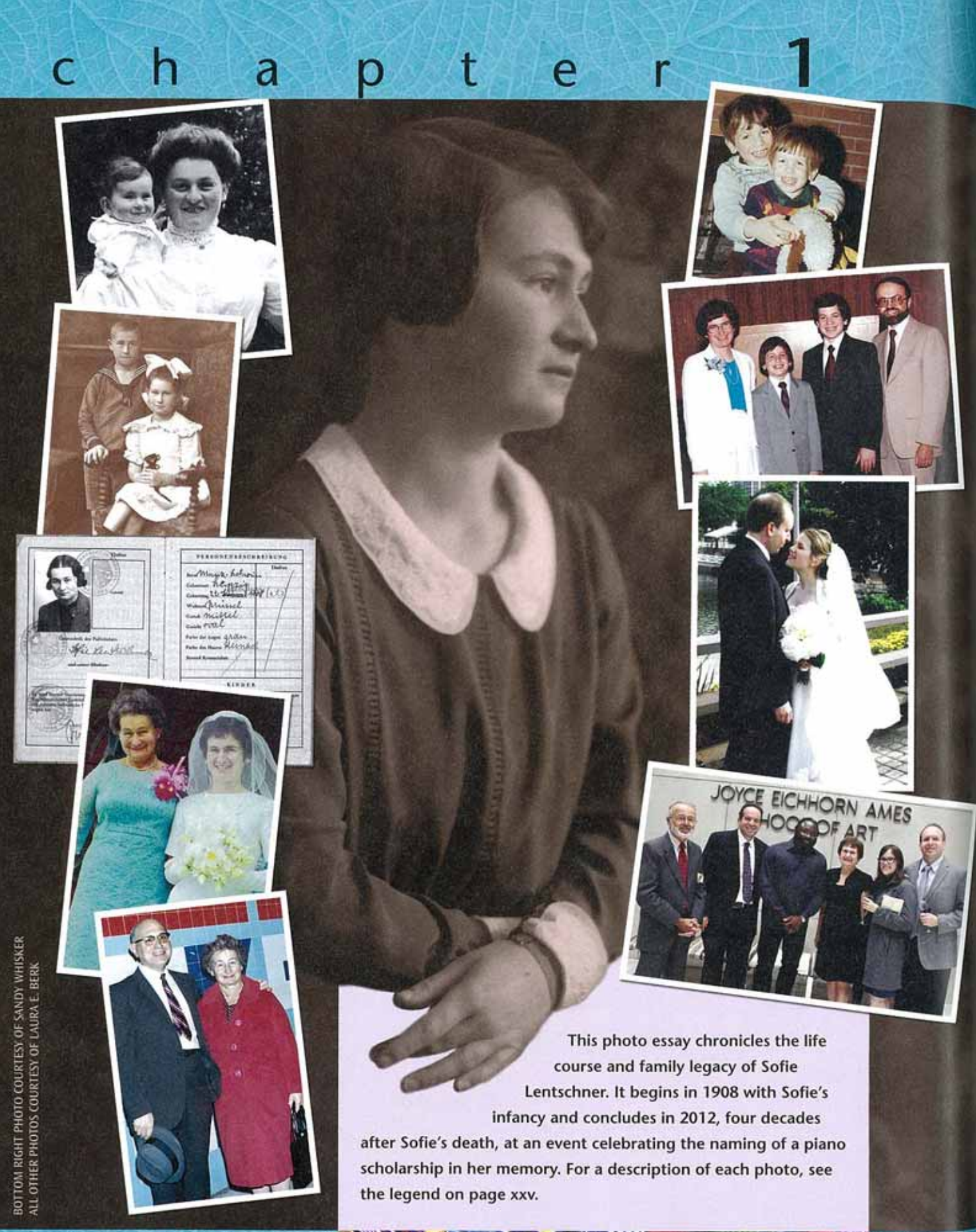
chapter 1



This photo essay chronicles the life course and family legacy of Sofie Lentschner. It begins in 1908 with Sofie's infancy and concludes in 2012, four decades after Sofie's death, at an event celebrating the naming of a piano scholarship in her memory. For a description of each photo, see the legend on page xxv.

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History, Theory, and Research Strategies

Sofie Lentschner was born in 1908, the second child of Jewish parents who made their home in Leipzig, Germany, a city of thriving commerce and cultural vitality. Her father was a successful businessman and community leader, her mother a socialite well-known for her charm, beauty, and hospitality. As a baby, Sofie displayed the determination and persistence that would be sustained throughout her life. She sat for long periods inspecting small objects with her eyes and hands. The single event that consistently broke her gaze was the sound of the piano in the parlor. As soon as Sofie could crawl, she steadfastly pulled herself up to finger its keys and marveled at the tinkling sounds.

By the time Sofie entered elementary school, she was an introspective child, often ill at ease at the festive parties that girls of her family's social standing were expected to attend. She immersed herself in schoolwork, especially in mastering foreign languages—a regular part of German elementary and secondary education. Twice a week, she took piano lessons from the finest teacher in Leipzig. By the time Sofie graduated from high school, she spoke English and French fluently and had become an accomplished pianist. Whereas most German girls of her time married by age 20, Sofie postponed serious courtship in favor of entering the university. Her parents began to wonder whether their intense, studious daughter would ever settle into family life.

COURTESY OF LAURA E. BERK

Sofie wanted marriage as well as education, but her plans were thwarted by the political turbulence of her times. When Hitler rose to power in the early 1930s, Sofie's father, fearing for the safety of his wife and children, moved the family to Belgium. Conditions for Jews in Europe quickly worsened. The Nazis plundered Sofie's family home and confiscated her father's business. By the end of the 1930s, Sofie had lost contact with all but a handful of her aunts, uncles, cousins, and childhood friends, many of whom (she later learned) were herded into cattle cars and transported to Nazi death camps at Auschwitz and Chelmno, Poland. In 1939, as anti-Jewish laws and atrocities intensified, Sofie's family fled to the United States.

As Sofie turned 30, her parents, convinced that she would never marry and would need a career for financial security, agreed to support her return to school. Sofie earned two master's degrees, one in music and the other in librarianship. Then, on a blind date, she met Philip, a U.S. army officer. Philip's calm, gentle nature complemented Sofie's intensity and worldliness. Within six months they married. During the next four

chapter outline

years, two daughters and a son were born. Soon Sofie's father became ill, his health shattered by the strain of uprooting his family and losing his home and business. After months of being bedridden, he died of heart failure.

When World War II ended, Philip left the army and opened a small men's clothing store. Sofie divided her time between caring for the children and helping Philip in the store. Now in her forties, she was a devoted mother, but few women her age were still rearing young children. As Philip struggled with the business, he spent longer hours at work, and Sofie often felt lonely. She rarely touched the piano, which brought back painful memories of youthful life plans shattered by war. Sofie's sense of isolation and lack of fulfillment frequently left her short-tempered. Late at night, she and Philip could be heard arguing.

COURTESY OF LAURA E. BERK

As Sofie's children grew older, she returned to school again, this time to earn a teaching credential. Finally, at age 50, she launched a career. For the next decade, she taught German and French to high school students and English to newly arrived immigrants. Besides easing her family's financial difficulties, she felt a gratifying sense of accomplishment and creativity. These years were among the most energetic and satisfying of Sofie's life. She had an unending enthusiasm for teaching—for transmitting her facility with language, her first-hand knowledge of the consequences of hatred and oppression, and her practical understanding of how to adapt to life in a new land. She watched her children, whose young lives were free of the trauma of war, adopt many of her values and commitments and begin their marital and vocational lives at the expected time.

Sofie approached age 60 with an optimistic outlook. Released from the financial burden of paying for their children's college education, she and Philip looked forward to greater leisure. Their affection and respect for each other deepened. Once again, Sofie began to play the piano. But this period of contentment was short-lived.

One morning, Sofie awoke and felt a hard lump under her arm. Several days later, her doctor diagnosed cancer. Sofie's spirited disposition and capacity to adapt to radical life changes helped her meet the illness head on. She defined it as an enemy to be fought and overcome. As a result, she lived five more years. Despite the exhaustion of chemotherapy, Sofie maintained a full schedule of teaching duties and continued to visit and run errands for her elderly mother. But as she weakened physically, she no longer had the stamina to meet her classes. Bedridden for the last few weeks, she slipped quietly into death with Philip at her side. The funeral chapel overflowed with hundreds of Sofie's students. She had granted each a memorable image of a woman of courage and caring.

One of Sofie's three children, Laura, is the author of this book. Married a year before Sofie died, Laura and her husband, Ken, often think of Sofie's message, spoken privately to them on the eve of their wedding day: "I learned from my own life and marriage that you must build a life together but also a life apart. You must grant each other the time, space, and support to forge your own identities, your own ways of expressing yourselves and giving to others. The most important ingredient of your relationship must be respect."

Laura and Ken settled in a small midwestern city, near Illinois State University, where they have served on the faculty for many years—Laura in the Department of Psychology, Ken in the Department of Mathematics. They have two sons, David and Peter, to whom Laura has related many stories about Sofie's life and who carry her legacy forward. David shares his grandmother's penchant for teaching; he is a second-grade teacher. Peter, a lawyer, shares his grandmother's love of music, and his wife Melissa—much like Sofie—is both a talented linguist and a musician. When Peter asked Melissa to marry him, he placed a family heirloom on her finger—an engagement ring that had belonged to Sofie's aunt, who perished in a Nazi death camp. In the box that held the ring, Melissa found a written copy of the story of Sofie and her family.

Sofie also had a lifelong impact on many of her students. A professor of human development wrote to Laura:

> I have been meaning to contact you for a while. I teach a class in lifespan development. When I opened the textbook and saw the pictures of your mother, I was very surprised. I took high school German classes from her. I remember

her as a very tough teacher who both held her students accountable and cared about each and every one of us. That she was an incredible teacher did not really sink in until I went to Germany during my [college] years and was able to both understand German and speak it.

Sofie's story raises a wealth of fascinating issues about human life histories:

- What determines the features that Sofie shares with others and those that make her unique—in physical characteristics, mental capacities, interests, and behaviors?
- What led Sofie to retain the same persistent, determined disposition throughout her life but to change in other essential ways?
- How do historical and cultural conditions—for Sofie, the persecution that destroyed her childhood home, caused the death of family members and friends, and led her family to flee to the United States—affect well-being throughout life?
- How does the timing of events—for example, Sofie's early exposure to foreign languages and her delayed entry into marriage, parenthood, and career—affect development?
- What factors—both personal and environmental—led Sofie to die sooner than expected?

These are central questions addressed by **developmental science,** a field of study devoted to understanding constancy and change throughout the lifespan (Lerner, 2006; Lerner et al., 2011). Great diversity characterizes the interests and concerns of investigators who study development. But all share a single goal: to identify those factors that influence consistencies and transformations in people from conception to death.

A Scientific, Applied, and Interdisciplinary Field

The questions just listed are not merely of scientific interest. Each has *applied,* or practical, importance as well. In fact, scientific curiosity is just one factor that led the study of development to become the exciting field it is today. Research about development has also been stimulated by social pressures to improve people's lives. For example, the beginning of public education in the early twentieth century led to a demand for knowledge about what and how to teach children of different ages. The interest of the medical profession in improving people's health required an understanding of physical development, nutrition, and disease. The social service profession's desire to treat emotional problems and to help people adjust to major life events, such as divorce, job loss, war, natural disasters, or the death of loved ones, required information about personality and social development. And parents have continually sought expert advice about child-rearing practices and experiences that would promote their children's well-being.

Our large storehouse of information about development is *interdisciplinary*. It has grown through the combined efforts of people from many fields of study. Because of the need for solutions to everyday problems at all ages, researchers from psychology, sociology, anthropology, biology, and neuroscience have joined forces in research with professionals from education, family studies, medicine, public health, and social service, to name just a few. Together, they have created the field as it exists today—a body of knowledge that is not just scientifically important but also relevant and useful.

Basic Issues

Developmental science is a relatively recent endeavor. Studies of children did not begin until the late nineteenth and early twentieth centuries. Investigations into adult development, aging, and change over the life course emerged only in the 1960s and 1970s (Elder & Shanahan, 2006). But speculations about how people grow and change have existed for centuries. As they combined with research, they inspired the construction of *theories* of development. A **theory** is an orderly, integrated set of statements that describes, explains, and predicts behavior. For example, a good theory of infant–caregiver attachment would (1) *describe* the behaviors of babies of 6 to 8 months of age as they seek the affection and comfort of a familiar adult, (2) *explain* how and why infants develop this strong desire to bond with a caregiver, and (3) *predict* the consequences of this emotional bond for future relationships.

Theories are vital tools for two reasons. First, they provide organizing frameworks for our observations of people. In other words, they *guide and give meaning* to what we see. Second, theories that are verified by research provide a sound basis for practical action. Once a theory helps us *understand* development, we are in a much better position to know *how to improve* the welfare and treatment of children and adults.

As we will see, theories are influenced by the cultural values and belief systems of their times. But theories differ in one important way from mere opinion or belief: A theory's continued existence depends on *scientific verification*. Every theory must be tested using a fair set of research procedures agreed on by the scientific community, and the findings must endure, or be replicated over time.

Within the field of developmental science, many theories exist, offering very different ideas about what people are like and

how they change. The study of development provides no ultimate truth because investigators do not always agree on the meaning of what they see. Also, humans are complex beings; they change physically, mentally, emotionally, and socially. No single theory has explained all these aspects. But the existence of many theories helps advance knowledge as researchers continually try to support, contradict, and integrate these different points of view.

This chapter introduces you to major theories of human development and research strategies used to test them. In later chapters, we will return to each theory in greater detail and will also introduce other important but less grand theories. Although there are many theories, we can easily organize them by looking at the stand they take on three basic issues: (1) Is the course of development continuous or discontinuous? (2) Does one course of development characterize all people, or are there many possible courses? (3) What are the roles of genetic and environmental factors—nature and nurture—in development? Let's look closely at each of these issues.

Continuous or Discontinuous Development?

How can we best describe the differences in capacities among infants, children, adolescents, and adults? As Figure 1.1 illustrates, major theories recognize two possibilities.

One view holds that infants and preschoolers respond to the world in much the same way as adults do. The difference between the immature and mature being is simply one of *amount or complexity*. For example, when Sofie was a baby, her perception of a piano melody, memory for past events, and ability to categorize objects may have been much like our own. Perhaps her only limitation was that she could not perform these skills with as much information and precision as we can. If this is so, then changes in her thinking must be **continuous**—a process of gradually augmenting the same types of skills that were there to begin with.

According to a second view, infants and children have *unique ways of thinking, feeling, and behaving*, ones quite different from adults. If so, then development is **discontinuous**—a process in which new ways of understanding and responding to the world emerge at specific times. From this perspective, Sofie could not yet perceive, remember, and categorize experiences as a mature person can. Rather, she moved through a series of developmental steps, each of which has unique features, until she reached the highest level of functioning.

Theories that accept the discontinuous perspective regard development as taking place in **stages**—*qualitative* changes in thinking, feeling, and behaving that characterize specific periods of development. In stage theories, development is like climbing a staircase, with each step corresponding to a more mature, reorganized way of functioning. The stage concept also assumes that people undergo periods of rapid transformation as they step up from one stage to the next. In other words, change is fairly sudden rather than gradual and ongoing.

Does development actually occur in a neat, orderly sequence of stages? This ambitious assumption has faced significant challenges. Later in this chapter, we will review some influential stage theories.

One Course of Development or Many?

Stage theorists assume that people everywhere follow the same sequence of development. Yet the field of human development is becoming increasingly aware that children and adults live in

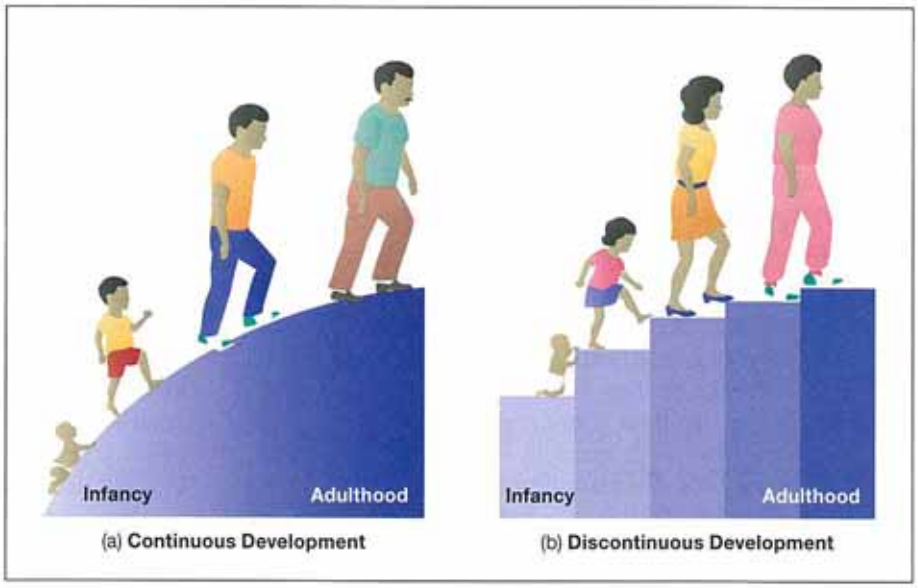

FIGURE 1.1 Is development continuous or discontinuous? (a) Some theorists believe that development is a smooth, continuous process. Individuals gradually add more of the same types of skills. (b) Other theorists think that development takes place in discontinuous stages. People change rapidly as they step up to a new level and then change very little for a while. With each new step, the person interprets and responds to the world in a reorganized, qualitatively different way. As we will see later, still other theorists believe that development is characterized by both continuous and discontinuous change.

distinct **contexts**—unique combinations of personal and environmental circumstances that can result in different paths of change. For example, a shy individual who fears social encounters develops in very different contexts from those of an outgoing agemate who readily seeks out other people (Kagan, 2003, 2008a). Children and adults in non-Western village societies have experiences in their families and communities that differ sharply from those of people in large Western cities. These different circumstances foster different intellectual capacities, social skills, and feelings about the self and others (Shweder et al., 2006).

As you will see, contemporary theorists regard the contexts that shape development as many-layered and complex. On the personal side, they include heredity and biological makeup. On the environmental side, they include both immediate settings—home, school, and neighborhood—and circumstances more remote from people's everyday lives: community resources, societal values, and historical time period. Finally, researchers today are more conscious than ever before of cultural diversity in development.

Relative Influence of Nature and Nurture?

In addition to describing the course of human development, each theory takes a stand on a major question about its underlying causes: Are genetic or environmental factors more important? This is the age-old **nature–nurture controversy.** By *nature,* we mean the hereditary information we receive from our parents at the moment of conception. By *nurture,* we mean the complex forces of the physical and social world that influence our biological makeup and psychological experiences before and after birth.

