

Introduction: Studying Human Development

CHAPTER

1



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Chapter Outline

The Nature of Human Development

Why Study Development?

The Life Course in Times Past

Lifespan Perspectives on Human Development

Methods of Studying Developmental Psychology

Ethical Constraints on Studying Development

Strengths and Limitations of Developmental Knowledge

Focusing Questions

- What, in general, is human development?
- Why is it important to know about human development?
- How has society's view of childhood changed over time?
- What general issues are important in human development?
- How do developmental psychologists go about studying development from conception to adolescence?
- What ethical considerations should guide the study of child and adolescent development?

What do you remember from your past? When thinking back, each of us remembers different details, but we all experience a paradoxical quality about personal memories; when comparing the past and the present, we feel as though we have changed, yet also stayed the same. As a child, for example, one of the authors (Megan Clegg Kraynok) enjoyed helping her mom bake. As a teenager, she liked to experiment in the kitchen, with varying degrees of success. Now, as an adult, she gets great satisfaction in planning and preparing meals and feels rather adept in the kitchen. In this small way, Megan has both changed (in skill) and stayed the same (in enjoyment and experimentation). You yourself may

have experienced this same dual quality. As a child, perhaps you loved spelling bees or contests. Now, as an adult, you no longer participate in spelling contests and have lost some of your childhood ability to figure out and remember truly unusual spellings. But perhaps you note, too, that you can still spell better than many adults of your age, and you seem to have a general knack for handling verbal information of other kinds—like computer programming languages—without getting mixed up. Or imagine another example: As a teenager, you may have constantly wondered whether you would ever overcome shyness and be truly liked and respected by peers. As an adult, in contrast, you finally believe you have good, special friends; but maybe you also have to admit that it took effort to become sociable enough to acquire them.

Continuity in the midst of change marks every human life. Sometimes changes seem more obvious than continuities, such as when a nonverbal infant becomes a talkative preschooler or when a college student finishes school and begins her career in earnest. Other times continuities seem more obvious than changes, such as when an 18-year-old still feels like a little kid when his mom addresses him by his first and middle name. But close scrutiny of examples like these suggests that both factors may be operating, even when one of them is partially hidden. The eighteen-year-old feels like a child again, but at the same time feels different from that child. The twenty-year-old professional is now preoccupied with her job, but she still cares deeply about her friends from college who now live across the country. It takes both continuity and change to be fully human; I must be connected to my past somehow, but also neither locked into it nor fully determined by it.

development Long-term changes in a person's growth, feelings, patterns of thinking, social relationships, and motor skills.

The Nature of Human Development

This book is about continuity and change from conception through adolescence. Sometimes these processes are called human **development**, although this term is sometimes used to emphasize changes, rather than constancies, in physical growth, feelings, and ways of thinking. As we will see in later chapters, a focus on change may indeed be appropriate at certain points in a person's life. A girl undergoing her first menstrual period, for example, may experience a number of important changes at the same time, and rather suddenly: her body begins looking different, she begins thinking of herself differently, and other people begin treating her differently. But at other times, continuity dominates over change. As an 8-year-old settled into his elementary school and living in a stable home with his mothers, for example, life may seem rather stable from day to day, month to month, or even year to year. Because this book explores development (from conception to adolescence), it will make the most sense to keep both factors in mind—both continuity *and* change—without emphasizing one over the other in advance. When we speak of human development in this book, therefore, we will mean the mix of continuities and changes that occur during a person's life, from conception to adolescence.

Note that both continuities and changes can take many forms. Changes can be relatively specific, such as when an infant takes her first unassisted step. Others can be rather general and unfold over a long time, such as when the areas of a teenager's brain responsible for planning ahead and thinking of consequences becomes more efficient over the course of adolescence and emerging adulthood. The same can be said of continuities. Some last for only a short time compared to the decades-long span of life: a four-year-old who enjoys watching *Sesame Street* will likely continue to enjoy watching *Sesame Street* as a five-year-old but will likely prefer more mature programming as they age. Other continuities seemingly last a lifetime: an extroverted child—one who seeks and enjoys social companionship—is likely to still seek and enjoy companionship as a teenager.

These examples may make the notion of human development seem very broad, but note that not every change or continuity is truly “developmental,” and some human developments are easily overlooked or discounted. Think about the impact of the weather. A sudden cold snap makes us behave differently: we put on warmer clothing and select indoor activities over outdoor ones. A continuous spell of cold weather, on the other hand,



Development occasionally involves rapid, visible changes, such as learning to walk without assistance. Development also includes continuity over time, such as a love of reading.