Although all theories grant roles to both nature and nurture, they vary in emphasis. Consider the following questions: Is the developing person's ability to think in more complex ways largely the result of a built-in timetable of growth, or is it primarily influenced by stimulation from parents and teachers? Do children acquire language rapidly because they are genetically predisposed to do so or because parents teach them from an early age? And what accounts for the vast individual differences among people—in height, weight, physical coordination, intelligence, personality, and social skills? Is nature or nurture more responsible?

A theory's position on the roles of nature and nurture affects how it explains individual differences. Theorists who emphasize *stability*—that individuals who are high or low in a characteristic (such as verbal ability, anxiety, or sociability) will remain so at later ages—typically stress the importance of *heredity.* If they regard environment as important, they usually point to *early experiences* as establishing a lifelong pattern of behavior. Powerful negative events in the first few years, they argue, cannot be fully overcome by later, more positive ones (Bowlby, 1980; Sroufe et al., 2010). Other theorists, taking a more optimistic view, see development as having substantial **plasticity** throughout life—as open to change in response to influential experiences (Baltes, Lindenberger, & Staudinger, 2006; Overton, 2010).

Throughout this book, you will see that investigators disagree, often sharply, on the question of *stability versus plasticity.* Their answers often vary across *domains,* or aspects, of development. Think back to Sofie's story, and you will see that her linguistic ability and persistent approach to challenges were stable over the lifespan. In contrast, her psychological well-being and life satisfaction fluctuated considerably.

The Lifespan Perspective: A Balanced Point of View

So far, we have discussed basic issues of human development in terms of extremes—solutions favoring one side or the other. But as we trace the unfolding of the field, you will see that the positions of many theorists have softened. Today, some theorists believe that both continuous and discontinuous changes occur. Many acknowledge that development has both universal features and features unique to each individual and his or her contexts. And a growing number regard heredity and environment as inseparably interwoven, each affecting the potential of the other to modify the child's traits and capacities (Gottlieb, 2007; Overton, 2010; Rutter, 2007).

These balanced visions owe much to the expansion of research from a nearly exclusive focus on the first two decades

Since the 1960s, researchers have moved from focusing only on child development to investigating development over the entire life course. This woman and her companions on a river rafting trip illustrate the health, vitality, and life satisfaction of many contemporary older adults.

of life to include development during adulthood. In the first half of the twentieth century, it was widely assumed that development stopped at adolescence. Infancy and childhood were viewed as periods of rapid transformation, adulthood as a plateau, and aging as a period of decline. The changing character of the North American population awakened researchers to the idea that gains in functioning are lifelong.

Because of improvements in nutrition, sanitation, and medical knowledge, *average life expectancy* (the number of years an individual born in a particular year can expect to live) gained more in the twentieth century than in the preceding 5,000 years. In 1900, life expectancy was just under age 50; today, it is 78.5 years in the United States and even higher in most other industrialized nations, including neighboring Canada. Life expectancy continues to increase; in the United States, it is predicted to reach 84 years in 2050. Consequently, there are more older adults—a worldwide trend that is especially striking in developed countries. People age 65 and older accounted for about 4 percent of the U.S. population in 1900, 7 percent in 1950, and 13 percent in 2010 (U.S. Census Bureau, 2012b).

Older adults are not only more numerous but also healthier and more active. Challenging the earlier stereotype of the withering person, they have contributed to a profound shift in our view of human change and the factors that underlie it. Increasingly, researchers are envisioning *development as a dynamic system*—a perpetually ongoing process, extending from conception to death, that is molded by a complex network of biological, psychological, and social influences (Lerner et al., 2011). A leading dynamic systems approach is the **lifespan perspective.** Four assumptions make up this broader view: that development is (1) lifelong, (2) multidimensional and multidirectional, (3) highly plastic, and (4) affected by multiple, interacting forces (Baltes, Lindenberger, & Staudinger, 2006; Smith & Baltes, 1999; Staudinger & Lindenberger, 2003).

Development Is Lifelong

According to the lifespan perspective, no single age period is supreme in its impact on the life course. Rather, events occurring during each major period, summarized in Table 1.1, can have equally powerful effects on future change. Within each period, change occurs in three broad domains: *physical, cognitive,* and *emotional/social,* which we separate for convenience of discussion (see Figure 1.2 for a description of each). Yet, as you already know from reading the first part of this chapter, these domains are not really distinct; they overlap and interact.

Every age period has its own agenda, its unique demands and opportunities that yield some similarities in development across many individuals. Nevertheless, throughout life, the challenges people face and the adjustments they make are highly diverse in timing and pattern, as the remaining assumptions make clear.

TABLE 1.1 Major Periods of Human Development

PERIOD	APPROXIMATE AGE RANGE	BRIEF DESCRIPTION
Prenatal	Conception to birth	The one-celled organism transforms into a human baby with remarkable capacities to adjust to life outside the womb.
Infancy and toddlerhood	Birth–2 years	Dramatic changes in the body and brain support the emergence of a wide array of motor, perceptual, and intellectual capacities and first intimate ties to others.
Early childhood	2–6 years	During the "play years," motor skills are refined, thought and language expand at an astounding pace, a sense of morality is evident, and children establish ties with peers.
Middle childhood	6–11 years	The school years are marked by improved athletic abilities; more logical thought processes; mastery of basic literacy skills; advances in self-understanding, morality, and friendship; and the beginnings of peer-group membership.
Adolescence	11–18 years	Puberty leads to an adult-sized body and sexual maturity. Thought becomes abstract and idealistic and school achievement more serious. Adolescents begin to establish autonomy from the family and to define personal values and goals.
Early adulthood	18–40 years	Most young people leave home, complete their education, and begin full-time work. Major concerns are developing a career, forming an intimate partnership, and marrying, rearing children, or establishing other lifestyles.
Middle adulthood	40–65 years	Many people are at the height of their careers and attain leadership positions. They must also help their children begin independent lives and their parents adapt to aging. They become more aware of their own mortality.
Late adulthood	65 years–death	People adjust to retirement, to decreased physical strength and health, and often to the death of a spouse. They reflect on the meaning of their lives.

FIGURE 1.2 **Major domains of development.** The three domains are not really distinct. Rather, they overlap and interact.

Development Is Multidimensional and Multidirectional

Think back to Sofie's life and how she continually faced new demands and opportunities. From a lifespan perspective, the challenges and adjustments of development are *multidimensional*—affected by an intricate blend of biological, psychological, and social forces.

Lifespan development is also *multidirectional,* in at least two ways. First, development is not limited to improved performance. Rather, at every period, it is a joint expression of growth and decline. When Sofie directed her energies toward mastering languages and music as a school-age child, she gave up refining other skills to their full potential. Later, when she chose to become a teacher, she let go of other career options. Although gains are especially evident early in life, and losses during the final years, people of all ages can improve current skills and develop new ones, including skills that compensate for reduced functioning (Lang, Rohr, & Williger, 2010; Scheibe, Freund, & Baltes, 2007). Most older adults, for example, devise compensatory techniques for dealing with their increasing memory failures. They may rely more on external aids, such as calendars and lists, or generate new internal strategies, such as visualizing exactly where they will be and what they will be doing when they must keep an appointment or take medication (de Frias & Dixon, 2005).

Second, besides being multidirectional over time, change is multidirectional within each domain of development. Although some qualities of Sofie's cognitive functioning (such as memory) probably declined in her mature years, her knowledge of both English and French undoubtedly grew throughout her life. And she also developed new forms of thinking. For example, Sofie's wealth of experience and ability to cope with diverse problems led her to become expert in practical matters—a quality of reasoning called *wisdom.* Recall Sofie's wise advice to Laura and Ken on the eve of their wedding day. We will consider the development of wisdom in Chapter 17. Notice in these examples how the lifespan perspective includes both continuous and discontinuous change.

Development Is Plastic

Lifespan researchers emphasize that development is plastic at all ages. Consider Sofie's social reserve in childhood and her decision to study rather than marry as a young adult. As new opportunities arose, Sofie moved easily into marriage and childbearing in her thirties. And although parenthood and financial difficulties posed challenges to Sofie's and Philip's happiness, their relationship gradually became richer and more fulfilling. In Chapter 17, we will see that intellectual performance also remains flexible with advancing age. Older adults respond to

Biology and Environment

Resilience

John and his best friend, Gary, grew up in a rundown, crime-ridden, inner-city neighborhood. By age 10, each had experienced years of family conflict followed by parental divorce. Reared from then on in mother-headed households, John and Gary rarely saw their fathers. Both dropped out of high school and were in and out of trouble with the police.

Then their paths diverged. By age 30, John had fathered two children with women he never married, had spent time in prison, was unemployed, and drank alcohol heavily. In contrast, Gary had returned to finish high school, had studied auto mechanics at a community college, and had become manager of a gas station and repair shop. Married with two children, he had saved his earnings and bought a home. He was happy, healthy, and well-adapted to life.

A wealth of evidence shows that environmental risks—poverty, negative family interactions and parental divorce, job loss, mental illness, and drug abuse—predispose children to future problems (Masten & Gewirtz, 2006; Sameroff, 2006; Wadsworth & Santiago, 2008). Why did Gary "beat the odds" and come through unscathed?

Research on **resilience**—the ability to adapt effectively in the face of threats to development—is receiving increased attention as investigators look for ways to protect young people from the damaging effects of stressful life conditions (Masten & Powell, 2003). This interest has been inspired by long-term studies on the relationship of life stressors in childhood to competence and adjustment in adolescence and adulthood (Werner, 2013). In each study, some individuals were shielded from negative outcomes, whereas others had lasting problems. Four broad factors offered protection from the damaging effects of stressful life events.

Personal Characteristics

A child's genetically influenced characteristics can reduce exposure to risk or lead to experiences that compensate for early stressful events. High intelligence and socially valued talents (in music or athletics, for example) increase the chances that a child will have rewarding experiences in school and in the community that offset the impact of a stressful home life. Temperament is particularly powerful. Children who have easygoing, sociable dispositions and who can readily inhibit negative emotions and impulses tend to have an optimistic outlook on life and a special capacity to adapt to change—

This boy's close, affectionate relationship with his father promotes resilience. A strong bond with at least one parent who combines warmth with appropriate expectations for maturity can shield children from the damaging effects of stressful life conditions.

special training with substantial (but not unlimited) gains in a wide variety of mental abilities (Stine-Morrow & Basak, 2011).

Evidence on plasticity reveals that aging is not an eventual "shipwreck," as has often been assumed. Instead, the metaphor of a "butterfly"—of metamorphosis and continued potential—provides a far more accurate picture of lifespan change. Still, development gradually becomes less plastic, as both capacity and opportunity for change are reduced. And plasticity varies greatly across individuals. Some children and adults experience more diverse life circumstances. Also, as the Biology and Environment box above indicates, some adapt more easily than others to changing conditions.

Development Is Influenced by Multiple, Interacting Forces

According to the lifespan perspective, pathways of change are highly diverse because *development is influenced by multiple forces:* biological, historical, social, and cultural. Although these wide-ranging influences can be organized into three categories, they work together, combining in unique ways to fashion each life course.

Age-Graded Influences. Events that are strongly related to age and therefore fairly predictable in when they occur and how long they last are called **age-graded influences.** For example, most individuals walk shortly after their first birthday, acquire their native language during the preschool years, reach puberty around age 12 to 14, and (for women) experience menopause in their late forties or early fifties. These milestones are influenced by biology, but social customs—such as starting school around age 6, getting a driver's license at age 16, and entering college around age 18—can create age-graded influences as well. Age-graded influences are especially prevalent in childhood and adolescence, when biological changes are rapid and cultures impose many age-related experiences to ensure

qualities that elicit positive responses from others. In contrast, emotionally reactive and irritable children often tax the patience of people around them (Vanderbilt-Adriance & Shaw, 2008; Wang & Deater-Deckard, 2013). For example, both John and Gary moved several times during their childhoods. Each time, John became anxious and angry. Gary looked forward to making new friends and exploring a new neighborhood.

A Warm Parental Relationship

A close relationship with at least one parent who provides warmth, appropriately high expectations, monitoring of the child's activities, and an organized home environment fosters resilience (Masten & Shaffer, 2006; Taylor, 2010). But this factor (as well as the next one) is not independent of children's personal characteristics. Children who are relaxed, socially responsive, and able to deal with change are easier to rear and more likely to enjoy positive relationships with parents and other people. At the same time, some children develop more attractive dispositions as a result of parental warmth and attention (Gulotta, 2008).

Social Support Outside the Immediate Family

The most consistent asset of resilient children is a strong bond with a competent, caring adult. For children who do not have a close bond with either parent, a grandparent, aunt, uncle, or teacher who forms a special relationship with the child can promote resilience (Masten & Reed, 2002). Gary received support in adolescence from his grandfather, who listened to Gary's concerns and helped him solve problems. In addition, Gary's grandfather had a stable marriage and work life and handled stressors skillfully. Consequently, he served as a model of effective coping.

Associations with rule-abiding peers who value school achievement are also linked to resilience (Tiet, Huizinga, & Byrnes, 2010). But children who have positive relationships with adults are far more likely to establish these supportive peer ties.

Community Resources and Opportunities

Community supports—good schools, convenient and affordable health care and social services, libraries, and recreation centers—foster both parents' and children's well-being. In addition, opportunities to participate in community life help older children and adolescents overcome adversity. Extracurricular activities at school, religious youth groups, scouting, and other organizations teach important social skills, such as cooperation, leadership, and contributing to others' welfare. As participants acquire these competencies, they gain in self-reliance, self-esteem, and community commitment (Benson et al., 2006). As a college student, Gary volunteered for Habitat for Humanity, joining a team building affordable housing in low-income neighborhoods. Community involvement offered Gary opportunities to form meaningful relationships, which further strengthened his resilience.

Research on resilience highlights the complex connections between heredity and environment. Armed with positive characteristics, which stem from native endowment, favorable rearing experiences, or both, children and adolescents can act to reduce stressful situations.

But when many risks pile up, they are increasingly difficult to overcome (Obradović et al., 2009). To inoculate children against the negative effects of risk, interventions must not only reduce risks but also enhance children's protective relationships at home, in school, and in the community. This means attending to both the person and the environment—strengthening the individual's capacities while also reducing hazardous experiences.

YOON S. BYUN/THE BOSTON GLOBE/GETTY IMAGES

For these 18-year-olds, moving into their college dorm is a major life transition, offering new freedoms and responsibilities. Entering college is an age-graded influence, occurring at about the same age for most young people.

that young people acquire the skills they need to participate in their society.

History-Graded Influences. Development is also profoundly affected by forces unique to a particular historical era. Examples include epidemics, wars, and periods of economic prosperity or depression; technological advances, such as the introduction of television, computers, and the Internet; and changes in cultural values, such as attitudes toward women and ethnic minorities. These **history-graded influences** explain why people born around the same time—called a *cohort*—tend to be alike in ways that set them apart from people born at other times.

Consider the *baby boomers*, a term used to describe people born between 1946 and 1964, the post–World War II period during which birth rates soared in most Western nations. This population increase was especially sharp in the United States: By 1960, the prewar birth rate had nearly doubled, yielding the

Cultural Influences

The Baby Boomers Reshape the Life Course

From 1946 to 1964, 92 percent of all American women of childbearing age gave birth, averaging almost four children each—a new baby every 8 seconds (Croker, 2007). This splurge of births, which extended for nearly two decades, yielded a unique generation often credited with changing the world. Today, the baby boomers comprise more than 80 million adults—nearly 30 percent of the U.S. population (U.S. Census Bureau, 2012). Most are middle aged, with the oldest having recently entered late adulthood.

Several interrelated factors sparked the post–World War II baby boom. Many people who had postponed marriage and parenthood throughout the Great Depression of the 1930s started families in the 1940s, once the economy had improved. With the end of World War II, returning GIs also began to have children. As these two cohorts focused on childbearing, they gave birth to babies who otherwise would have been spaced out over 10 to 15 years. And as economic prosperity accelerated in the 1950s, making larger families affordable, more people married at younger ages and had several children closely spaced, which led the baby boom to persist into the 1960s (Stewart & Malley, 2004). Finally, after a war, the desire to make babies generally strengthens. Besides replacing massive loss of life, new births signify hope that "human life will continue" (Croker, 2007, p. 9).

Compared with the previous generation, many more young baby boomers were economically privileged. They were also the recipients of deep emotional investment from their parents, who—having undergone the deprivations of depression and war—often ranked children as the most enduring benefit of their adult lives. These factors may have engendered optimism, confidence, even a sense of entitlement (Elder, Nguyen, & Caspi, 1985). At the same time, their huge numbers—evident in overflowing school classrooms—may have sparked an intense struggle for individual recognition. By the time the boomers reached early adulthood, this set of traits led critics to label them a narcissistic, indulged, "me" generation.

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Rock star Bono, born in 1960, is a "trailing edge" baby boomer who, like many in his cohort, has a strong sense of social responsibility. Here he holds a child at a health clinic in Lesotho. Bono is a leader in the fight against AIDS and poverty in Africa.

From the mid-1960s to the early 1970s, the "leading-edge" baby boomers (born in the late 1940s and early 1950s) entered colleges and universities in record numbers, becoming better educated than any previous generation. This cohort—self-focused, socially aware, and in search of distinction—broke away from their parents'

largest gain in the nation's history. The sheer size of the baby-boom generation made it a powerful social force from the time its members became young adults; today, the baby boomers are redefining our view of middle and late adulthood (see the Cultural Influences box above).

LOOK AND LISTEN

Identify a history-graded influence in your life, and speculate about its impact on people your age. Then ask someone a generation older than you to identify a history-graded influence in his or her life and to reflect on its impact. ●

Nonnormative Influences. Age-graded and history-graded influences are *normative*—meaning typical, or average—because each affects large numbers of people in a similar way. **Nonnormative influences** are events that are irregular: They happen to just one person or a few people and do not follow a predictable timetable. Consequently, they enhance the multidirectionality of development. Nonnormative influences that had a major impact on the direction of Sofie's life included piano lessons in childhood with an inspiring teacher; delayed marriage, parenthood, and career entry; and a battle with cancer. Because they occur haphazardly, nonnormative events are difficult for researchers to capture and study. Yet, as each of us can attest from our own experiences, they can affect us in powerful ways.

Nonnormative influences have become more powerful and age-graded influences less so in contemporary adult development. Compared with Sofie's era, much greater diversity exists today in the ages at which people finish their education, enter careers, get married, have children, and retire. Indeed, Sofie's "off-time" accomplishments would have been less unusual had she been born two generations later! Age remains a powerful organizer of everyday experiences, and age-related expectations have certainly not disappeared. But age markers have blurred, and they vary across ethnic groups and cultures. The increasing

family- and marriage-centered lifestyles. Starting in the mid-sixties, marriage rates declined, age of first marriage rose, and divorce rates increased. And the baby boomers responded to the turbulence of those times—the assassination of President Kennedy in 1963, the Vietnam War, and growing racial tensions—by mobilizing around the antiwar, civil rights, and women's movements, yielding a generation of student activists.

By the time the "trailing-edge" boomers (born in the late 1950s and early 1960s) came of age, these movements had left an enduring mark. Even as they turned toward family life and career development, the boomers continued to search for personal meaning, self-expression, and social responsibility. By midlife, the generation had produced an unusually large number of socially concerned writers, teachers, filmmakers, and labor and community organizers, as well as innovative musicians and artists (Cole & Stewart, 1996; Dickstein, 1992). And a multitude of ordinary citizens worked to advance social causes.

In addition, as baby-boom women entered the labor market and struggled for career advancement and equal pay, their self-confidence grew, and they paved the way for the next generation: On average, younger women attained this same level of self-confidence at a much earlier age (Stewart & Ostrove, 1998; Twenge, 1997, 2001). And as baby-boom activists pressed for gender and racial equality, they influenced national policy. The 1960s saw laws passed that banned discrimination in employment practices, in racial access to public accommodations, and in sale or rental of housing. By the 1970s, progress in civil rights served as the springboard for the gay and lesbian rights movement.

Today, the baby boomers are the largest generation ever to have entered middle age, and they are healthier, better educated, and financially better off than any previous midlife cohort (Whitbourne & Willis, 2006). Their sense of self-empowerment and innovativeness is bringing new vitality to this period of the lifespan, including efforts to increase the personal meaningfulness of their careers and to deepen their lifelong engagement with social causes. Yet another concern of baby-boom midlifers is an intense desire to control the physical changes of aging (Hooyman & Kiyak, 2011). Far more than their predecessors, they resist growing old, as indicated by their interest in a wide array of anti-aging products and procedures—from cosmetics to Botox to plastic surgery—that are now a multibillion-dollar U.S. industry.

Nevertheless, it is important to note that the baby boomers—though advantaged as a generation—are diverse in health status and sense of control over their lives. Those higher in education and income considerably better off. And because retirement savings were heavily hit by the economic recession of 2007 to 2009, many are working longer than they otherwise had planned.

What lies ahead as this gigantic population bulge moves into late adulthood? Most analysts focus on societal burdens, such as rising social security and health-care costs. At the same time, as the boomers continue to build on the foundation laid in middle age, they could become "our only increasing natural resource" (Freedman, 1999). After retirement, they will have more time to care about others—and more relevant experience and years left to do so—than any previous generation. Policies and programs aimed at recruiting older adults into volunteer and service roles may be one of the most effective ways to "channel good will into good deeds," combat social ills, and enhance development during all periods of life.

role of nonnormative events in the life course adds to the fluid nature of lifespan development.

Notice that instead of a single line of development, the lifespan perspective emphasizes many potential pathways and outcomes—an image more like tree branches extending in diverse directions, which may undergo both continuous and stagewise transformations (see Figure 1.3). Now let's turn to scientific foundations of the field as a prelude to major theories that address various aspects of change.

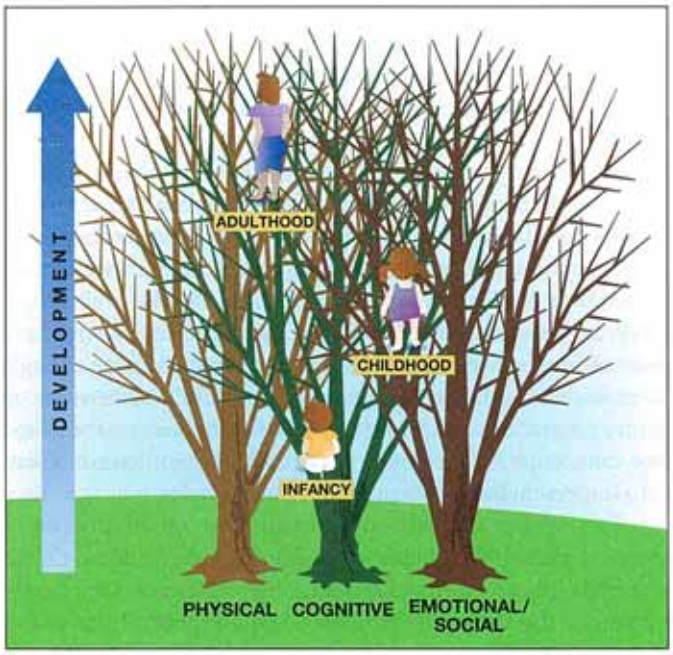


FIGURE 1.3 The lifespan view of development. Rather than envisioning a single line of stagewise or continuous change (see Figure 1.1 on page 6), lifespan theorists conceive of developmentas more like tree branches extending in diverse directions. Many potential pathways are possible, depending on the contexts that influence the individual's life course. Each branch in this treelike image represents a possible skill within one of the major domains of development. The crossing of the branches signifies that the domains—physical, cognitive, emotional, and social—are interrelated.

ASK YOURSELF

REVIEW Distinguish age-graded, history-graded, and nonnormative influences on lifespan development. Cite an example of each in Sofie's story.

CONNECT What stand does the lifespan perspective take on the issue of *one course of development or many?* How about the relative influence of *nature and nurture?* Explain.

APPLY Anna, a high school counselor, has devised a program that integrates classroom learning with vocational training to help adolescents at risk for school dropout stay in school and transition smoothly to work life. What is Anna's position on *stability versus plasticity* in development? Explain.

REFLECT Describe an aspect of your development that differs from a parent's or a grandparent's when he or she was your age. Using influences highlighted by the lifespan perspective, explain this difference in development.

Scientific Beginnings

Scientific study of human development dates back to the late nineteenth and early twentieth centuries. Early observations of human change were soon followed by improved methods and theories. Each advance contributed to the firm foundation on which the field rests today.

Darwin: Forefather of Scientific Child Study

British naturalist Charles Darwin (1809–1882) observed the infinite variation among plant and animal species. He also saw that within a species, no two individuals are exactly alike. From these observations, he constructed his famous *theory of evolution.*

The theory emphasized two related principles: *natural selection* and *survival of the fittest.* Darwin explained that certain species survive in particular environments because they have characteristics that fit with, or are adapted to, their surroundings. Other species die off because they are less well-suited to their environments. Individuals within a species who best meet the environment's survival requirements live long enough to reproduce and pass their more beneficial characteristics to future generations. Darwin's (1859/1936) emphasis on the adaptive value of physical characteristics and behavior found its way into important developmental theories.

During his explorations, Darwin discovered that early prenatal growth is strikingly similar in many species. Other scientists concluded from Darwin's observations that the development of the human child follows the same general plan as the evolution of the human species. Although this belief eventually proved inaccurate, efforts to chart parallels between child growth and human evolution prompted researchers to make careful observations of all aspects of children's behavior. Out of these first attempts to document an idea about development, scientific child study was born.

The Normative Period

G. Stanley Hall (1844–1924), one of the most influential American psychologists of the early twentieth century, is generally regarded as the founder of the child study movement (Cairns & Cairns, 2006). He also foreshadowed lifespan research by writing one of the few books of his time on aging. Inspired by Darwin's work, Hall and his well-known student Arnold Gesell (1880–1961) devised theories based on evolutionary ideas. They regarded development as a *maturational process*—a genetically determined series of events that unfold automatically, much like a flower (Gesell, 1933; Hall, 1904).

Hall and Gesell are remembered less for their one-sided theories than for their intensive efforts to describe all aspects of

Darwin's theory of evolution emphasizes the adaptive value of physical characteristics and behavior. Affection and care in families promote survival and psychological well-being throughout the lifespan. Here, a son helps his father adjust to using a walker.

development. This launched the **normative approach,** in which measures of behavior are taken on large numbers of individuals, and age-related averages are computed to represent typical development. Using this procedure, Hall constructed elaborate questionnaires asking children of different ages almost everything they could tell about themselves—interests, fears, imaginary playmates, dreams, friendships, everyday knowledge, and more. Similarly, through careful observations and parent interviews, Gesell collected detailed normative information on the motor achievements, social behaviors, and personality characteristics of infants and children.

Gesell was also among the first to make knowledge about child development meaningful to parents by informing them of what to expect at each age. If the timetable of development is the product of millions of years of evolution, as Gesell believed, then children are naturally knowledgeable about their needs. His child-rearing advice recommended sensitivity to children's cues (Thelen & Adolph, 1992). Along with Benjamin Spock's *Baby and Child Care,* Gesell's books became a central part of a rapidly expanding child development literature for parents.

The Mental Testing Movement

While Hall and Gesell were developing their theories and methods in the United States, French psychologist Alfred Binet (1857–1911) was also taking a normative approach to child development, but for a different reason. In the early 1900s, Binet and his colleague Theodore Simon were asked by Paris school officials to find a way to identify children with learning problems who needed to be placed in special classes. To address these practical educational concerns, Binet and Simon constructed the first successful intelligence test.

In 1916, at Stanford University, Binet's test was adapted for use with English-speaking children. Since then, the English version has been known as the *Stanford-Binet Intelligence Scale.* Besides providing a score that could successfully predict school achievement, the Binet test sparked tremendous interest in individual differences in development. Comparisons of the scores of people who vary in gender, ethnicity, birth order, family background, and other characteristics became a major focus of research. And intelligence tests moved quickly to the forefront of the nature–nurture controversy.

Mid-Twentieth-Century Theories

In the mid-twentieth century, the study of human development expanded into a legitimate discipline. As it attracted increasing interest, a variety of theories emerged, each of which continues to have followers today. In these theories, the European concern with the individual's inner thoughts and feelings contrasts sharply with the North American academic focus on scientific precision and concrete, observable behavior.

The Psychoanalytic Perspective

In the 1930s and 1940s, as more people sought help from professionals to deal with emotional difficulties, a new question had to be addressed: How and why do people become the way they are? To treat psychological problems, psychiatrists and social workers turned to an emerging approach to personality development that emphasized each individual's unique life history.

According to the **psychoanalytic perspective,** people move through a series of stages in which they confront conflicts between biological drives and social expectations. How these conflicts are resolved determines the person's ability to learn, to get along with others, and to cope with anxiety. Among the many individuals who contributed to the psychoanalytic perspective, two were especially influential: Sigmund Freud, founder of the psychoanalytic movement, and Erik Erikson.

Freud's Theory. Freud (1856–1939), a Viennese physician, sought a cure for emotionally troubled adults by having them talk freely about painful events of their childhoods. Working with these recollections, he examined the unconscious motivations of his patients and constructed his **psychosexual theory,** which emphasizes that how parents manage their child's sexual and aggressive drives in the first few years is crucial for healthy personality development.

In Freud's theory, three parts of the personality—id, ego, and superego—become integrated during five stages, summarized in Table 1.2 on page 16. The *id,* the largest portion of the mind, is the source of basic biological needs and desires. The *ego,* the conscious, rational part of personality, emerges in early infancy to redirect the id's impulses so they are discharged in acceptable ways.

Between 3 and 6 years of age, the *superego,* or conscience, develops as parents insist that children conform to the values of society. Now the ego faces the increasingly complex task of reconciling the demands of the id, the external world, and conscience (Freud, 1923/1974). For example, when the id impulse to grab an attractive toy from a playmate confronts the superego's warning that such behavior is wrong, the ego must mediate between these two forces, deciding which will win the inner struggle or, alternatively, work out a compromise, such as asking for a turn with the toy. According to Freud, the relations established among the id, ego, and superego during the preschool years determine the individual's basic personality.

Freud (1938/1973) believed that during childhood, sexual impulses shift their focus from the oral to the anal to the genital regions of the body. In each stage, parents walk a fine line between permitting too much or too little gratification of their child's basic needs. If parents strike an appropriate balance, then children grow into well-adjusted adults with the capacity for mature sexual behavior and investment in family life.

Freud's theory was the first to stress the influence of the early parent–child relationship on development. But his perspective was eventually criticized. First, it overemphasized the influence of sexual feelings in development. Second, because it

TABLE 1.2 Freud's Psychosexual Stages and Erikson's Psychosocial Stages Compared

APPROXIMATE AGE	FREUD'S PSYCHOSEXUAL STAGE	ERIKSON'S PSYCHOSOCIAL STAGE
Birth–1 year	***Oral:*** The new ego directs the baby's sucking activities toward breast or bottle. If oral needs are not met, the individual may develop such habits as thumb sucking, fingernail biting, overeating, or smoking.	***Basic trust versus mistrust:*** From warm, responsive care, infants gain a sense of trust, or confidence, that the world is good. Mistrust occurs if infants are neglected or handled harshly.
1–3 years	***Anal:*** Toddlers and preschoolers enjoy holding and releasing urine and feces. If parents toilet train before children are ready or make too few demands, conflicts about anal control may appear in the form of extreme orderliness or disorder.	***Autonomy versus shame and doubt:*** Using new mental and motor skills, children want to decide for themselves. Parents can foster autonomy by permitting reasonable free choice and not forcing or shaming the child.
3–6 years	***Phallic:*** As preschoolers take pleasure in genital stimulation, Freud's Oedipus conflict for boys and Electra conflict for girls arise: Children feel a sexual desire for the other-sex parent. To avoid punishment, they give up this desire and adopt the same-sex parent's characteristics and values. As a result, the superego is formed, and children feel guilty when they violate its standards.	***Initiative versus guilt:*** Through make-believe play, children gain insight into the person they can become. Initiative—a sense of ambition and responsibility—develops when parents support their child's sense of purpose. But if parents demand too much self-control, children experience excessive guilt.
6–11 years	***Latency:*** Sexual instincts die down, and the superego strengthens as the child acquires new social values from adults and same-sex peers.	***Industry versus inferiority:*** At school, children learn to work and cooperate with others. Inferiority develops when negative experiences at home, at school, or with peers lead to feelings of incompetence.
Adolescence	***Genital:*** With puberty, sexual impulses reappear. Successful development during earlier stages leads to marriage, mature sexuality, and child rearing.	***Identity versus role confusion:*** By exploring values and vocational goals, the young person forms a personal identity. The negative outcome is confusion about future adult roles.
Early adulthood		***Intimacy versus isolation:*** Young adults establish intimate relationships. Because of earlier disappointments, some individuals cannot form close bonds and remain isolated.
Middle adulthood		***Generativity versus stagnation:*** Generativity means giving to the next generation through child rearing, caring for others, or productive work. The person who fails in these ways feels an absence of meaningful accomplishment.
Old age		***Integrity versus despair:*** Integrity results from feeling that life was worth living as it happened. Older people who are dissatisfied with their lives fear death.

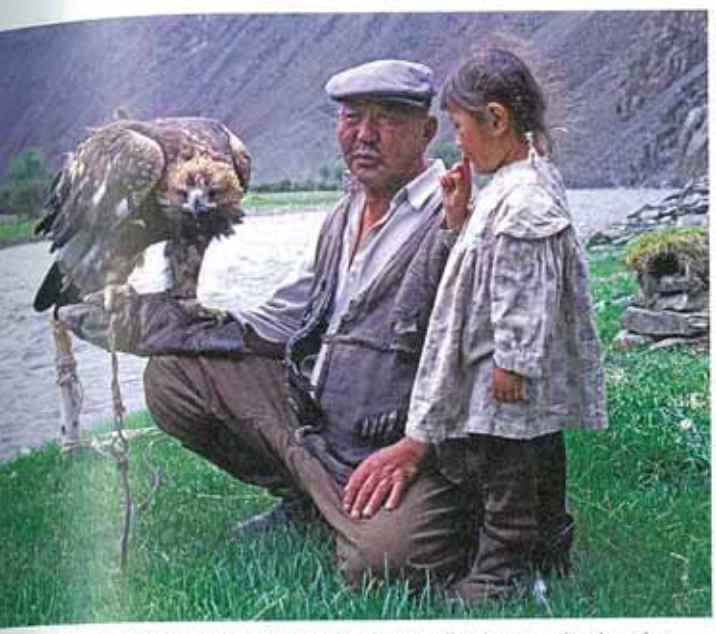
© OLIVE PIERCE/BLACK STAR

Erik Erikson

was based on the problems of sexually repressed, well-to-do adults in nineteenth-century Viennese society, it did not apply in other cultures. Finally, Freud had not studied children directly.

Erikson's Theory. Several of Freud's followers took what was useful from his theory and improved on his vision. The most important of these neo-Freudians is Erik Erikson (1902–1994), who expanded the picture of development at each stage. In his **psychosocial theory,** Erikson emphasized that in addition to mediating between id impulses and superego demands, the ego makes a positive contribution to development, acquiring attitudes and skills that make the individual an active, contributing member of society. A basic psychosocial conflict, which is resolved along a continuum from positive to negative, determines healthy or maladaptive outcomes at each stage. As Table 1.2 shows, Erikson's first five stages parallel Freud's stages, but Erikson added three adult stages.

Unlike Freud, Erikson pointed out that normal development must be understood in relation to each culture's life situation. For example, in the 1940s, he observed that Yurok Indians of the northwest coast of the United States deprived babies of breastfeeding for the first 10 days after birth and instead fed them a thin soup. At age 6 months, infants were abruptly weaned—if necessary, by having the mother leave for a few days.



ANTONIA TOZER/GETTY IMAGES/AWL IMAGES RM

A child of the Kazakh people of Mongolia observes closely as her grandfather demonstrates how to train an eagle to hunt small animals, essential for the heavily meat-based Kazakh diet. As Erikson recognized, this parenting practice is best understood in relation to the competencies valued and needed in Kazakh culture.

From our cultural vantage point, these practices seem cruel. But Erikson explained that because the Yurok depended on salmon, which fill the river just once a year, the development of considerable self-restraint was essential for survival. In this way, he showed that child rearing is responsive to the competencies valued and needed by an individual's society.

Contributions and Limitations of the Psychoanalytic Perspective. A special strength of the psychoanalytic perspective is its emphasis on the individual's unique life history as worthy of study and understanding. Consistent with this view, psychoanalytic theorists accept the *clinical,* or *case study, method,* which synthesizes information from a variety of sources into a detailed picture of the personality of a single person. (We will discuss this 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 human development research. Psychoanalytic theorists may have become isolated from the rest of the field because they were so strongly committed to in-depth study of individuals 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 (Crain, 2005; Thomas, 2005).

Nevertheless, Erikson's broad outline of lifespan change captures the essence of psychosocial attainments during each major period of the life course. We will return to it, along with other perspectives inspired by Erikson's theory, in later chapters.

Behaviorism and Social Learning Theory

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

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). Because of this association, the neutral stimulus alone 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, began to cry and turn his head away at the 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. Watson concluded that environment is the supreme force in development and that adults can mold children's behavior by carefully controlling stimulus–response associations. He viewed development as a continuous process—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, or a friendly smile. 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 in Chapter 4.

Social Learning Theory. Psychologists wondered whether behaviorism might offer a more direct and effective explanation of the development of social behavior than the less precise concepts of psychoanalytic theory. This sparked approaches that built on the principles of conditioning, offering expanded views of how children and adults acquire new responses.