Source: (left) djile/Shutterstock.com, (right) wavebreakmedia/Shutterstock.com.

creates constancy in behavior: we wear the same type of clothing for a period of time and engage in the same (indoor) set of activities repeatedly. In both cases, our behavior does not qualify as “development” because it is triggered by relatively simple external events and has no lasting impact on other behaviors, feelings, or thinking.

But true human development sometimes also can occur, yet be overlooked or dismissed as something other than development. Personal identity or sense of “self” is an example. A concept of who “I” am always seems to be with me, and often it seems so constant that I ignore it, making it “part of the woodwork” of my mind. This is likely true for you, too; your sense of who “you” are probably seems consistent or familiar to you. This fact is so much a part of our lives that it is easy to overlook its importance or to notice changes in our self-concepts when they occur. Yet for each of us, identity evolves and changes as we grow older, and the changes affect our actions and feelings differently when they occur.

Multiple Domains of Development

As these examples suggest, human development can take many forms. For convenience of discussion, this book distinguishes among three major types, or **domains**, of development: physical, cognitive, and psychosocial. The organization of the book reflects this division by alternating chapters about physical, cognitive, and psychosocial changes. The domain of **physical development**, or biological change, includes changes in the body itself and how a person uses his or her body. Some of these changes may be noticeable to a casual observer, such as the difference in how a person walks when she is two years old versus when she is eighteen years old. Others may be essentially invisible without extended observation or even medical investigation, such as the difference in the visual acuity of a four-month-old versus his seven-year-old sister. Like other forms of development, physical changes often span very long periods—literally years or even decades—though not always. For example, changes in height and weight occur rather rapidly during toddlerhood and the early teenage years but more slowly during late adolescence.

Cognitive development involves changes in methods and styles of thinking, language ability and language use, and strategies for remembering and recalling information. We tend to think of these abilities and skills as somewhat isolated within individuals; a person is said to “have” a good memory, for example, as if he or she carries that skill around all the time and can display it anywhere with equal ease, no matter what the situation. As later chapters will sometimes point out, however, thinking of cognitive development in this way may be more convenient than accurate: memory, language, and thinking are all heavily dependent on supports (and impediments) both from other people and from circumstances. A child learns to read more easily, for example, if parents and teachers give lots of personal support for their efforts. In this sense cognitive changes of reading “belong” to the helpful adults as well as to the child who acquires them, and the changes are best understood as partially physical and social in nature and not merely cognitive.

domain A realm of psychological functioning.

physical development The area of human development concerned primarily with physical changes such as growth, motor skill development, and basic aspects of perception.

cognitive development The area of human development concerned with cognition; involves all psychological processes by which individuals learn and think about their environment.

psychosocial development

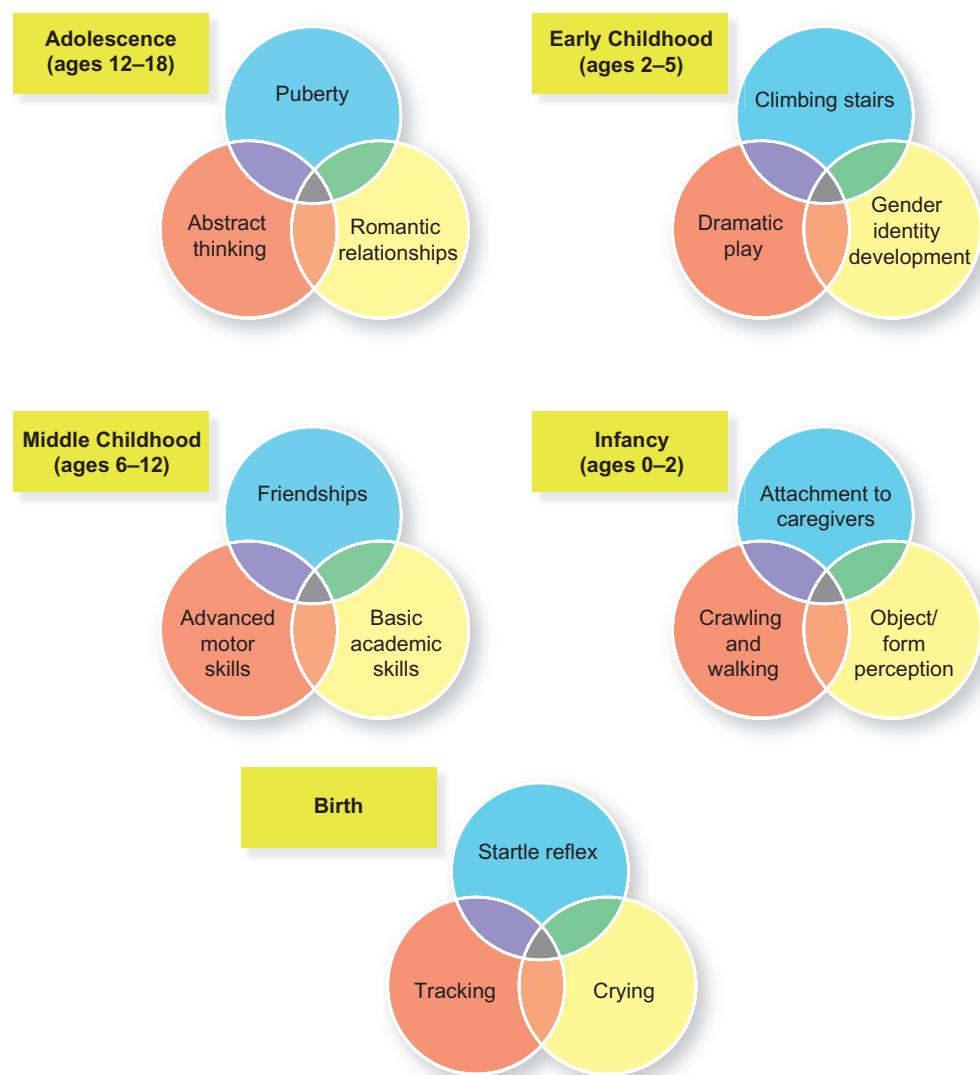
The area of human development concerned primarily with personality, social knowledge and skills, and emotions.