Several kinds of **social learning theory** emerged. The most influential, devised by Albert Bandura (1925–), emphasizes *modeling,* also known as *imitation* or *observational learning,* as a powerful source of development. 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. In his early work, Bandura found that diverse factors affect children's motivation to imitate: their own history of reinforcement or punishment for the behavior, the promise of future reinforcement or punishment, and even vicarious reinforcement or punishment (observing the model being reinforced or punished).

Bandura's work continues to influence much research on social development. But today, his theory stresses the importance of *cognition,* or thinking. In fact, the most recent revision of Bandura's (1992, 2001) theory places such strong emphasis on how we think about ourselves and other people that he calls it a *social-cognitive* rather than a social learning approach.

In Bandura's revised 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 individuals 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 been helpful in treating a wide range of adjustment problems. **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 difficulties in children and adults, ranging from poor time management and unwanted habits to serious problems, such as language delays, persistent aggression, and extreme fears (Martin & Pear, 2011).

Nevertheless, many theorists believe that behaviorism and social learning theory offer too narrow a view of important environmental influences, which extend beyond immediate reinforcement, punishment, and modeled behaviors to people's rich physical and social worlds. Behaviorism and social learning theory have also been criticized for underestimating people's contributions to their own development. Bandura, with his emphasis on cognition, is unique among theorists whose work grew out of the behaviorist tradition in granting children and adults an active role in their own learning.

Social learning theory recognizes that children acquire many skills through modeling. By observing and imitating her mother, this Vietnamese preschooler learns to use chopsticks.

Piaget's Cognitive-Developmental Theory

If one individual has influenced research on child development more than any other, it is Swiss cognitive theorist Jean Piaget (1896–1980). North American investigators had been aware of Piaget's work since 1930. But they did not grant it much attention until the 1960s, mainly because Piaget's ideas were at odds with behaviorism, which dominated North American psychology in the mid-twentieth century (Cairns & Cairns, 2006). 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,

TABLE 1.3 Piaget's Stages of Cognitive Development

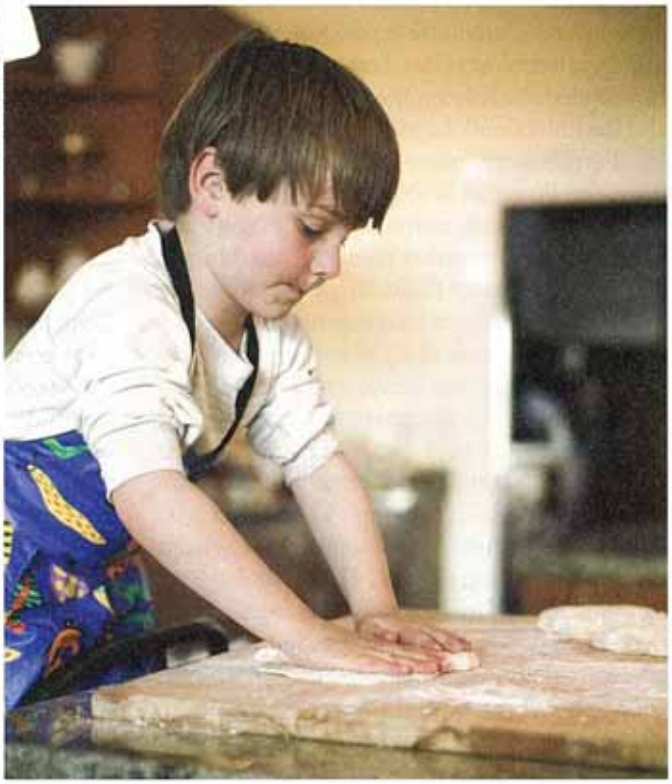
STAGE	PERIOD OF DEVELOPMENT	DESCRIPTION
Sensorimotor	Birth–2 years	Infants "think" by acting on the world with their eyes, ears, hands, and mouth. As a result, they invent ways of solving sensorimotor problems, such as pulling a lever to hear the sound of a music box, finding hidden toys, and putting objects into and taking them out of containers.
Preoperational	2–7 years	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.
Concrete operational	7–11 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, children think in a logical, organized fashion only when dealing with concrete information they can perceive directly.
Formal operational	11 years on	The capacity for abstract, systematic thinking enables adolescents, when faced with a problem, to start with a hypothesis, deduce testable inferences, and isolate and combine variables to see which inferences are confirmed. Adolescents can also evaluate the logic of verbal statements without referring to real-world circumstances.

Jean Piaget

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 a liquid 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. Cognitive development begins in the *sensorimotor stage* 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, logical reasoning of the school-age child in the *concrete operational stage.* Finally, in the *formal operational stage,* thought becomes the abstract, systematic reasoning system of the adolescent and adult.

Piaget devised special methods for investigating how children think. Early in his career, he carefully observed his three infant children and presented them with everyday problems, such as an attractive object that could be grasped, mouthed,



In Piaget's concrete operational stage, school-age children think in an organized, logical fashion about concrete objects. This 7-year-old understands that the quantity of pie dough remains the same after he changes its shape from a ball to a flattened circle.

kicked, or searched for. From their responses, Piaget derived his ideas about cognitive changes during the first two years. To study childhood and adolescent thought, Piaget 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 Piaget's next question. 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 convinced the field that children are active learners whose minds 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. In practical terms, Piaget's theory encouraged the development of educational philosophies and programs that emphasize 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 and relevant to their everyday experiences, their understanding appears closer to that of the older child and adult than Piaget assumed. Also, adolescents generally reach their full intellectual potential only in areas of endeavor in which they have had extensive education and experience (Kuhn, 2008). These findings have led many researchers to conclude that cognitive maturity depends heavily on the complexity of knowledge sampled and the individual's familiarity with the task.

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 (Klahr & Nigam, 2004; Siegler & Svetina, 2006). Critics also point out that Piaget's stagewise account pays insufficient attention to social and cultural influences on development. Finally, some lifespan theorists disagree with Piaget's conclusion that no major cognitive changes occur after adolescence. Several have proposed important transformations in adulthood (Labouvie-Vief, 2006; Moshman, 2011; Perry, 1970/1998).

Today, the field of developmental science is divided over its loyalty to Piaget's ideas (Desrochers, 2008). Those who continue to find merit in Piaget's stages often accept a modified view—one in which changes in thinking take place more gradually than Piaget believed (Case, 1998; Demetriou et al., 2002; Fischer & Bidell, 2006; Halford & Andrews, 2006). Among those who disagree with Piaget's stage sequence, some have embraced 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.

ASK YOURSELF

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

CONNECT 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.

APPLY 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?

REFLECT Describe a personal experience in which you received feedback from another person that strengthened your sense of self-efficacy—belief that your abilities and characteristics will help you succeed.

Recent Theoretical Perspectives

New ways of understanding the developing person 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 lifespan development.

Information Processing

In the 1970s and 1980s, researchers turned to the field of cognitive psychology for ways to understand the development of 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; Munakata, 2006). From the time information is presented to the senses at *input* until it emerges as a behavioral response at *output*, information is actively coded, transformed, and organized.

Information-processing researchers often design 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." They seek to clarify how both task characteristics and cognitive limitations—for example, memory capacity or available knowledge—influence performance (Birney & Sternberg, 2011). To see the usefulness of this approach, let's look at an example.

In a study of problem solving, a researcher provided a pile of blocks varying in size, shape, and weight and asked school-age

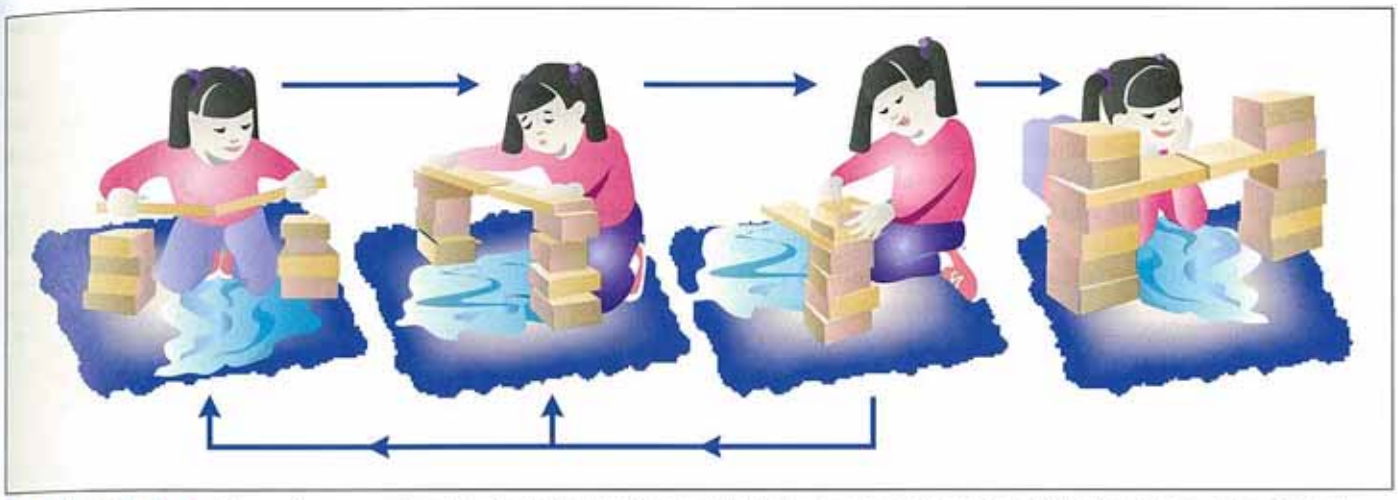


FIGURE 1.4 Information-processing flowchart showing the steps that a 5-year-old used to solve a bridge-building problem. Her task was to use blocks varying in size, shape, and weight, some of which were planklike, to construct a bridge across a "river" (painted on a floor mat) too wide for any single block to span. The child discovered how to counterweight and balance the bridge. 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.)

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 1.4 shows one solution: 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.

Many 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 (Gopnik & Tenenbaum, 2007; Johnson & Mareschal, 2001; Westermann et al., 2006). These general models are used as guides for asking questions about broad changes in thinking: Does a child's ability to solve problems become more organized and "planful" with age? Why is information processing slower among older than younger adults? Are declines in memory during old age evident on all types of tasks or only some?

Like Piaget's theory, the information-processing approach regards people as actively making sense of their own thinking (Halford, 2005; Munakata, 2006). But unlike Piaget's theory, it does not divide development into stages. Rather, most information-processing researchers regard the thought processes studied—perception, attention, memory, planning strategies, categorization of information, and comprehension of written and spoken prose—as similar at all ages but present to a lesser or greater extent. Their view of development is one of continuous change.

A great strength of the information-processing approach is its commitment to rigorous research methods. Because it has provided precise accounts of how children and adults tackle many cognitive tasks, its findings have important implications for education (Blumenfeld, Marx, & Harris, 2006; Siegler, 2009). But information processing has fallen short in some respects. It has been better at analyzing thinking into its components than at putting them back together into a comprehensive theory. And it has little to say about aspects of cognition that are not linear and logical, such as imagination and creativity.

Developmental Cognitive Neuroscience

Over the past three decades, as information-processing research has expanded, a new area of investigation arose, called **developmental cognitive neuroscience.** It brings together researchers from psychology, biology, neuroscience, and medicine to study the relationship between changes in the brain and the developing person's cognitive processing and behavior patterns.

Improved methods for analyzing brain activity while children and adults perform various tasks have greatly enhanced knowledge of relationships between brain functioning, cognitive capacities, and behavior (Pennington, Snyder, & Roberts, 2007; Westermann et al., 2007). Armed with these brain-imaging techniques (which we will consider in Chapter 4), neuroscientists are tackling questions like these: How does genetic makeup combine with specific experiences at various ages to influence the growth and organization of the young child's brain? What transformations in the brain make it harder for adolescents and adults than for children to acquire a second language? What neurological changes are related to declines in speed of thinking, memory, and other aspects of cognitive processing in old age?

During the first five years, the brain is highly plastic—especially open to growth as a result of experience. But it retains

considerable plasticity throughout life. Neuroscientists are making rapid progress in identifying the types of experiences that support or undermine brain development at various ages. They are also clarifying the brain bases of many learning and behavior disorders, and they are contributing to effective interventions by examining the impact of various intervention techniques on both brain functioning and behavior (Durston & Conrad, 2007; Luciana, 2007; Schlaggar & McCandliss, 2007). Although much remains to be discovered, developmental cognitive neuroscience is already transforming our understanding of development and yielding major practical applications throughout the lifespan.

An advantage of having many theories is that they encourage researchers to attend to previously neglected dimensions of people's lives. The final three perspectives we will discuss focus on *contexts* for development. The first of these views emphasizes that the development of many capacities is influenced by our long evolutionary history.

Ethology and Evolutionary Developmental Psychology

Ethology is concerned with the adaptive, or survival, value of behavior and its evolutionary history. Its roots can be traced to the work of Darwin. Two European zoologists, Konrad Lorenz and Niko Tinbergen, laid its modern foundations. Watching diverse animal species in their natural habitats, Lorenz and Tinbergen observed behavior patterns that promote survival. The best known of these is *imprinting*, the early following behavior of certain baby birds, such as geese, that ensures that the young will stay close to the mother and be fed and protected from danger. Imprinting takes place during an early, restricted period of development (Lorenz, 1952). If the mother goose is absent during this time but an object resembling her in important features is present, young goslings may imprint on it instead.

Observations of imprinting led to a major concept in human development: the *critical period*. It refers to a limited time span during which the individual is biologically prepared to acquire certain adaptive behaviors but needs the support of an appropriately stimulating environment. Many researchers have investigated whether complex cognitive and social behaviors must be learned during certain time periods. For example, if children are deprived of adequate food or physical and social stimulation during their early years, will their intelligence be impaired? If language learning is impeded in childhood due to limited parent–child communication, is the capacity to acquire language later reduced?

In later chapters, we will see that the term *sensitive period* applies better to human development than the strict notion of a critical period (Bornstein, 1989). A **sensitive period** is a time that is optimal for certain capacities to emerge and in which the individual is especially responsive to environmental influences. However, its boundaries are less well-defined than those of a critical period. Development can occur later, but it is harder to induce.

Inspired by observations of imprinting, British psychoanalyst John Bowlby (1969) applied ethological theory to the understanding of the human infant–caregiver relationship. He argued that infant smiling, babbling, grasping, and crying are built-in social signals that encourage the caregiver to approach, care for, and interact with the baby. By keeping the parent near, these behaviors help ensure that the infant will be fed, protected from danger, and provided with stimulation and affection necessary for healthy growth. The development of attachment in humans is a lengthy process that leads the baby to form a deep affectionate tie with the caregiver (Thompson, 2006). Bowlby believed that this bond has lifelong consequences for human relationships. In later chapters, we will consider research that evaluates this assumption.

MARTIN HARVEY/GETTY IMAGES/PETER ARNOLD

Ethology focuses on the adaptive, or survival, value of behavior and on similarities between human behavior and that of other species, especially our primate relatives. Observing this chimpanzee mother cuddling her infant helps us understand the human caregiver–infant relationship.

Observations by ethologists have shown that many aspects of social behavior, including emotional expressions, aggression, cooperation, and social play, resemble those of our primate relatives. Recently, researchers have extended this effort in a new area of research called **evolutionary developmental psychology.** It seeks to understand the adaptive value of specieswide cognitive, emotional, and social competencies as those competencies change with age Geary, 2006b; King & Bjorklund, 2010). Evolutionary developmental psychologists ask questions like these: What role does the newborn's visual preference for facelike stimuli play in survival? Does it support older infants' capacity to distinguish familiar caregivers from unfamiliar people? Why do children play in gender-segregated groups? What do they learn from such play that might lead to adult gender-typed behaviors, such as male dominance and female investment in caregiving?

Human longevity may have adaptive value. It enables younger family members to draw on older adults' knowledge and sage advice when tackling life's challenges.

As these examples suggest, evolutionary psychologists are not just concerned with the genetic and biological roots of development. They recognize that humans' large brain and extended childhood resulted from the need to master an increasingly complex environment, so they are also interested in learning (Bjorklund, Causey, & Periss, 2009). And they realize that today's lifestyles differ so radically from those of our evolutionary ancestors that certain evolved behaviors—such as life-threatening risk taking in adolescents and male-to-male violence—are no longer adaptive (Blasi & Bjorklund, 2003).

Recently, evolutionary psychologists have begun to address the adaptiveness of human longevity—why adults live as much as one-fourth to one-third of their years after their children are grown (Greve & Bjorklund, 2009). The most common explanation involves the support that grandparents (especially grandmothers) offer in rearing young grandchildren, which is associated with higher birth and child-survival rates. Another view emphasizes the adaptive value of older adults' vast knowledge, experience, and sage advice—a rich resource for younger members of the family or social group as they tackle life's many challenges.

In sum, evolutionary developmental psychology aims to understand the *person–environment system* throughout the lifespan. The next contextual perspective we will discuss, Vygotsky's sociocultural theory, serves as an excellent complement to the evolutionary viewpoint because it highlights social and cultural contexts for development.

Vygotsky's Sociocultural Theory

The field of human development has recently seen a dramatic increase in studies addressing the cultural context of people's lives. Investigations that make comparisons across cultures, and between ethnic groups within cultures, provide insight into whether developmental pathways apply to all people or are limited to particular environmental conditions (Goodnow, 2010).

Today, much research is examining the relationship of *culturally specific beliefs and practices* to development. The contributions of Russian psychologist Lev Vygotsky (1896–1934) have played a major role in this trend. Vygotsky's (1934/1987) perspective, called **sociocultural theory,** focuses on how *culture*—the values, beliefs, customs, and skills of a social group—is transmitted to the next generation. According to Vygotsky, *social interaction*—in particular, cooperative dialogues with more knowledgeable members of society—is necessary for children to acquire the ways of thinking and behaving that make up a community's culture. Vygotsky believed that as adults and more expert peers help children master culturally meaningful activities, the communication between them becomes part of children's thinking. As children internalize the features of these dialogues, they can use the language within them to guide their own thought and actions and to acquire new skills (Berk & Harris, 2003; Winsler, Fernyhough, & Montero, 2009). The young child instructing herself while working a puzzle or setting a table for dinner has begun to produce the same kind of guiding comments that an adult previously used to help her master important tasks.

Vygotsky's theory has been especially influential in the study of cognitive development. Vygotsky agreed with Piaget that children are active, constructive beings. But whereas Piaget emphasized children's independent efforts to make sense of their world, Vygotsky viewed cognitive development as a *socially mediated process,* in which children depend on assistance from adults and more-expert peers as they tackle new challenges.

A Cambodian girl learns traditional dance forms from her grandmother. She acquires a culturally valued skill by interacting with an older, more experienced member of her culture.

In Vygotsky's theory, children undergo certain stagewise changes. For example, when they acquire language, they gain in ability to participate in dialogues with others, and mastery of culturally valued competencies surges forward. When children enter school, they spend much time discussing language, literacy, and other academic concepts—experiences that encourage them to reflect on their own thinking (Bodrova & Leong, 2007; Kozulin, 2003). As a result, they advance dramatically in reasoning and problem solving.

At the same time, Vygotsky stressed that dialogues with experts lead to continuous changes in cognition that vary greatly from culture to culture. Consistent with this view, a major finding of cross-cultural research is that cultures select tasks for their members, and social interaction surrounding those tasks leads to competencies essential for success in a particular culture. For example, in industrialized nations, teachers help people learn to read, drive a car, or use a computer. Among the Zinacanteco Indians of southern Mexico, adult experts guide young girls as they master complicated weaving techniques (Greenfield, 2004; Greenfield, Maynard, & Childs, 2000). In Brazil and other developing nations, child candy sellers with little or no schooling develop sophisticated mathematical abilities as the result of buying candy from wholesalers, pricing it in collaboration with adults and experienced peers, and bargaining with customers on city streets (Saxe, 1988).

Research stimulated by Vygotsky's theory reveals that people in every culture develop unique strengths. But Vygotsky's emphasis on culture and social experience led him to neglect the biological side of development. Although he recognized the importance of heredity and brain growth, he said little about their role in cognitive change. Furthermore, Vygotsky's focus on social transmission of knowledge meant that, compared with other theorists, he placed less emphasis on children's capacity to shape their own development. Followers of Vygotsky grant the individual and society more balanced, mutually influential roles (Nelson, 2007a; Rogoff, 2003).

Ecological Systems Theory

Urie Bronfenbrenner (1917–2005) is responsible for an approach that has moved to the forefront of the field because it offers the most differentiated and complete account of contextual influences on development. **Ecological systems theory** views the person as developing within a complex *system* of relationships affected by multiple levels of the surrounding environment. Because the child's biologically influenced dispositions join with environmental forces to mold development, Bronfenbrenner characterized his perspective as a *bioecological model* (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006).

Bronfenbrenner envisioned the environment as a series of nested structures, including but also extending beyond the home, school, neighborhood, and workplace settings in which people spend their everyday lives (see Figure 1.5). Each layer of the environment joins with the others to powerfully affect development.

The Microsystem. The innermost level of the environment, the **microsystem,** consists of activities and interaction patterns in the person's immediate surroundings. Bronfenbrenner emphasized that to understand development at this level, we

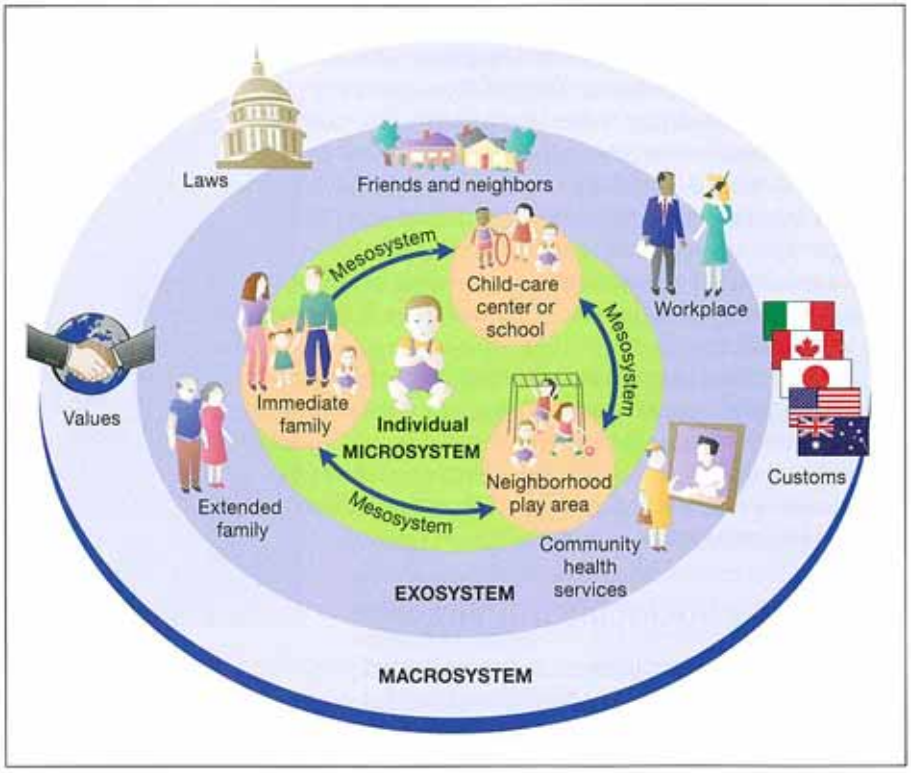


FIGURE 1.5 Structure of the environment in ecological systems theory. The *microsystem* concerns relations between the developing person and the immediate environment; the *mesosystem,* connections among immediate settings; the *exosystem,* social settings that affect but do not contain the developing person; and the *macrosystem,* the values, laws, customs, and resources of the culture that affect activities and interactions at all inner layers. The *chronosystem* (not pictured) is not a specific context. Instead, it refers to the dynamic, ever-changing nature of the person's environment.

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A father says good-bye to his daughter at the start of the school day. The child's experiences at school (microsystem) and the father's experiences at work (exosystem) affect the father–daughter relationship.

must keep in mind that all relationships are *bidirectional*. For example, adults affect children's behavior, but children's biologically and socially influenced characteristics—their physical attributes, personalities, and capacities—also affect adults' behavior. A friendly, attentive child is likely to evoke positive, patient reactions from parents, whereas an irritable or distractible child is more likely to receive impatience, restriction, and punishment. When these reciprocal interactions occur often over time, they have an enduring impact on development (Crockenberg & Leerkes, 2003).

Third parties—other individuals in the microsystem—also affect the quality of any two-person relationship. If they are supportive, interaction is enhanced. For example, when parents encourage each other in their child-rearing roles, each engages in more effective parenting. In contrast, marital conflict is associated with inconsistent discipline and hostile reactions toward children. In response, children often react with fear and anxiety or with anger and aggression, and the well-being of both parent and child suffers (Caldera & Lindsey, 2006; Low & Stocker, 2012).

The Mesosystem. The second level of Bronfenbrenner's model, the **mesosystem,** encompasses connections between microsystems. For example, a child's academic progress depends not just on activities that take place in classrooms but also on parent involvement in school life and on the extent to which academic learning is carried over into the home (Jeynes, 2012). Among adults, how well a person functions as spouse and parent at home is affected by relationships in the workplace, and vice versa (Gottfried, Gottfried, & Bathurst, 2002).

The Exosystem. The **exosystem** consists of social settings that do not contain the developing person but nevertheless affect experiences in immediate settings. These can be formal organizations, such as the board of directors in the individual's workplace, religious institution, or community health and welfare services. Flexible work schedules, paid maternity and paternity leave, and sick leave for parents whose children are ill are examples of ways that work settings can help parents rear children and, indirectly, enhance the development of both adult and child. Exosystem supports can also be informal. Children are affected by their parents' social networks—friends and extended-family members who provide advice, companionship, and even financial assistance. Research confirms the negative impact of a breakdown in exosystem activities. Families who are socially isolated, with few personal or community-based ties, show increased rates of conflict and child abuse (Coulton et al., 2007). Refer to the Social Issues: Health box on page 26 for an additional illustration of the power of the exosystem to affect family functioning and children's development.

The Macrosystem. The outermost level of Bronfenbrenner's model, the **macrosystem,** consists of cultural values, laws, customs, and resources. The priority that the macrosystem gives to the needs of children and adults affects the support they receive at inner levels of the environment. For example, in countries that require generous workplace benefits for employed parents and set high standards for the quality of child care, children are more likely to have favorable experiences in their immediate settings. And when the government provides a generous pension plan for retirees, it supports the well-being of older people.

LOOK AND LISTEN

Ask a parent to explain his or her most worrisome child-rearing challenge. Cite one source of support at each level of Bronfenbrenner's model that could ease parental stress and promote child development. ●

A Dynamic, Ever-Changing System. According to Bronfenbrenner, the environment is not a static force that affects people in a uniform way. Instead, it is ever-changing. Whenever individuals add or let go of roles or settings in their lives, the breadth of their microsystems changes. These shifts in contexts—or *ecological transitions,* as Bronfenbrenner called them—are often important turning points in development. Starting school, entering the workforce, marrying, becoming a parent, getting divorced, moving, and retiring are examples.

Bronfenbrenner called the temporal dimension of his model the **chronosystem** (the prefix *chrono* means "time"). Life changes can be imposed externally or, alternatively, can arise from within the person, since individuals select, modify, and create many of their own settings and experiences. How they do so depends on their age; their physical, intellectual, and personality characteristics; and their environmental opportunities. Therefore, in ecological systems theory, development is neither

Social Issues: Health

Family Chaos Undermines Children's Well-Being

Virtually all of us can recall days during our childhoods when family routines—regular mealtime, bedtime, homework time, and parent–child reading and playtimes—were disrupted, perhaps because of a change in a parent's job, a family illness, or a busy season of after-school sports. In some families, however, absence of daily structure is nearly constant, yielding a chaotic home life that interferes with healthy development (Fiese & Winter, 2010). An organized family life provides a supportive context for warm, involved parent–child interaction, which is essential to children's well-being.

Family chaos is linked to economic disadvantage—especially, single mothers with limited incomes struggling to juggle the challenges of transportation, shift jobs, unstable child-care arrangements, and other daily hassles. But chaos is not limited to such families.

Surveys reveal that among U.S. families as a whole, mothers' time with children has remained fairly stable over the past three decades, and fathers' time has increased (Galinsky, Aumann, & Bond, 2009). But the way many parents spend that time has changed. Across income levels and ethnic groups, both mothers and fathers report more multitasking while caring for children—for example, using mealtimes not just to eat but also to check homework, read to children, and plan family outings and celebrations (Bianchi & Raley, 2005; Serpell et al., 2002). Consequently, disruption in one family routine can disrupt others.

Possibly because of this compression of family routines, today's parents and children consistently say they have too little time together (Opinion Research Corporation, 2009). For example, only slightly more than half of U.S. families report eating together three to five times per week (CASA, 2006). Frequency of family meals is associated with wide-ranging positive outcomes—in childhood, enhanced language development and academic achievement, fewer behavior problems, and time spent sleeping; and in adolescence, reduced sexual risk taking, alcohol and drug use, and mental health problems. Shared mealtimes also increase the likelihood of a healthy diet and protect against obesity and adolescent eating disorders (Adam, Snell, & Pendry, 2007; Fiese & Schwartz, 2008). As these findings suggest, regular mealtimes are a general indicator of an organized family life and positive parent involvement.

But family chaos can prevail even when families do engage in joint activities. Unpredictable, disorganized family meals involving harsh or lax parental discipline and hostile, disrespectful communication are associated with children's adjustment difficulties (Fiese, Foley, & Spagnola, 2006). As family time becomes pressured and overwhelming, its orderly structure diminishes, and warm parent–child engagement disintegrates.

Diverse circumstances can trigger a pileup of limited parental emotional resources, breeding family chaos. In addition to *microsystem* and *mesosytem* influences (parents with mental health problems, parental separation and divorce, single parents with few or no supportive relationships), the *exosystem* is powerful: When family time is at the mercy of external forces—parents commuting several hours a day to and from work, child-care arrangements often failing, parents experiencing excessive workplace pressures or job loss—family routines are threatened.

Family chaos contributes to children's behavior problems, above and beyond its negative impact on parenting effectiveness (Coldwell, Pike, & Dunn, 2008; Fiese & Winter, 2010). Chaotic surroundings induce in children a sense of being hassled and feelings of powerlessness, which engender anxiety and low self-esteem.

Exosystem and macrosystem supports—including work settings with favorable family policies and high-quality child care that is affordable and reliable—can help prevent escalating demands on families that give way to chaos (Repetti & Wang, 2010). In one community, a child-care center initiated a take-home dinner program. Busy parents could special-order a healthy, reasonably priced family meal, ready to go at day's end to aid in making the family dinner a routine that enhances children's development.

A chaotic home life interferes with warm, relaxed parent–child interaction and contributes to behavior problems. Exosystem influences, such as excessive workplace pressures, can trigger disorganized family routines.

controlled by environmental circumstances nor driven solely by inner dispositions. Rather, people are both products and producers of their environments: The person and the environment form a network of interdependent effects. Our discussion of resilience on pages 10–11 illustrates this idea. We will see many more examples in later chapters.

ASK YOURSELF

REVIEW Explain how each recent theoretical perspective regards children and adults as active contributors to their own development.

CONNECT Is ecological systems theory compatible with assumptions of the lifespan perspective—development as lifelong, multidirectional, highly plastic, and influenced by multiple, interacting forces? Explain.

APPLY Mario wants to find out precisely how children of different ages recall stories. Anna is interested in how adult–child communication in different cultures influences children's storytelling. Which theoretical perspective has Mario probably chosen? How about Anna? Explain.

REFLECT To illustrate the chronosystem in ecological systems theory, select an important event from your childhood, such as a move to a new neighborhood, a class with an inspiring teacher, or parental divorce. How did the event affect you? How might its impact have differed had you been five years younger? How about five years older?

Comparing and Evaluating Theories

In the preceding sections, we reviewed major theoretical perspectives in human development research. They differ in many respects. First, they focus on different domains of development. Some, such as the psychoanalytic perspective and ethology, emphasize emotional and social development. Others, such as Piaget's cognitive-developmental theory, information processing, and Vygotsky's sociocultural theory, stress changes in thinking. The remaining approaches—behaviorism, social learning theory, evolutionary developmental psychology, ecological systems theory, and the lifespan perspective—discuss many aspects of human functioning. Second, every theory contains a point of view about development. ***TAKE A MOMENT...*** As we conclude our review of theoretical perspectives, identify the stand each theory takes on the controversial issues presented at the beginning of this chapter. Then check your analysis against Table 1.4 on page 28.

Finally, we have seen that every theory has strengths and limitations. Perhaps you are attracted to some theories but have doubts about others. As you read more about development in later chapters, you may find it useful to keep a notebook in which you test your theoretical likes and dislikes against the evidence. Don't be surprised if you revise your ideas many times, just as theorists have done since scientific study of development began.

Studying Development

In every science, research is usually based on a *hypothesis*—a prediction about behavior drawn from a theory. Theories and hypotheses, however, merely initiate the many activities that result in sound evidence on human development. Conducting research according to scientifically accepted procedures involves many steps and choices. Investigators must decide which participants, and how many, to include. Then they must figure out what the participants will be asked to do and when, where, and how many times each will be seen. Finally, they must examine and draw conclusions from their data.

In the following sections, we look at research strategies commonly used to study human development. We begin with common *research methods*—the specific activities of participants, such as taking tests, answering questionnaires, responding to interviews, or being observed. Then we turn to *research designs*—overall plans for research studies that permit the best possible test of the investigator's hypothesis. Finally, we discuss ethical issues involved in doing research with human participants.

Why learn about research strategies? Why not leave these matters to research specialists and concentrate, instead, on what is known about the developing person and how this knowledge can be applied? There are two reasons. First, each of us must be a wise and critical consumer of knowledge. Knowing the strengths and limitations of various research strategies is important in separating dependable information from misleading results. Second, individuals who work directly with children or adults may be in a unique position to build bridges between research and practice by conducting studies, either on their own or in partnership with experienced investigators. Community agencies such as schools, mental health facilities, and parks and recreation programs are increasingly collaborating with researchers in designing, implementing, and evaluating interventions aimed at enhancing development (Guerra, Graham, & Tolan, 2011). To broaden these efforts, a basic understanding of the research process is essential.

LOOK AND LISTEN

Ask a teacher, counselor, social worker, or nurse to describe a question about development he or she would like researchers to address. After reading the rest of this chapter, recommend research strategies best suited to answering that question, citing their strengths and limitations. ●

TABLE 1.4 Stances of Major Theories on Basic Issues in Human Development

THEORY	CONTINUOUS OR DISCONTINUOUS DEVELOPMENT?	ONE COURSE OF DEVELOPMENT OR MANY?	RELATIVE INFLUENCE OF NATURE AND NURTURE?
Psychoanalytic perspective	*Discontinuous:* Psychosexual and psychosocial development takes place in stages.	*One course:* Stages are assumed to be universal.	*Both nature and nurture:* Innate impulses are channeled and controlled through child-rearing experiences. *Early experiences* set the course of later development.
Behaviorism and social learning theory	*Continuous:* Development involves an increase in learned behaviors.	*Many possible courses:* Behaviors reinforced and modeled may vary from person to person.	*Emphasis on nurture:* Development is the result of conditioning and modeling. *Both early and later experiences* are important.
Piaget's cognitive-developmental theory	*Discontinuous:* Cognitive development takes place in stages.	*One course:* Stages are assumed to be universal.	*Both nature and nurture:* Development occurs as the brain grows and children exercise their innate drive to discover reality in a generally stimulating environment. *Both early and later experiences* are important.
Information processing	*Continuous:* Children and adults change gradually in perception, attention, memory, and problem-solving skills.	*One course:* Changes studied characterize most or all children and adults.	*Both nature and nurture:* Children and adults are active, sense-making beings who modify their thinking as the brain grows and they confront new environmental demands. *Both early and later experiences* are important.
Ethology and evolutionary developmental psychology	*Both continuous and discontinuous:* Children and adults gradually develop a wider range of adaptive behaviors. Sensitive periods occur in which qualitatively distinct capacities emerge fairly suddenly.	*One course:* Adaptive behaviors and sensitive periods apply to all members of a species.	*Both nature and nurture:* Evolution and heredity influence behavior, and learning lends greater flexibility and adaptiveness to it. In sensitive periods, *early experiences* set the course of later development.
Vygotsky's sociocultural theory	*Both continuous and discontinuous:* Language development and schooling lead to stagewise changes. Dialogues with more expert members of society also lead to continuous changes that vary from culture to culture.	*Many possible courses:* Socially mediated changes in thought and behavior vary from culture to culture.	*Both nature and nurture:* Heredity, brain growth, and dialogues with more expert members of society jointly contribute to development. *Both early and later experiences* are important.
Ecological systems theory	*Not specified.*	*Many possible courses:* Biologically influenced dispositions join with environmental forces at multiple levels to mold development in unique ways.	*Both nature and nurture:* The individual's characteristics and the reactions of others affect each other in a bidirectional fashion. *Both early and later experiences* are important.
Lifespan perspective	***Both continuous and discontinuous:* Continuous gains and declines and discontinuous, stagewise emergence of new skills occur.**	***Many possible courses:* Development is influenced by multiple, interacting biological, psychological, and social forces, many of which vary from person to person, leading to diverse pathways of change.**	***Both nature and nurture:* Development is multidimensional, affected by an intricate blend of hereditary and environmental factors. Emphasizes plasticity at all ages. *Both early and later experiences* are important.**

Common Research Methods

How does a researcher choose a basic approach to gathering information? Common methods include systematic observation, self-reports (such as questionnaires and interviews), clinical or case studies of a single individual, and ethnographies of the life circumstances of a specific group of people. Table 1.5 summarizes the strengths and limitations of each of these methods.