Psychosocial development is about changes in feelings or emotions as well as changes in relations with other people. It includes interactions with family, peers, and classmates, but also includes a person's personal identity, or sense of self. Because identity and social relationships evolve together, we often discuss them together in this book. And, as already pointed out, they also evolve in combination with physical and cognitive changes. A teenager who forms satisfying friendships is apt to feel more competent than one who has difficulty doing so, and they are even likely to stay healthier as well. Each domain—physical, cognitive, and psychosocial—influences each of the others.

Figure 1.1 shows some major landmarks of development in each of the three domains during a few selected stages of development. It also hints at some of the connections among specific developments, both between domains and within each single domain. Attachment to caregiver(s), for example, is noted as emerging during infancy; early attachment patterns set the stage for the kinds of friendships and romantic relationships that develop during childhood, adolescence, and adulthood. This change in social circumstances is sometimes (but certainly not always) accompanied by physical changes and cognitive changes—though which change causes which is not always clear. In addition to these examples from Figure 1.1, numerous other relationships exist between and within domains of development.

FIGURE 1.1
Selected Landmarks
of Development

Development is a continual unfolding and integration of changes in all domains, from birth until death. Changes in one domain often affect those in another domain, and changes that occur in earlier stages of life can influence those that occur during later stages.



Key: For each age group, the Venn diagram represents the intersection of physical (bottom-left circle), cognitive (bottom-right), and social (top) domains of development.

In later chapters we will point these out more explicitly wherever appropriate. Meanwhile, to get a better sense of what development from a developmental perspective means, consider a more extended, complete example.

Development: The Example of Jodi

So far, though we have talked about the importance of relationships among various forms of development, our examples have been a bit diverse and fragmented. How would developments tie together in the life of a real person? What relationships among them could we see then? These are not simple questions to answer fully, but you can begin to get partial answers by considering a child whom one of the authors knew personally: Jodi.

When Jodi was four, one of her brothers died. Roger had been two-and-a-half-years older, a friendly kid and a good sibling. Jodi played with him more than with her sister and other brother, who were both older than Roger. He died suddenly one winter from complications of chicken pox. The doctors said he may have reacted to the aspirin he had taken for his fever. The doctors said you weren't supposed to give aspirin to children, but Jodi didn't know that, and apparently her parents didn't know it either.

For a few years after that, they were a three-child family “with a hole in the middle,” said Jodi to her best friend, where Roger was supposed to be. It was not ideal for Jodi, but it was tolerable: she didn't have the playmate she used to have, but she did have her family (“What's left of it!”) and her friends from school. Life got back to normal—sort of.