Systematic Observation. Observations of the behavior of children and adults can be made in different ways. One approach is to go into the field, or natural environment, and record the behavior of interest—a method called **naturalistic observation.**

A study of preschoolers' responses to their peers' distress provides a good example (Farver & Branstetter, 1994). Observing 3- and 4-year-olds in child-care centers, the researchers recorded each instance of crying and the reactions of nearby

TABLE 1.5 Strengths and Limitations of Common Research Methods

METHOD	DESCRIPTION	STRENGTHS	LIMITATIONS
SYSTEMATIC OBSERVATION			
Naturalistic observation	Observation of behavior in natural contexts	Reflects participants' everyday lives.	Cannot control conditions under which participants are observed.
Structured observation	Observation of behavior in a laboratory, where conditions are the same for all participants	Grants each participant an equal opportunity to display the behavior of interest.	May not yield observations typical of participants' behavior in everyday life.
SELF-REPORTS			
Clinical interview	Flexible interviewing procedure in which the investigator obtains a complete account of the participant's thoughts	Comes as close as possible to the way participants think in everyday life. Great breadth and depth of information can be obtained in a short time.	May not result in accurate reporting of information. Flexible procedure makes comparing individuals' responses difficult.
Structured interview, questionnaires, and tests	Self-report instruments in which each participant is asked the same questions in the same way	Permits comparisons of participants' responses and efficient data collection. Researchers can specify answer alternatives that participants might not think of in an open-ended interview.	Does not yield the same depth of information as a clinical interview. Responses are still subject to inaccurate reporting.
CLINICAL, OR CASE STUDY, METHOD			
	A full picture of one individual's psychological functioning, obtained by combining interviews, observations, and test scores	Provides rich, descriptive insights into factors that affect development.	May be biased by researchers' theoretical preferences. Findings cannot be applied to individuals other than the participant.
ETHNOGRAPHY			
	Participant observation of a culture or distinct social group. By making extensive field notes, the researcher tries to capture the culture's unique values and social processes	Provides a more complete description than can be derived from a single observational visit, interview, or questionnaire.	May be biased by researchers' values and theoretical preferences. Findings cannot be applied to individuals and settings other than the ones studied.

children—whether they ignored, watched, commented on the child's unhappiness, scolded or teased, or shared, helped, or expressed sympathy. Caregiver behaviors—explaining why a child was crying, mediating conflict, or offering comfort—were noted to see if adult sensitivity was related to children's caring responses. A strong relationship emerged. The great strength of naturalistic observation is that investigators can see directly the everyday behaviors they hope to explain.

Naturalistic observation also has a major limitation: Not all individuals have the same opportunity to display a particular behavior in everyday life. In the study just described, some children might have witnessed a child crying more often than others or been exposed to more cues for positive social responses from caregivers. For these reasons, they might have displayed more compassion.

Researchers commonly deal with this difficulty by making **structured observations,** in which the investigator sets up a laboratory situation that evokes the behavior of interest so that every participant has equal opportunity to display the response. In one such study, 2-year-olds' emotional reactions to harm that they thought they had caused were observed by asking each of them to take care of a rag doll that had been modified so its leg would fall off when the child picked it up. To make the child feel at fault, once the leg detached, an adult "talked for" the doll by saying, "Ow!" Researchers recorded children's facial expressions of sadness and concern for the injured doll, efforts to help the doll, and body tension—responses that indicated remorse and a desire to make amends for the mishap. In addition, mothers were asked to engage in brief conversations about emotions with their children (Garner, 2003). Toddlers whose mothers more often explained the causes and consequences of emotion were more likely to express concern for the injured doll.

The procedures used to collect systematic observations vary, depending on the research problem posed. Sometimes investigators choose to analyze the entire stream of behavior—everything said and done over a certain time period. In one study, researchers wanted to find out whether maternal sensitivity in infancy and early childhood contributes to readiness for formal schooling at age 6 (Hirsh-Pasek & Burchinal, 2006). Between ages 6 months and 4½ years, the investigators periodically

In naturalistic observation, the researcher goes into the field and records the behavior of interest. Here, a researcher observes children at preschool. She may be focusing on their playmate choices, cooperation, helpfulness, or conflicts.

videotaped mother–child 15-minute play sessions. Then they rated each session for many behaviors—maternal positive emotion, support, stimulating play, and respect for the child's autonomy. These ingredients of sensitivity did predict better language and academic progress when the children reached kindergarten.

Researchers have devised ingenious ways of observing difficult-to-capture behaviors. For example, to record instances of bullying, a group of investigators set up video cameras overlooking a classroom and a playground and had fourth to sixth graders wear small, remote microphones and pocket-sized transmitters (Craig, Pepler, & Atlas, 2000). Results revealed that bullying occurred often—at rates of 2.4 episodes per hour in the classroom and 4.5 episodes per hour on the playground. Yet only 15 to 18 percent of the time did teachers take steps to stop the harassment.

Systematic observation provides invaluable information on how children and adults actually behave, but it tells us little about the reasoning behind their responses. For that information, researchers must turn to self-report techniques.

Self-Reports. Self-reports ask research participants to provide information on their perceptions, thoughts, abilities, feelings, attitudes, beliefs, and past experiences. They range from relatively unstructured interviews to highly structured interviews, questionnaires, and tests.

In a **clinical interview,** researchers use a flexible, conversational style to probe for the participant's point of view. In the following example, Piaget questioned a 5-year-old child about his understanding of dreams:

> *Where does the dream come from?*—I think you sleep so well that you dream.—*Does it come from us or from outside?*—From outside.—*When you are in bed and you dream, where is the dream?*—In my bed, under the blanket. I don't really know. If it was in my stomach, the bones would be in the way and I shouldn't see it.—*Is the dream there when you sleep?*—Yes, it is in the bed beside me. (Piaget, 1926/1930, pp. 97–98)

Although a researcher conducting clinical interviews with more than one participant would typically ask the same first question to establish a common task, individualized prompts are used to provide a fuller picture of each person's reasoning.

The clinical interview has two major strengths. First, it permits people to display their thoughts in terms that are as close as possible to the way they think in everyday life. Second, the clinical interview can provide a large amount of information in a fairly brief period. For example, in an hour-long session, we can obtain a wide range of information on child rearing from a parent or on life circumstances from an older adult—much more than we could capture by observing for the same amount of time.

A major limitation of the clinical interview has to do with the accuracy with which people report their thoughts, feelings, and experiences. Some participants, wishing to please the interviewer, may make up answers that do not represent their actual thinking. When asked about past events, some may have trouble recalling exactly what happened. And because the clinical interview depends on verbal ability and expressiveness, it may underestimate the capacities of individuals who have difficulty putting their thoughts into words.

The clinical interview has also been criticized because of its flexibility. When questions are phrased differently for each participant, responses may reflect the manner of interviewing rather than real differences in the way people think about a topic. **Structured interviews** (including tests and questionnaires), in which each participant is asked the same set of questions in the same way, eliminate this problem. These instruments are also much more efficient. Answers are briefer, and researchers can obtain written responses from an entire group simultaneously. Furthermore, by listing answer alternatives, researchers can specify the activities and behaviors of interest—ones that participants might not think of in an open-ended clinical interview. For example, when parents were asked what they considered "the most important thing for children to prepare them for life," 62 percent checked "to think for themselves" when this choice appeared on a list. Yet only 5 percent thought of this during a clinical interview (Schwarz, 1999).

Nevertheless, structured interviews do not yield the same depth of information as a clinical interview. And they can still be affected by the problem of inaccurate reporting. Currently, more researchers are combining the two approaches to see if they yield consistent findings (Yoshikawa et al., 2008). And blending the two methods is likely to offer a clearer picture than either method can alone.

The Clinical, or Case Study, Method. An outgrowth of psychoanalytic theory, the **clinical,** or **case study, method** brings together a wide range of information on one person,

Using the clinical, or case study, method, this researcher interacts with a 3-year-old during a home visit. Interviews and observations will contribute to an in-depth picture of this child's psychological functioning.

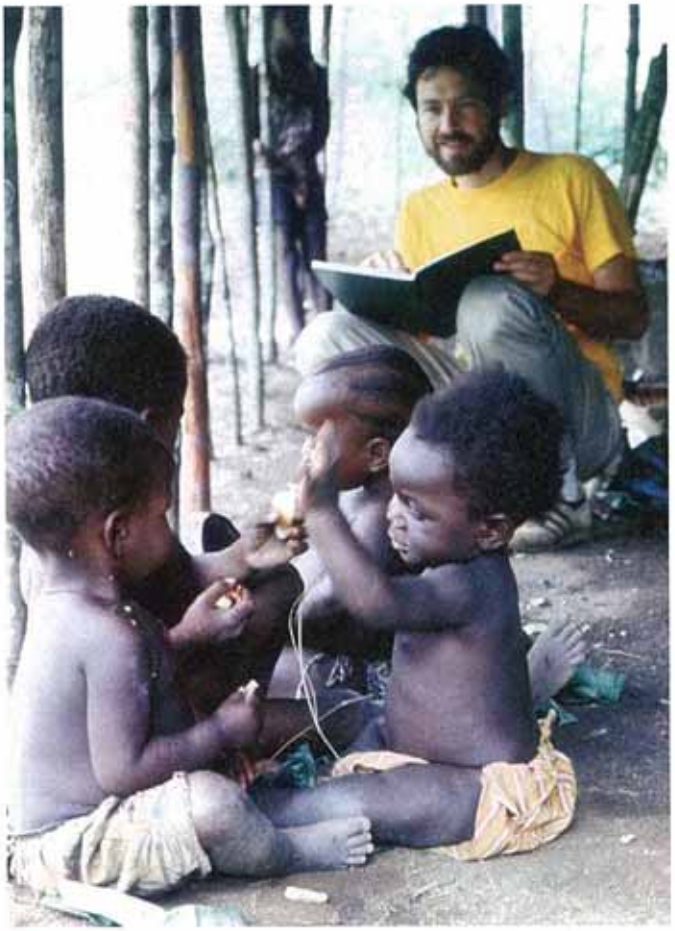
including interviews, observations, and test scores. The aim is to obtain as complete a picture as possible of that individual's psychological functioning and the experiences that led up to it.

The clinical method is well-suited to studying the development of certain types of individuals who are few in number but vary widely in characteristics. For example, the method has been used to find out what contributes to the accomplishments of *prodigies*—extremely gifted children who attain adult competence in a field before age 10 (Moran & Gardner, 2006). Consider Adam, a boy who read, wrote, and composed musical pieces before he was out of diapers. By age 4, Adam was deeply involved in mastering human symbol systems—French, German, Russian, Sanskrit, Greek, the computer programming language BASIC, ancient hieroglyphs, music, and mathematics. Adam's parents provided a home rich in stimulation and reared him with affection, firmness, and humor. They searched for schools in which he could both develop his abilities and form rewarding social relationships. He graduated from college at age 18 and continued to pursue musical composition (Goldsmith, 2000). Would Adam have realized his abilities without the chance combination of his special gift and nurturing, committed parents? Probably not, researchers concluded (Feldman, 2004).

The clinical method yields richly detailed case narratives that offer valuable insights into the many factors influencing development. Nevertheless, like all other methods, it has drawbacks. Because information often is collected unsystematically and subjectively, researchers' theoretical preferences may bias their observations and interpretations. In addition, investigators cannot assume that their conclusions apply, or generalize, to anyone other than the person studied (Stanovich, 2013). Even when patterns emerge across several cases, it is wise to confirm these with other research strategies.

Methods for Studying Culture. To study the impact of culture, researchers adjust the methods just considered or tap procedures specially devised for cross-cultural and multicultural research (Triandis, 2007). Which approach investigators choose depends on their research goals.

Sometimes researchers are interested in characteristics that are believed to be universal but that vary in degree from one society to the next: Are parents warmer or more directive in some cultures than others? How strong are gender stereotypes in different nations? In each instance, several cultural groups will be compared, and all participants must be questioned or observed in the same way. Therefore, researchers draw on the observational and self-report procedures we have already considered, adapting them through translation so they can be understood in each cultural context. For example, to study cultural variation in parenting practices, the same questionnaire, asking for ratings on such items as "I often hug and kiss my child" or "I scold my child when his/her behavior does not meet my



This Western researcher spent months living among the Efe people of the Republic of Congo in an effort to understand their way of life. Here he observes young children sharing food.

Cultural Influences

Immigrant Youths: Adapting to a New Land

Over the past several decades, a rising tide of immigrants has come to North America, fleeing war and persecution in their homelands or seeking better life chances. Today, nearly one-fourth of U.S. children and adolescents have foreign-born parents, making them the fastest growing sector of the U.S. youth population. About 20 percent of these young people are foreign-born themselves, mostly from Latin America, the Caribbean, and Asia (Hernandez, Denton, & Macartney, 2008; Suárez-Orozco, Todorova, & Qin, 2006).

How well are immigrant youths adapting to their new country? To find out, researchers use multiple research methods—academic testing, questionnaires assessing psychological adjustment, and in-depth ethnographies.

Academic Achievement and Adjustment

Although educators and laypeople often assume that the transition to a new country has a negative impact on psychological well-being, evidence reveals that children of immigrant parents adapt well. Students who are first-generation (foreign-born) and second-generation (American-born, with immigrant parents) often achieve in school as well as or better than students of native-born parents (Fuligni, 2004; Hao & Woo, 2012; Hernandez, Denton, & Macartney, 2008). Findings on psychological adjustment are similar. Compared with their agemates, adolescents from immigrant families are less likely to commit delinquent and violent acts, to use drugs and alcohol, or to have early sex. They are also less likely to be obese or to have missed school because of illness. And they tend to report just as high, and at times higher, self-esteem as young people with native-born parents (Fuligni, 1998; Saucier et al., 2002; Supple & Small, 2006).

These outcomes are strongest for Chinese, Filipino, Japanese, Korean, and East Indian youths, less dramatic for other ethnicities (Fuligni, 2004; Louie, 2001; Portes & Rumbaut, 2005). Variation in adjustment is greater among Mexican, Central American, and Southeast Asian (Hmong, Cambodian, Laotian, Thai, and Vietnamese) young people, who show elevated rates of school failure and dropout, delinquency, teenage parenthood, and drug use. Disparities in parental economic resources, education, English-language proficiency, and support of children contribute

These Hmong boys perform in an ethnic festival in St. Paul, Minnesota, where many Hmong immigrants have settled. Cultural values that foster allegiance to family and community promote high achievement and protect many immigrant youths from involvement in risky behaviors.

expectations," is given to all participants (Wu et al., 2002). Still, investigators must be mindful of cultural differences in familiarity with being observed and with responding to self-report instruments, which may bias their findings (Van de Vijver, Hofer, & Chasiotis, 2010).

At other times, researchers want to uncover the *cultural meanings* of children's and adults' behaviors by becoming as familiar as possible with their way of life. To achieve this goal, investigators rely on a method borrowed from the field of anthropology—**ethnography.** Like the clinical method, ethnographic research is a descriptive, qualitative technique. But instead of aiming to understand a single individual, it is directed toward understanding a culture or a distinct social group through *participant observation.* Typically, the researcher spends months, and sometimes years, in the cultural community, participating in its daily life. Extensive field notes are gathered, consisting of a mix of observations, self-reports from members of the culture, and careful interpretations by the investigator (Miller, Hengst, & Wang, 2003; Shweder et al., 2006). Later, these notes are put together into a description of the community that tries to capture its unique values and social processes.

The ethnographic method assumes that entering into close contact with a social group will allow researchers to understand the beliefs and behaviors of its members in a way that is not possible with an observational visit, interview, or questionnaire. Some ethnographies take in many aspects of experience, as one team of researchers did in describing what it is like to grow up in a small American town. Others focus on one or a few settings and issues—for example, barriers to effective parent–school communication in a Mexican-American community or African-Caribbean adults' reactions to a diagnosis

to these trends (García Coll & Marks, 2009; Pong & Landale, 2012).

Still, many first- and second-generation youths whose parents face considerable financial hardship and who speak little English are successful (Hao & Woo, 2012; Hernandez, Denton, & Macartney, 2008). Factors other than income are responsible—notably, family values and strong ethnic-community ties.

Family and Community Influences

Ethnographies reveal that immigrant parents view education as the surest way to improve life chances (García Coll & Marks, 2009; Goldenberg et al., 2001). Aware of the challenges their children face, they typically emphasize trying hard. They remind their children that, because educational opportunities were not available in their native countries, they themselves are often limited to menial jobs. And while preserving their culture's values, these parents also make certain adaptations—for example, supporting education for daughters even though their culture of origin endorses it only for sons.

Adolescents from these families internalize their parents' valuing of education, endorsing it more strongly than agemates with native-born parents (Fuligni, 2004; Su & Costigan, 2008). Because minority ethnicities usually stress allegiance to family and community over individual goals, first- and second-generation young people feel a strong sense of obligation to their parents. They view school success as both their own and their parents' success and as a way of repaying their parents for the hardships they have endured (Bacallao & Smokowski, 2007; Fuligni, Yip, & Tseng, 2002). Both family relationships and school achievement protect these youths from delinquency, early pregnancy and drug use, and other risky behaviors (see the Biology and Environment box on resilience on pages 10–11).

Immigrant parents of successful youths typically develop close ties to an ethnic community, which exerts additional control through a high consensus on values and constant monitoring of young people's activities. The following comments capture the power of these family and community forces:

> *Elizabeth, age 16, from Vietnam, straight-A student, like her two older sisters:* "My parents know pretty much all the kids in the neighborhood. . . . Everybody here knows everybody else. It's hard to get away with much." (Zhou & Bankston, 1998, pp. 93, 130)

> *Juan, teenager from Mexico:* A really big part of the Hispanic population [is] being close to family, and the family being a priority all the time. I hate people who say, "Why do you want to go to a party where your family's at? Don't you want to get away from them?" You know, I don't really get tired of them. I've always been really close to them. That connection to my parents, that trust that you can talk to them, that makes me Mexican. (Bacallao & Smokowski, 2007, p. 62)

The experiences of well-adjusted immigrant youths are not problem-free. Chinese adolescents who had arrived in the United States within the previous year described their adjustment as very difficult because they were not proficient in English and, as a result, found many everyday tasks challenging and felt socially isolated (Yeh et al., 2008). Young immigrants also encounter racial and ethnic prejudices and experience tensions between family values and the new culture—challenges we will take up in Chapter 12. In the long term, however, family and community cohesion, supervision, and high expectations promote favorable outcomes.

of high blood pressure, signaling elevated risk for heart disease (Higginbottom, 2006; Peshkin, 1997; Valdés, 1998). Notice how such ethnographic evidence is vital in designing effective educational and health interventions. Increasingly, researchers are supplementing traditional self-report and observational methods with ethnography when they suspect that unique meanings underlie cultural differences, as the Cultural Influences box above reveals.