When Jodi was nine, her parents adopted another child, a boy of twelve, about the same age Roger would have been had he lived. Frank had lived in numerous foster care homes, some of which had not been happy experiences for him. In two homes the discipline had been extremely strict, but it was hard for Jodi to know this because Frank did not tell her as much as he told the social workers or his new adopted parents, and her parents did not say much about Frank's past. In fact, Frank said little to Jodi about anything; he seemed distinctly cool toward all three of his new siblings—except for his periodic visits to Jodi's room at night. The first time it happened, Jodi was startled out of her sleep: Frank was standing by her bed and demanded that she take off her nightgown. That was all for that time. But he came back every few weeks, each time asking for more than the time before and threatening to hurt her badly if she revealed “our secret.”

So Jodi learned not to sleep deeply. She also learned to avoid being alone in the house with Frank. In high school and college, she learned to avoid talking to boys a lot, except in a joking way and in the presence of others. In class she learned to look interested in what the instructors said even though she often was “sleeping inside,” as she put it. So Jodi learned a lot from Frank, though not things she wanted to learn and not things most of her classmates were learning.

Jodi's story shows several things about human development. It shows, for example, that the domains of development all unfold together. Jodi's thoughts and feelings about Frank occurred in the context of physical changes happening to herself. Being physically older or younger may not have protected her from abuse, but it probably would have altered the experience, both in impact and in quality.

Jodi's story also suggests the importance of unique, personal experiences when exploring human development in general. Some things about Jodi may always be unique because of her encounters with Frank; she may always be a bit mistrustful of boys and men, for example. But other things about Jodi can be understood as examples of human changes that are universal or nearly universal. In experiencing abuse, for example, Jodi responds to gender role differences that pervade nearly all societies; in most societies, women enjoy less power than men do.

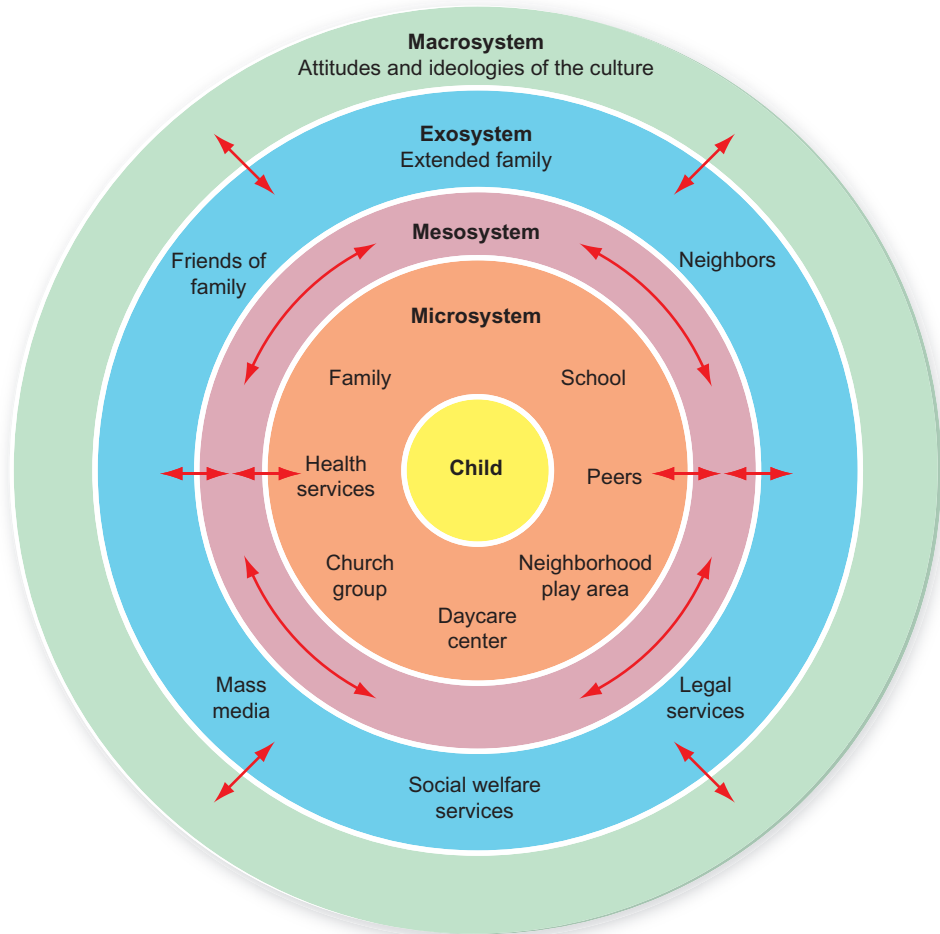
From the point of view of development, Jodi's story also raises questions about continuity and change across wide ranges of time. We are left wondering whether Jodi's initial responses to abuse will persist throughout her life. Assuming she will be cautious about men even as a thirty-year-old adult? After so many years go by, society itself may develop new attitudes about the significance of childhood abuse, just as society already has done in the past few decades.

FIGURE 1.2

**Bronfenbrenner's
Ecological Systems for
Developmental Change**

As shown here, Bronfenbrenner describes human development as a set of overlapping ecological systems. All of these systems operate together to influence what a person becomes as he or she grows older. In this sense, development is not exclusively “in” the person but is also “in” the person’s environment. In addition to the systems pictured here, a fifth system, the *chronosystem*, refers to changes in the ecological systems over a person’s lifetime and over the course of human history.

Source: Adapted from Garbarino (1992a).



To help organize thinking about developmental questions like these, the developmental psychologist Urie Bronfenbrenner has originated a widely used framework for thinking about the multiple influences on individuals (Bronfenbrenner, 1989, 2005). He describes the context of development as *ecological systems*, which are sets of people, settings, and recurring events that are related to one another, have stability, and influence the person over time. Figure 1.2 and Table 1.1 illustrate Bronfenbrenner’s ecological systems.

1. The *microsystem* refers to situations in which the person has face-to-face contact with influential others. For Jodi, the microsystem consists of her immediate family (though note that the membership of this family changed over time) as well as her teachers and peers at school.
2. The *mesosystem* refers to the connections and relationships that exist between two or more microsystems and influence the person because of their relationships. An example would be the contacts between Jodi’s parents and the social workers responsible for Frank’s adoption: their contacts led them (perhaps wrongly) to withhold information about Frank from Jodi.
3. The *exosystem* consists of settings in which the person does not participate but still experiences decisions and events that affect him or her indirectly. An example in Jodi’s case might be the medical system, which either lacked the knowledge needed to save Roger at the time of his death or had been organized in a way that interfered with communicating needed medical knowledge to Jodi’s parents.

TABLE 1.1 Ecological System Levels

Ecological Level	Definition	Examples	Issues Affecting the Individual
Microsystem	Situations in which the person has face-to-face contact with influential others	Family, school, peer group, place of worship, workplace	Is the person regarded positively? Is the person accepted? Is the person reinforced for competent behavior? Is the person exposed to enough diversity in roles and relationships? Is the person given an active role in reciprocal relationships?
Mesosystem	Relationships between microsystems; the connections between situations	Home–school, workplace–family, school–neighborhood	Do settings respect each other? Do settings present basic consistency in values?
Exosystem	Settings in which the person does not participate but in which significant decisions are made affecting the individuals who do interact directly with the person	Parent’s place of employment, local school board, local government	Are decisions made with the interests of the person in mind? How well do social supports for families balance stresses for parents and caregivers?
Macrosystem	“Blueprints” for defining and organizing the institutional life of the society	Ideology, social policy, shared assumptions about human nature, the “social contract”	Are some groups valued at the expense of others (e.g., sexism, racism, homophobia, ableism)? Is there an individualistic or a collectivistic orientation? Is violence a norm?
Chronosystem	Changes in all of the ecological systems over the course of a person’s development and over the course of human history.	The developmental impact of certain events will vary depending upon their timing during one’s development, and elements of the ecological systems can change from one generation to the next.	What elements of the ecological systems are most impactful on an individual’s development, given that individual’s age? What factors will greatly influence the development of children born this year? How do those factors compare to ones that were present in 2000?

4. The *macrosystem* is the overarching institutions, practices, and patterns of belief that characterize society as a whole and take the smaller micro-, meso-, and exosystems into account. An example that affected Jodi was gender role: a widespread belief that men should dominate women may have contributed to Frank’s coercive actions against Jodi, as well as to Jodi’s caution with boys and men as she got older.
5. The *chronosystem* (not depicted in Figure 1.2) can be best thought of as a quality of all of the ecological systems: they change over time. During the course of one’s lifetime, specific aspects of each person’s micro-, meso-, exo-, and macrosystems will change, as will their impact on the individual’s development. In Jodi’s case, if Frank’s actions occurred when Jodi was nineteen instead of just nine years old, the events might have played out very differently. Additionally, over the course of human history, these same ecological systems have undergone significant changes. Today we have a heightened awareness about the developmental consequences of child maltreatment and abuse as compared to what we knew a few decades ago.

In the pages ahead, we will keep in mind these multiple systems, such as those implied by Jodi's story, as well as the importance both of long-term developments during adulthood and of historical changes. Only in this way will we be able to convince you that developmental psychology has something to say about particular human lives: about how you, I, or a friend of yours changes and grows and what those changes may signify for our lives as a whole. In taking this perspective, we do not wish to imply that shorter-term changes do not matter. What happened to Jodi at age nine, for example, mattered greatly to her at age ten. We do, however, want to emphasize that developmental changes often have consequences that are more than short term and that the consequences are not necessarily identical or even similar to each other. Jodi's response to abuse one month or one year after the experience may—or may not—be the same as her response many years later. We encourage you to think of her story as a reminder of these complexities.