Ethnographers strive to minimize their own influence on the culture they are studying by becoming part of it. Nevertheless, as with clinical studies, investigators' cultural values and theoretical commitments sometimes lead them to observe selectively or misinterpret what they see. In addition, the findings of ethnographic studies cannot be assumed to generalize beyond the people and settings in which the research was conducted.

ASK YOURSELF

REVIEW Why might a researcher choose structured observation over naturalistic observation? How about the reverse?

CONNECT What strengths and limitations do the clinical, or case study, method and ethnography have in common?

APPLY A researcher wants to study the thoughts and feelings of parents on active duty in the military and those of their school-age and adolescent children. Which method should she use? Why?

REFLECT Reread the description of nonnormative influences on page 12, and cite an example from your own life. Which method would be best suited to studying the impact of such a nonnormative event on development?

General Research Designs

In deciding on a research design, investigators choose a way of setting up a study that permits them to test their hypotheses with the greatest certainty possible. Two main types of designs are used in all research on human behavior: *correlational* and *experimental.*

Correlational Design. In a **correlational design,** researchers gather information on individuals, generally in natural life circumstances, without altering their experiences. Then they look at relationships between participants' characteristics and their behavior or development. Suppose we want to answer such questions as, Do parents' styles of interacting with their children have any bearing on children's intelligence? Does the arrival of a baby influence a couple's marital satisfaction? Does the death of a spouse in old age affect the surviving partner's physical health and psychological well-being? In these and many other instances, the conditions of interest are difficult or impossible to arrange and control and must be studied as they currently exist.

Correlational studies have one major limitation: We cannot infer cause and effect. For example, if we were to find that parental interaction is related to children's intelligence, we would not know whether parents' behavior actually *causes* intellectual differences among children. In fact, the opposite is possible: The behaviors of highly intelligent children may be so attractive that they cause parents to interact more favorably. Or a third variable that we did not even consider, such as the amount of noise and distraction in the home, may cause changes in both parental interaction and children's intelligence.

In correlational studies and in other types of research designs, investigators often examine relationships by using a

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Will the death of her husband affect this elderly widow's physical health and psychological well-being? A correlational design can be used to answer this question, but it does not permit researchers to determine the precise cause of their findings.

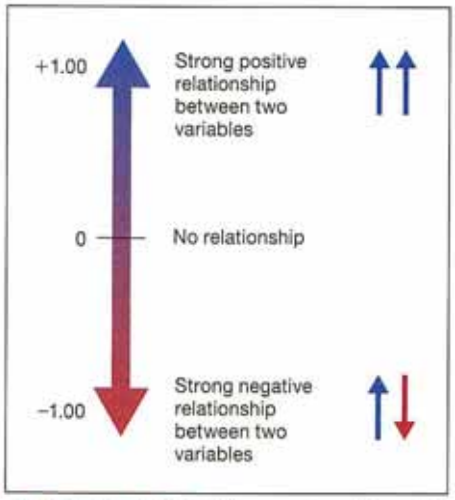

FIGURE 1.6 The meaning of correlation coefficients. The magnitude of the number indicates the *strength* of the relationship. The sign of the number (+ or –) indicates the *direction* of the relationship.

correlation coefficient—a number that describes how two measures, or variables, are associated with each other. We will encounter the correlation coefficient in discussing research findings throughout this book, so let's look at what it is and how it is interpreted. A correlation coefficient can range in value from +1.00 to −1.00. The *magnitude,* or *size, of the number* shows the *strength of the relationship.* A zero correlation indicates no relationship; the closer the value is to +1.00 or −1.00, the stronger the relationship (see Figure 1.6). For instance, a correlation of −.78 is high, −.52 is moderate, and −.18 is low. Note, however, that correlations of +.52 and −.52 are equally strong. The *sign of the number* (+ or –) refers to the *direction of the relationship.* A positive sign (+) means that as one variable *increases,* the other also *increases.* A negative sign (–) indicates that as one variable *increases,* the other *decreases.*

Let's look at some examples of how a correlation coefficient works. One researcher reported a +.55 correlation between a measure of maternal language stimulation and the size of children's vocabularies at 2 years of age (Hoff, 2003). This is a moderate correlation, which indicates that mothers who spoke more to their toddlers had children who were more advanced in language development. In two other studies, maternal sensitivity was modestly associated with children's cooperativeness in consistent ways. First, maternal warmth and encouragement during play correlated positively with 2-year-olds' willingness to comply with their mother's directive to clean up toys, at +.34 (Feldman & Klein, 2003). Second, the extent to which mothers spoke harshly, interrupted, and controlled their 4-year-olds' play correlated negatively with children's compliance, at −.31 for boys and −.42 for girls (Smith et al., 2004).

All these investigations found correlations between parenting and young children's behavior. ***TAKE A MOMENT...*** Are you tempted to conclude that the maternal behaviors influenced children's responses? Although the researchers in these studies suspected this was so, they could not be sure of cause and effect.

Can you think of other possible explanations? Finding a relationship in a correlational study does suggest that tracking down its cause—using a more powerful experimental strategy, if possible—would be worthwhile.

Experimental Design. An **experimental design** permits inferences about cause and effect because researchers use an evenhanded procedure to assign people to two or more treatment conditions. In an experiment, the events and behaviors of interest are divided into two types: independent and dependent variables. The **independent variable** is the one the investigator expects to cause changes in another variable. The **dependent variable** is the one the investigator expects to be influenced by the independent variable. Cause-and-effect relationships can be detected because the researcher directly *controls* or *manipulates* changes in the independent variable by exposing participants to the treatment conditions. Then the researcher compares their performance on measures of the dependent variable.

In one *laboratory experiment,* investigators explored the impact of adults' angry interactions on children's adjustment (El-Sheikh, Cummings, & Reiter, 1996). They hypothesized that the way angry encounters end (independent variable) affects children's emotional reactions (dependent variable). Four- and 5-year-olds were brought to a laboratory one at a time, accompanied by their mothers. One group was exposed to an *unresolved-anger treatment,* in which two adult actors entered the room and argued but did not work out their disagreements. The other group witnessed a *resolved-anger treatment,* in which the adults ended their disputes by apologizing and compromising. When witnessing a follow-up adult conflict, children in the resolved-anger treatment showed less distress, as measured by fewer anxious facial expressions, less freezing in place, and less seeking of closeness to their mothers. The experiment revealed that anger resolution can reduce the stressful impact of adult conflict on children.

In experimental studies, investigators must take special precautions to control for participants' characteristics that could reduce the accuracy of their findings. For example, in the study just described, if a greater number of children from homes high in parental conflict ended up in the unresolved-anger treatment, we could not tell what produced the results—the independent variable or the children's backgrounds. To protect against this problem, researchers engage in **random assignment** of participants to treatment conditions. By using an unbiased procedure, such as drawing numbers out of a hat or flipping a coin, investigators increase the chances that participants' characteristics will be equally distributed across treatment groups.

Modified Experimental Designs: Field and Natural Experiments. Most experiments are conducted in laboratories, where researchers can achieve the maximum possible control over treatment conditions. But, as we have already indicated, findings obtained in laboratories may not always apply to everyday situations. In *field experiments,* investigators capitalize on opportunities to assign participants randomly to treatment conditions in natural settings. In the experiment just described, we can conclude that the emotional climate established by adults affects children's behavior in the laboratory. But does it also do so in daily life?

Another study helps answer this question. Ethnically diverse, poverty-stricken families with a 2-year-old child were scheduled for a home visit, during which researchers assessed family functioning and child problem behaviors by asking parents to respond to questionnaires and videotaping parent–child interaction. Then the families were randomly assigned to either a brief intervention condition, called the Family Check-Up, or a no-intervention control group. The intervention consisted of three home-based sessions in which a consultant gave parents feedback about their child-rearing practices and their child's adjustment, explored parents' willingness to improve, and identified community services appropriate to each family's needs (Dishion et al., 2008). Findings showed that families assigned to the Family Check-Up (but not controls) gained in positive parenting, which predicted a reduction in child problem behaviors—sometimes still evident a year later, when participating children were reassessed at age 3. Highly problematic children benefited most from this brief, early intervention.

Often researchers cannot randomly assign participants and manipulate conditions in the real world. Sometimes they can compromise by conducting *natural, or quasi-, experiments,* comparing treatments that already exist, such as different family environments, schools, workplaces, or retirement villages. These studies differ from correlational research only in that groups of participants are carefully chosen to ensure that their characteristics are as much alike as possible. In this way, investigators do their best to rule out alternative explanations for their treatment effects. But, despite these efforts, natural experiments cannot achieve the precision and rigor of true experimental research.

To help you compare correlational and experimental designs, Table 1.6 on page 36 summarizes their strengths and limitations. It also includes an overview of designs for studying development, to which we turn next.

Designs for Studying Development

Scientists interested in human development require information about the way research participants change over time. To answer questions about development, they must extend correlational and experimental approaches to include measurements at different ages. Longitudinal and cross-sectional designs are special *developmental* research strategies. In each, age comparisons form the basis of the research plan.

The Longitudinal Design. In a **longitudinal design,** participants are studied repeatedly, and changes are noted as they get older. The time spanned may be relatively short (a few months to several years) or very long (a decade or even a lifetime). The longitudinal approach has two major strengths. First, because it tracks the performance of each person over time,

TABLE 1.6 Strengths and Limitations of Research Designs

DESIGN	DESCRIPTION	STRENGTHS	LIMITATIONS
GENERAL			
Correlational	The investigator obtains information on participants without altering their experiences.	Permits study of relationships between variables.	Does not permit inferences about cause-and-effect relationships.
Experimental	Through random assignment of participants to treatment conditions, the investigator manipulates an independent variable and examines its effect on a dependent variable. Can be conducted in the laboratory or the natural environment.	Permits inferences about cause-and-effect relationships.	When conducted in the laboratory, findings may not generalize to the real world. In *field experiments*, control over the treatment is usually weaker than in the laboratory. In *natural*, or *quasi-, experiments*, lack of random assignment substantially reduces the precision of research.
DEVELOPMENTAL			
Longitudinal	The investigator studies the same group of participants repeatedly at different ages.	Permits study of common patterns and individual differences in development and relationships between early and later events and behaviors.	Age-related changes may be distorted because of participant dropout, practice effects, and cohort effects.
Cross-sectional	The investigator studies groups of participants differing in age at the same point in time.	More efficient than the longitudinal design. Not plagued by such problems as participant dropout and practice effects.	Does not permit study of individual developmental trends. Age differences may be distorted because of cohort effects.
Sequential	The investigator conducts several similar cross-sectional or longitudinal studies (called sequences). These might study participants over the same ages but in different years, or they might study participants over different ages but during the same years.	When the design includes longitudinal sequences, permits both longitudinal and cross-sectional comparisons. Also reveals cohort effects. Permits tracking of age-related changes more efficiently than the longitudinal design.	May have the same problems as longitudinal and cross-sectional strategies, but the design itself helps identify difficulties.

researchers can identify common patterns as well as individual differences in development. Second, longitudinal studies permit investigators to examine relationships between early and later events and behaviors. Let's illustrate these ideas.

A group of researchers wondered whether children who display extreme personality styles—either angry and explosive or shy and withdrawn—retain the same dispositions when they become adults. In addition, the researchers wanted to know what kinds of experiences promote stability or change in personality and what consequences explosiveness and shyness have for long-term adjustment. To answer these questions, the researchers delved into the archives of the Guidance Study, a well-known longitudinal investigation initiated in 1928 at the University of California, Berkeley, and continued for several decades (Caspi, Elder, & Bem, 1987, 1988).

Results revealed that the two personality styles were moderately stable. Between ages 8 and 30, a good number of individuals remained the same, whereas others changed substantially. When stability did occur, it appeared to be due to a "snowballing effect," in which children evoked responses from adults and peers that acted to maintain their dispositions. Explosive youngsters were likely to be treated with anger, whereas shy children were apt to be ignored. As a result, the two types of children came to view their social worlds differently. Explosive children regarded others as hostile; shy children regarded them as unfriendly (Caspi & Roberts, 2001). Together, these factors led explosive children to sustain or increase their unruliness and shy children to continue to withdraw.

Persistence of extreme personality styles affected many areas of adult adjustment. For men, the results of early explosiveness were most apparent in their work lives, in the form of conflicts with supervisors, frequent job changes, and unemployment. Since few women in this sample of an earlier generation worked after marriage, their family lives were most affected. Explosive girls grew up to be hotheaded wives and mothers who were especially prone to divorce. Sex differences in the long-term consequences of shyness were even greater. Men who had been withdrawn in childhood were delayed in marrying, becoming fathers, and developing stable careers. However, perhaps because a withdrawn, unassertive style was socially acceptable for females in the mid-twentieth century, women who had shy personalities showed no special adjustment problems.

Problems in Conducting Longitudinal Research. Despite their strengths, longitudinal investigations pose a number of problems. For example, participants may move away or drop out of the research for other reasons. This biases the sample so that it no longer represents the population to whom researchers would like to generalize their findings. Also, from repeated study, people may become more aware of their own thoughts, feelings, and actions and revise them in ways that have little to do with age-related change. In addition, they may become "test-wise." Their performance may improve as a result of *practice effects*—better test-taking skills and increased familiarity with the test—not because of factors commonly associated with development.

The most widely discussed threat to longitudinal findings is **cohort effects** (see page 11): Individuals born in the same time period are influenced by a particular set of historical and cultural conditions. Results based on one cohort may not apply to people developing at other times. For example, unlike the findings on female shyness described in the preceding section, which were gathered in the 1950s, today's shy adolescent girls and young women tend to be poorly adjusted—a difference that may be due to changes in gender roles in Western societies. Shy young people, whether male or female, feel more anxious, depressed, and lonely and may do less well in educational and career attainment than their agemates (Caspi et al., 2003; Karevold et al., 2012; Mounts et al., 2006). Similarly, a longitudinal study of lifespan development would probably result in quite different findings if it were carried out in the first decade of the twenty-first century, around the time of World War II, or during the Great Depression of the 1930s.

Cohort effects don't just operate broadly on an entire generation. They also occur when specific experiences influence some groups of individuals but not others in the same generation. For example, children who witnessed the terrorist attacks of September 11, 2001 (either because they were near Ground Zero or because they saw injury and death on TV), or who lost a parent in the disaster, were far more likely than other children to display persistent emotional problems, including intense fear, anxiety, and depression (Mullett-Hume et al., 2008; Pfeffer et al., 2007; Rosen & Cohen, 2010). A study of one New York City sample suggested that as many as one-fourth of the city's children were affected (Hoven et al., 2005).

The Cross-Sectional Design. The length of time it takes for many behaviors to change, even in limited longitudinal studies, has led researchers to turn toward a more convenient strategy for studying development. In the **cross-sectional design**, groups of people differing in age are studied at the same point in time. The cross-sectional design is an efficient strategy for describing age-related trends. And because participants are measured only once, researchers need not be concerned about such difficulties as participant dropout or practice effects.

A study in which students in grades 3, 6, 9, and 12 filled out a questionnaire about their sibling relationships provides a good illustration (Buhrmester & Furman, 1990). Findings revealed that sibling interaction was characterized by greater equality and less power assertion with age. Also, feelings of sibling companionship declined in adolescence. The researchers thought that several factors contributed to these age differences. As later-born children become more competent and independent, they no longer need, and are probably less willing to accept, direction from older siblings. And as adolescents move from psychological dependence on the family to greater involvement with peers, they may have less time and emotional need to invest in siblings. As you will see in Chapter 12, subsequent research has confirmed these intriguing ideas about the development of sibling relationships.

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Cohort effects are particular historical and cultural conditions that affect individuals born in the same time period. Young people who witnessed Barack Obama and his family celebrating his election victory in 2008 and again in 2012 came away with a new sense of what is possible for members of America's ethnic minorities.

Problems in Conducting Cross-Sectional Research. Despite its convenience, cross-sectional research does not provide evidence about development at the level at which it actually occurs: the individual. For example, in the cross-sectional study of sibling relationships just discussed, comparisons are limited to age-group averages. We cannot tell if important individual differences exist. Indeed, longitudinal findings reveal that adolescents vary considerably in the changing quality of their sibling relationships. Although many become more distant, others become more supportive and intimate, still others more rivalrous and antagonistic (Branje et al., 2004; Kim et al., 2006; Whiteman & Loken, 2006).

Cross-sectional studies—especially those that cover a wide age span—have another problem. Like longitudinal research, they can be threatened by cohort effects. For example,

comparisons of 10-year-old cohorts, 20-year-old cohorts, and 30-year-old cohorts—groups born and reared in different years—may not really represent age-related changes. Instead, they may reflect unique experiences associated with the historical period in which the age groups were growing up.

Improving Developmental Designs. Researchers have devised ways of building on the strengths and minimizing the weaknesses of longitudinal and cross-sectional approaches. Several modified developmental designs have resulted.

Sequential Designs. To overcome some of the limitations of traditional developmental designs, investigators sometimes use **sequential designs,** in which they conduct several similar cross-sectional or longitudinal studies (called *sequences*). The sequences might study participants over the same ages but in different years, or they might study participants over different ages but during the same years. Figure 1.7 illustrates the first of these options. As it also reveals, some sequential designs combine longitudinal and cross-sectional strategies, an approach that has two advantages:

- We can find out whether cohort effects are operating by comparing participants of the same age who were born in different years. In the example in Figure 1.7, we can compare the three longitudinal samples at ages 20, 30, and 40. If they do not differ, we can rule out cohort effects.
- We can make longitudinal and cross-sectional comparisons. If outcomes are similar in both, then we can be especially confident about our findings.

In a study that used the design in Figure 1.7, researchers wanted to find out whether adult personality development progresses as Erikson's psychosocial theory predicts (Whitbourne et al., 1992). Questionnaires measuring Erikson's stages were given to three cohorts of 20-year-olds, each born a decade apart. The cohorts were reassessed at ten-year intervals. Consistent with Erikson's theory, longitudinal and cross-sectional gains in identity and intimacy occurred between ages 20 and 30—a trend unaffected by historical time period. But a powerful cohort effect emerged for consolidation of the sense of industry: At age 20, Cohort 1 scored substantially below Cohorts 2 and 3. Look at Figure 1.7 again and notice that members of Cohort 1 reached age 20 in the mid-1960s. As college students, they were part of an era of political protest that reflected disenchantment with the work ethic. Once out of college, they caught up with the other cohorts in industry, perhaps as a result of experiencing the pressures of the work world. Followed up in 2001 at age 54, Cohort 1 showed a decline in focus on identity issues and a gain in ego integrity over middle adulthood—trends expected to continue through late adulthood (Sneed, Whitbourne, & Culang, 2006). Future tracking of Cohorts 2 and 3 will reveal whether they, too, follow this Erikson-predicted psychosocial path.