Why Study Development?

Knowing about human development can help you in five major ways:

1. Allow you to form realistic expectations for others;
2. Help you respond appropriately to the actions of others;
3. Enable you to distinguish between normative and non-normative behavior in others;
4. Provide insights into yourself; and
5. Inform and enhance your professional advocacy for others.

Each of these benefits is described in more detail next.

First, knowledge about development can give you realistic expectations for infants, children, and adolescents. Developmental psychology tells you, for example, when infants usually begin talking and when children tend to begin reasoning abstractly. It also describes the issues faced by parents, caregivers, and grandparents, among others. Admittedly, it often gives such information only as averages or generalities: when a “typical” person acquires a particular skill, behavior, or emotion. Nonetheless, the averages can help you know what to expect from specific individuals.

Second, knowledge of development can help you respond appropriately to a person's actual behavior. If a preschool boy tells his mother that he wants to marry her, should she ignore his remark or make a point of correcting his misconception? If a third-grade child seems more interested in friends than in schoolwork, should her teacher discourage contact with friends or try to figure out ways to use the friends to support the child's academic work? Developmental psychology can help answer such questions by indicating the sources and significance of many patterns of human thought, feelings, behavior, and growth.

Third, knowledge of development can help you recognize the wide range of normal behaviors and thus when departures from normal are truly significant. If a child talks very little by age two, should their parents and doctors be concerned? What if they still do not talk much by age four? If a child becomes more argumentative when she enters adolescence, is this normal, or should the parents be concerned about whether her friends are becoming a bad influence? We can answer these questions more easily if we know both what *usually* happens and what *can* happen to people as they move through life. Developmental psychology will help by placing particular behaviors in a broader context, one that (like Bronfenbrenner's framework pictured in Figure 1.2) calls attention to the many simultaneous influences on every person's life. As we will see in the chapters ahead, this perspective leads to the conclusion that the importance of any particular behavior depends not just on the age of the person doing it but on the place of the behavior in the overall life of the person.

Fourth, studying development can help you understand yourself. Developmental psychology makes explicit the process of psychological growth, processes that each of us may overlook in our personal, everyday lives. Even more important, it can help you make sense of your own experiences, such as whether it really mattered that you reached puberty earlier (or later) than your friends did.

Focusing On . . .

Wanted: A Child and Family Policy

Most parents value their children, want the best for them, and make sacrifices on their behalf. In spite of this support, though, the lives of children are often difficult:

- According to a recent report on child well-being from the Children's Defense Fund (2019), about 17 percent of all children in the United States under age seventeen live in families that are officially poor, even though the United States is consistently ranked the richest country in the world. Seventy percent of these children come from working families, and 75 percent of these children are Black, indigenous, or people of color (Children's Defense Fund, 2019). An additional 10.7 million children were lifted out of poverty in 2018 by programs whose budgets are routinely cut as part of political discourse, such as the Supplemental Nutrition Assistance Program (SNAP); housing subsidies; school lunch programs; the Supplemental Nutrition Program for Women, Infants, and Children (WIC); Temporary Assistance for Needy Families (TANF); and Earned Income Tax Credits (Children's Defense Fund, 2019). The number of children living in poverty could be reduced by 57 percent with an investment of an additional 1.4 percent of the federal budget.
- While rates of immunization have increased worldwide during the past two decades, a significant proportion of children have failed to receive routine immunizations against polio, measles, and other childhood diseases. The United States ranks much lower than many other developed countries in rates of immunization, with only 70 percent of children aged three in the United States having received their complete scheduled immunizations (National Center for Health Statistics, 2017), and as of March 2023, only 43 percent of eligible children under the age of eighteen have received any doses of a COVID-19 vaccination (Centers for Disease Control and Prevention, 2023).
- About a third of all children living today have parents who are not married, and approximately 41 percent of all children are born to a single parent (Pew Research Center, 2010). One of the major stresses of children whose parents are divorced or who have a single parent is poverty. In fact, during the 2017–2018 school year, more than 1.5 million children enrolled in public school were homeless at some point (Children's Defense Fund, 2021).

- In the United States, on average, an infant is born into poverty every twenty-nine seconds; a child is physically punished in school every thirty seconds; and a child is killed by a firearm every three hours, making it the leading cause of death among children under the age of nineteen (Children's Defense Fund, 2012; Goldstick et al., 2022).

A major reason these problems exist is that the United States lacks a comprehensive, integrated set of policies for caring for its children. Programs to remedy social problems have tended to focus on problems selectively rather than recognizing the impact of one problem on another. School programs to assist with learning difficulties, for example, tend to work with children individually, even though health, nutrition, illness, and family disruptions contribute to learning difficulties in major ways. A more effective approach is to provide a set of related and coordinated services to support families: pediatric care, combined with special help at school and a supportive social worker or nurse to visit parents at home to provide encouragement and information. When Victoria Seitz and Nancy Apfel tried this approach with some low-SES families, they found improvements in cognitive abilities not only for the children originally at risk but also for their siblings who had not even been a focus of the intervention (Seitz & Apfel, 1994)!

Such combined approaches to children's welfare may look expensive and difficult when organized as special demonstration projects, but experience in other developed countries suggests that costs decrease markedly when implemented universally and that organizational problems can in fact be solved (Chafel, 1993; Children's Defense Fund, 2019, 2021). The real challenge, it seems, may be political: enlisting the support of leaders in government and business to develop comprehensive policies for children and thereby ensuring the future of society.

What Do You Think?

Suppose child care or free school breakfast and lunch were made universally available in the United States and Canada as they currently are in some states and in certain European nations. What effect would this policy have on children's development? What effect would it have on their families? Would your feelings about universal child care or free meals at school depend on the age of the children?

Finally, studying development can make you a more professional advocate for the needs and rights of children and adolescents. By knowing, in detail, the capacities and potential of young people, you will be in a good position to persuade others of their importance and value. The "others" are diverse and include parents, professionals who work with children,

and political and business leaders. All of us, including most readers of this book, have a common stake in making our society a more humane place to live. Yet, as the “Focusing On” feature indicates, we as a society can do a better job of supporting human development than we in fact have done.

The Life Course in Times Past

Until just a few hundred years ago, children in Western society were not perceived as full-fledged members of society or even as genuine human beings (Ariès, 1962). During medieval times, infants tended to be regarded rather like talented pets: at best interesting and even able to talk, but not creatures worth caring about deeply. Children graduated to adult status early in life, around age seven or eight, by taking on major, adult-like tasks for the community. At that time, children who today would be attending second or third grade might have been caring for younger siblings, working in the fields, or apprenticed to a family to learn a trade.

Because children took on adult responsibilities so young, the period we call *adolescence* was also unknown. Teenagers assumed adult roles. Although these roles often included marriage and childrearing, most people in their teens lived with their original families, helping with household work and with caring for other people’s children until well into their twenties.

Although this may all seem harsh by modern, middle-class standards, it was not necessarily bad in the context in which it occurred. Historians and sociologists have pointed out that children and youth did have to work, but they tended to do only tasks for which they were capable, and they earned modest respect (if not wealth) from the community because they made true economic contributions to it (Hareven, 1986; Sommerville, 1990)—an advantage modern children experience much less often. Adults at that time also showed more awareness of the profound differences among children in their formative childhood experiences. The modern tendency to view all children as innocent and needing protection has also led, ironically, to much more uniform views about the nature of childhood and insensitivity to the impact of culture and economic class (Hendrick, 1997; Seifert, 2000).

Early Precursors to Developmental Study

Why did awareness of childhood as a special time of life eventually emerge? Society was becoming less rural and more industrialized. During the eighteenth century, factory towns began attracting large numbers of workers, who often brought their children with them.



The concept of childhood as a distinct period in a person’s life is a relatively new invention. Prior to the nineteenth century, children were expected to assume responsibilities and contribute to the household in important ways as soon as they were able, much like the girl in the picture who is delivering milk. From the nineteenth century to the present, childhood has increasingly been viewed as a time for play and the acquisition of skills and knowledge that will serve them later in life, as seen in the picture of the girl who is drawing with colored pencils while in school.

Source: (left) Chippix/Shutterstock, (right) Olesya Feketa/Shutterstock.

What Do You Think?

What do you hope to gain by studying developmental psychology (besides a college credit, of course!)? Take a minute to think about this question—maybe even jot down some notes about it. Then share your ideas with two or three classmates. How do they differ?

“Atrocity stories” became increasingly common: reports of young children in England becoming caught and disabled in factory machinery and of children being abandoned to the streets. Partly because of these changes, many people became more conscious of childhood and adolescence as unique periods of life, periods that influence later development. At the same time, they became concerned with arranging appropriate, helpful experiences for children.