By uncovering cohort effects, sequential designs help explain diversity in development. Yet to date only a small number of sequential studies have been conducted.

Combining Experimental and Developmental Designs. Perhaps you noticed that all the examples of longitudinal and cross-sectional research we have considered permit only correlational, not causal, inferences. Yet causal information is desirable, both for testing theories and for finding ways to enhance development. Sometimes researchers can explore the causal link between experiences and development by experimentally manipulating the experiences. If, as a result, development improves, then we have strong evidence for a causal association. Today, research that combines an experimental strategy with either a longitudinal or a cross-sectional approach is becoming increasingly common.

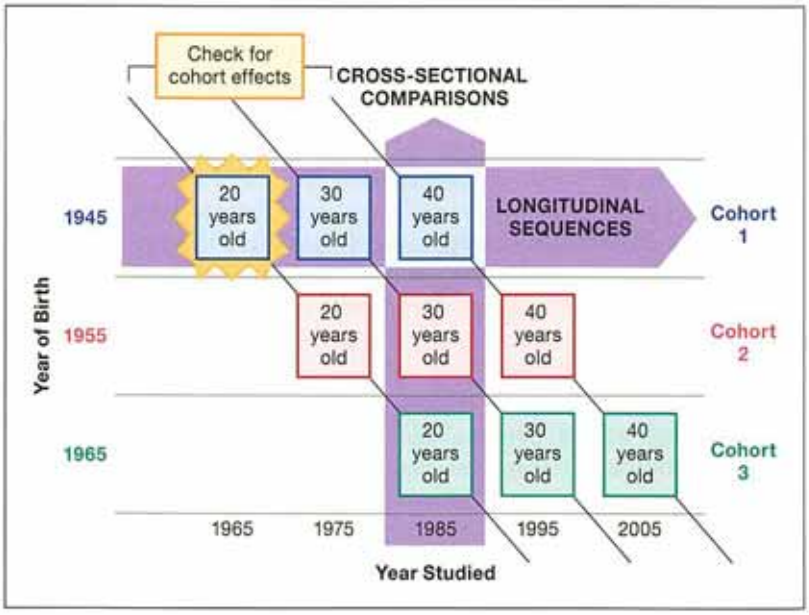

FIGURE 1.7 Example of a sequential design. Three cohorts, born in 1945 (blue), 1955 (pink), and 1965 (green), are followed longitudinally from 20 to 40 years of age. The design permits the researcher to check for cohort effects by comparing people of the same age who were born in different years. In a study that used this design, the 20-year-olds in Cohort 1 differed substantially from the 20-year-olds in Cohorts 2 and 3, indicating powerful history-graded influences. This design also permits longitudinal and cross-sectional comparisons. Similar findings lend additional confidence in the results.

ASK YOURSELF

REVIEW Explain how cohort effects can affect the findings of both longitudinal and cross-sectional studies. How do sequential designs reveal cohort effects?

CONNECT Review the study of the Family Check-Up, described on page 35. Explain how it combines an experimental with a developmental design. What are the independent and dependent variables? Is its developmental approach longitudinal or cross-sectional?

APPLY A researcher compares older adults with chronic heart disease to those with no major health problems and finds that the first group scores lower on mental tests. Can the researcher conclude that heart disease causes a decline in intellectual functioning in late adulthood? Explain.

REFLECT Suppose a researcher asks you to enroll your baby in a 10-year longitudinal study. What factors would lead you to agree and stay involved? Do your answers shed light on why longitudinal studies often have biased samples?

Ethics in Lifespan Research

Research into human behavior creates ethical issues because, unfortunately, the quest for scientific knowledge can sometimes exploit people. For this reason, special guidelines for research have been developed by the federal government, by funding agencies, and by research-oriented associations, such as the American Psychological Association (2002) and the Society for Research in Child Development (2007). Table 1.7 presents a summary of basic research rights drawn from these guidelines. ***TAKE A MOMENT...*** After examining them, read about the following research situations, each of which poses a serious ethical dilemma. What precautions do you think should be taken in each instance?

- In a study of moral development, an investigator wants to assess children's ability to resist temptation by videotaping their behavior without their knowledge. She promises 7-year-olds a prize for solving difficult puzzles but tells them not to look at a classmate's correct solutions, which are deliberately placed at the back of the room. Informing children ahead of time that cheating is being studied or that their behavior is being monitored will destroy the purpose of the study.
- A researcher wants to study the impact of mild daily exercise on the physical and mental health of elderly patients in nursing homes. He consults each resident's doctor to make sure that the exercise routine will not be harmful. But when he seeks the residents' consent, he finds that many do not comprehend the purpose of the research. And some appear to agree simply to relieve feelings of isolation and loneliness.

As these examples indicate, when children or the aged take part in research, the ethical concerns are especially complex. Immaturity makes it difficult or impossible for children to evaluate for themselves what participation in research will mean. And because mental impairment rises with very advanced age, some older adults cannot make voluntary and informed choices (Dubois et al., 2011; Society for Research in Child Development, 2007). And the life circumstances of others make them unusually vulnerable to pressure for participation.

TABLE 1.7 Rights of Research Participants

RESEARCH RIGHT	DESCRIPTION
Protection from harm	Participants have the right to be protected from physical or psychological harm in research. If in doubt about the harmful effects of research, investigators should seek the opinion of others. When harm seems possible, investigators should find other means for obtaining the desired information or abandon the research.
Informed consent	All participants, including children and the elderly, have the right to have explained to them, in language appropriate to their level of understanding, all aspects of the research that may affect their willingness to participate. When children are participants, informed consent of parents as well as of others who act on the child's behalf (such as school officials) should be obtained, preferably in writing. Older adults who are cognitively impaired should be asked to appoint a surrogate decision maker. If they cannot do so, then someone should be named by an institutional review board (IRB) after careful consultation with relatives and professionals who know the person well. All participants have the right to discontinue participation in the research at any time.
Privacy	Participants have the right to concealment of their identity on all information collected in the course of research. They also have this right with respect to written reports and any informal discussions about the research.
Knowledge of results	Participants have the right to be informed of the results of research in language that is appropriate to their level of understanding.
Beneficial treatments	If experimental treatments believed to be beneficial are under investigation, participants in control groups have the right to alternative beneficial treatments if they are available.

Sources: American Psychological Association, 2002; Society for Research in Child Development, 2007.

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Older adults should not be arbitrarily excluded from research. Most require only typical informed-consent procedures, and their participation brings both personal and scientific benefits. But for some elders, including those who reside in settings for the chronically ill, informed consent may necessitate the assistance of a surrogate decision maker.

Virtually every organization that has devised ethical principles for research has concluded that conflicts arising in research situations often do not have simple right-or-wrong answers. The ultimate responsibility for the ethical integrity of research lies with the investigator. But researchers are advised—and often required—to seek advice from others. Committees for this purpose exist in colleges, universities, and other institutions. These *institutional review boards (IRBs)* weigh the costs of the research to participants in terms of inconvenience and possible psychological or physical injury against the study's value for advancing knowledge and improving conditions of life. If there are any risks to participants' safety and welfare that the research does not justify, then preference is always given to the participants' interests.

The ethical principle of *informed consent* requires special interpretation when participants cannot fully appreciate the research goals and activities. Parental consent is meant to protect the safety of children, whose ability to decide is not yet mature. But as soon as children are old enough to appreciate the purpose of the research, and certainly by age 7, their own informed consent should be obtained in addition to parental consent. Around this age, changes in children's thinking permit them to better understand basic scientific principles and the needs of others. Researchers should respect and enhance these new capacities by giving school-age children a full explanation of research activities in language they can understand (Fisher, 1993). Extra care must be taken when telling children that the information they provide will be kept confidential and that they can end their participation at any time. Even adolescents may not understand, and sometimes do not believe, these promises (Bruzzese & Fisher, 2003; Ondrusek et al., 1998).

Most older adults require no more than the usual informed-consent procedures. Yet many investigators set upper age limits in studies relevant to the elderly, thereby excluding the oldest adults (Bayer & Tadd, 2000). Older adults should not be stereotyped as incompetent to decide about their own participation or to engage in research activities. Nevertheless, extra measures must be taken to protect those who are cognitively impaired or who reside in settings for the chronically ill. As noted, some individuals may agree to participate simply to engage in rewarding social interaction. Yet participation should not be automatically withheld, since it can result in personal as well as scientific benefits. In these instances, potential participants should be asked to appoint a surrogate decision maker. If they cannot do so, then someone should be named by an IRB, after careful consultation with relatives and professionals who know the person well. As an added precaution, if the elderly person is incapable of consenting and the risks of the research are more than minimal, then the study should not be done unless it is likely to benefit the participant directly (Dubois et al., 2011).

Finally, all ethical guidelines advise that special precautions be taken in the use of deception and concealment, as occurs when researchers observe people from behind one-way mirrors, give them false feedback about their performance, or do not tell them the truth about the real purpose of the research. When these kinds of procedures are used, *debriefing*, in which the investigator provides a full account and justification of the activities, occurs after the research session is over. But young children often lack the cognitive skills to understand the reasons for deceptive procedures, and despite explanations, even older children may leave the research situation with their belief in the honesty of adults undermined. Ethical standards permit deception if investigators satisfy IRBs that a study's potential benefits to society are great enough to justify infringing on participants' right to informed consent and risking other harm (Fisher, 2005). Nevertheless, because deception may have serious emotional consequences for some youngsters, many experts in research ethics believe that investigators should use it with children only if the risk of harm is minimal.

ASK YOURSELF

REVIEW What special steps must investigators take in conducting studies of children and the aged to ensure protection from harm and informed consent?

CONNECT In the field experiment on the Family Check-Up (see page 35), why is it ethically important for the researchers to offer the intervention, or a beneficial alternative, to the no-intervention control group after completion of the study?

APPLY As a researcher gathered observations of the activities of several elderly adults with cognitive impairments in a nursing home, one resident said, "Stop watching me!" How should the researcher respond, and why?

REFLECT What ethical safeguards do you regard as vital in conducting research that requires deception of children?

SUMMARY

A Scientific, Applied, and Interdisciplinary Field

(p. 5)

What is developmental science, and what factors stimulated expansion of the field?

- **Developmental science** is an interdisciplinary field devoted to understanding human constancy and change throughout the lifespan. Research on human development has been stimulated by both scientific curiosity and social pressures to improve people's lives.

Basic Issues (p. 5)

Identify three basic issues on which theories of human development take a stand.

- Each **theory** of human development takes a stand on three basic issues: (1) Is development a **continuous** process, or does it proceed in a series of **discontinuous stages?** (2) Does one general course of development characterize all individuals, or do many possible courses exist, depending on the distinct **contexts** in which children and adults live? (3) Is development determined primarily by genetic or environmental factors (the **nature–nurture controversy**), and are individual differences stable or characterized by substantial **plasticity?**

The Lifespan Perspective: A Balanced Point of View

(p. 7)

Describe the lifespan perspective on development.

- The **lifespan perspective** is a balanced view that envisions development as a dynamic system. It is based on assumptions that development is lifelong, multidimensional (affected by biological, psychological, and social forces), multidirectional (a joint expression of growth and decline), and plastic (open to change through new experiences).

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- According to the lifespan perspective, the life course is influenced by multiple, interacting forces, which can be organized into three categories: (1) **age-graded influences,** which are predictable in timing and duration; (2) **history-graded influences,** unique to a particular historical era; and (3) **nonnormative influences,** unique to one or a few individuals.

Scientific Beginnings (p. 14)

Describe the major early influences on the scientific study of development.

- Darwin's theory of evolution influenced important developmental theories and inspired scientific child study. In the early twentieth century, Hall and Gesell introduced the **normative approach,** which produced a large body of descriptive facts about development.

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- Binet and Simon constructed the first successful intelligence test, which sparked interest in individual differences in development and led to a heated controversy over nature versus nurture.

Mid-Twentieth-Century Theories (p. 15)

What theories influenced human development research in the mid-twentieth century?

- In the 1930s and 1940s, psychiatrists and social workers turned to the **psychoanalytic perspective** for help in treating people's emotional problems. In Freud's **psychosexual theory,** the individual moves through five stages, during which three portions of the personality—id, ego, and superego—become integrated. Erikson's **psychosocial theory** expands Freud's theory by emphasizing the development of culturally relevant attitudes and skills and the lifespan nature of development.

ANTONIA TOZER/GETTY IMAGES/AWL IMAGES RM

- As the psychoanalytic perspective gained in prominence, **behaviorism** and **social learning theory** emerged, emphasizing the study of directly observable events—stimuli and responses—and the principles of conditioning and modeling. These approaches led to the use of **behavior modification** to eliminate undesirable behaviors and increase desirable responses.
- In contrast to behaviorism, Piaget's **cognitive-developmental theory** emphasizes children's active role in constructing knowledge as they manipulate and explore their world. According to Piaget, children move through four stages, from the baby's sensorimotor action patterns to the adolescent's capacity for abstract, systematic thinking. Piaget's work has stimulated a wealth of research on children's thinking and encouraged educational programs that emphasize discovery learning.

Recent Theoretical Perspectives (p. 20)

Describe recent theoretical perspectives on human development.

- **Information processing** views the mind as a complex symbol-manipulating system, much like a computer. Because this approach provides precise accounts of how children and adults tackle cognitive tasks, its findings have important implications for education.
- Researchers in **developmental cognitive neuroscience** study the relationship between changes in the brain and the development of cognitive processing and behavior patterns. They have made progress in identifying the types of experiences to which the brain is sensitive at various ages and in clarifying the brain bases of many learning and behavior disorders.

- Three contemporary perspectives emphasize contexts of development. **Ethology** stresses the adaptive value of behavior and inspired the **sensitive period** concept. In **evolutionary developmental psychology,** which extends this emphasis, researchers seek to understand the person–environment system throughout the lifespan.

- Vygotsky's **sociocultural theory,** which focuses on how culture is transmitted from one generation to the next through social interaction, views cognitive development as a socially mediated process. Through cooperative dialogues with more expert members of society, children come to use language to guide their own thought and actions and acquire culturally relevant knowledge and skills.
- **Ecological systems theory** views the individual as developing within a complex system of relationships affected by multiple, nested layers of the surrounding environment—**microsystem, mesosystem, exosystem,** and **macrosystem.** The **chronosystem** represents the dynamic, ever-changing nature of individuals and their experiences.

Comparing and Evaluating Theories (p. 27)

Identify the stand taken by each major theory on the three basic issues of human development.

- Theories vary in their focus on different domains of development, in their view of how development occurs, and in their strengths and weaknesses. (For a full summary, see Table 1.4 on page 28.)

Studying Development (p. 27)

Describe methods commonly used in research on human development.

- **Naturalistic observations,** gathered in everyday environments, permit researchers to see directly the everyday behaviors they hope to explain. In contrast, **structured observations,** which take place in laboratories, give every participant an equal opportunity to display the behaviors of interest.
- Self-report methods can be flexible and open-ended like the **clinical interview,** which permits participants to express their thoughts in ways similar to their thinking in everyday life. Alternatively, **structured interviews** (including tests and questionnaires) are more efficient, permitting researchers to ask about activities and behaviors that participants may not think of in an open-ended interview. Investigators use the **clinical,** or **case study, method** to gain an in-depth understanding of a single individual.
- Researchers have adapted observational and self-report methods to permit direct comparisons of cultures. To uncover the cultural meanings of behavior, they rely on **ethnography,** engaging in participant observation.

Distinguish between correlational and experimental research designs, noting the strengths and limitations of each.

- The **correlational design** examines relationships between variables without altering people's experiences. The **correlation coefficient** is often used to measure the association between variables. Correlational studies do not permit inferences about cause and effect, but they can identify relationships that are worth exploring with a more powerful experimental strategy.
- An **experimental design** permits cause-and-effect inferences. Researchers manipulate an **independent variable** by exposing participants to two or more treatment conditions. Then they determine what effect this variable has on a **dependent variable. Random assignment** to treatment conditions reduces the chances that participant characteristics will affect the accuracy of experimental findings.
- Field and natural, or quasi-, experiments compare treatments in natural environments. However, these approaches are less rigorous than laboratory experiments.

Describe designs for studying development, noting the strengths and limitations of each.

- In the **longitudinal design,** participants are studied repeatedly over time, permitting researchers to identify common patterns and individual differences in development and to examine relationships between early and later events and behaviors. Longitudinal research poses several problems, including biased sampling, practice effects, and **cohort effects**—difficulty generalizing to people developing at other historical times.

- The **cross-sectional design,** in which groups of people differing in age are studied at the same point in time, is an efficient way to study age-related trends, but it is limited to comparisons of age-group averages. Cross-sectional studies, especially those that cover a wide age span, are also vulnerable to cohort effects.
- By comparing participants of the same age who were born in different years, investigators use **sequential designs** to discover whether cohort effects are operating. When sequential designs combine longitudinal and cross-sectional strategies, researchers can see if outcomes are similar, adding confidence to their findings.
- When researchers combine experimental and developmental designs, they can examine causal influences on development.

Ethics in Lifespan Research (p. 39)

What special ethical concerns arise in research on human development?

- Because the quest for scientific knowledge has the potential to exploit people, the ethical principle of informed consent requires special safeguards for children and for elderly people who are cognitively impaired or who live in settings for the care of the chronically ill. The use of deception in research with children is especially risky because it may undermine their basic faith in the honesty of adults.

Important Terms and Concepts

age-graded influences (p. 10)
behavior modification (p. 18)
behaviorism (p. 17)
chronosystem (p. 25)
clinical interview (p. 30)
clinical, or case study, method (p. 30)
cognitive-developmental theory (p. 18)
cohort effects (p. 37)
contexts (p. 7)
continuous development (p. 6)
correlational design (p. 34)
correlation coefficient (p. 34)
cross-sectional design (p. 37)
dependent variable (p. 35)
developmental cognitive neuroscience (p. 21)
developmental science (p. 5)
discontinuous development (p. 6)
ecological systems theory (p. 24)
ethnography (p. 32)
ethology (p. 22)
evolutionary developmental psychology (p. 22)
exosystem (p. 25)
experimental design (p. 35)
history-graded influences (p. 11)
independent variable (p. 35)
information processing (p. 20)
lifespan perspective (p. 8)
longitudinal design (p. 35)
macrosystem (p. 25)
mesosystem (p. 25)
microsystem (p. 24)
naturalistic observation (p. 28)
nature–nurture controversy (p. 7)
nonnormative influences (p. 12)
normative approach (p. 15)
plasticity (p. 7)
psychoanalytic perspective (p. 15)
psychosexual theory (p. 15)
psychosocial theory (p. 16)
random assignment (p. 35)
resilience (p. 10)
sensitive period (p. 22)
sequential designs (p. 38)
social learning theory (p. 18)
sociocultural theory (p. 23)
stage (p. 6)
structured interview (p. 30)
structured observation (p. 29)
theory (p. 5)