Without a doubt, the change in attitudes eventually led to many social practices that we today consider beneficial to children and youth. One positive gain was compulsory education, instituted because children needed to be prepared for the adult world rather than simply immersed in it. Another was the passage of laws against child labor to protect children from the physical hardships of factory life and make it less tempting for them to go to work instead of to school.

But these gains also had a dark side. Viewing children as innocent also contributed to increasing beliefs that children are incompetent, their activities are unimportant, and the people who care for children deserve less respect than other people. That is why, it was argued, children cannot do “real” work and why they need education (Cannella, 1997). And viewing them as innocent contributed to the idea that children are essentially passive and lacking in opinions and goals worth respecting; that is why, it was thought, adults have to supervise them in school and pass laws on their behalf (Glauser, 1997; Kitzinger, 1997). These were early signs of what later came to be called **ageism**, a prejudice against individuals based on their age, which eventually also affect social attitudes about groups of similarly aged people—especially adolescents and older adults.

ageism Prejudice or bias against an individual based on the individual’s age.

The Emergence of Modern Developmental Study

During the nineteenth and twentieth centuries, the growing recognition of childhood led to new ways of studying children’s behavior. One of these was the *baby biography*, a detailed diary of a particular child, usually the author’s own. One of the most famous English baby biographies was written and published by Charles Darwin (1877) and contained lengthy accounts of his son Doddy’s activities and accomplishments. The tradition of rich description continued in the twentieth century with Arnold Gesell, who observed children at precise ages doing specific things, such as building with blocks, jumping, and hopping (Gesell, 1926). After studying more than 500 children, Gesell generalized standards of normal development, or **norms**—behaviors typical of children at certain ages. Although the norms applied primarily to white, middle-class children and to specific situations and abilities, they gave a wider-ranging picture of child development than was possible from baby biographies alone.

norms Behaviors typical at certain ages and of certain groups; standards of normal development.

The method of descriptive observation in developmental research has persisted into the present. An influential observer in this century has been Jean Piaget, who described many details of his own three children’s behavior, as well as that of adolescents (Piaget, 1963). He did not observe all of the children’s possible behaviors, but rather he focused on those behaviors that illustrated their cognitive skills, or ability to think. Piaget’s work has influenced modern developmental psychology quite extensively, and we will discuss his theory and the implications of his work later in this book.

Lifespan Perspectives on Human Development

As we mentioned earlier, this book is about human development from conception through adolescence, a subset of a larger field of *lifespan development*, the study of continuity and

What Do You Think?

What are the merits and problems of descriptive study of human beings? One way to find out is for you and two or three classmates to make separate written observations of the “same” events. Visit a place with people in it (e.g., your student union, a store, or even your developmental psychology classroom), and separately write about what you see one particular person doing. Afterward, compare notes. How similar are your observations? How do they differ?

change from birth to death. As the term implies, lifespan development is not confined to any one period of life, such as childhood, adolescence, or adulthood (sometimes psychologists call these by more specific names like *child psychology*, *the psychology of adolescence*, or *the psychology of adulthood*). Though this text focuses on development from conception through adolescence, the basic issues of interest in lifespan psychology are the same: a commitment to understanding how human beings think, feel, and act at different ages. It also shares a commitment to systematic study of the human condition, a commitment that we will look at more closely later in this chapter. But it also differs from other fields of developmental study in four distinct ways: (1) in dealing with the issue of human continuity and change, (2) in viewing the interplay between growth and loss, (3) in comparing how basic events of life change in meaning at different ages and when viewed by different individuals, and (4) in noting (and respecting) the wide diversity among individuals and the sources of that diversity. These themes are summarized in Table 1.2 and will come up repeatedly in the chapters ahead. To get an initial idea of what they mean, let us look briefly at each of them now.

Continuity Within Change

Throughout development there are periods of stability and periods of change, and depending on the time frame being used, change sometimes seems gradual and imperceptible and sometimes seems sudden and abrupt. A cooing four-month-old infant becomes a fourteen-year-old arguing that her room is “clean enough.” If we take a closer look, that four-month-old will begin cooing different sounds, then begin linking consonant sounds with vowel sounds, and will eventually begin saying words with meaning attached to those words. Some developmental transformations take years, even decades, to occur. It is the developmental perspective—the comparisons among different periods of life—that makes change seem more frequent and obvious. Such changes would be less obvious if development were studied over shorter periods of time. That four-month-old may seem like she suddenly became an argumentative teenager, but the addition of new sounds and words to her vocabulary happened gradually.

TABLE 1.2 Perspectives on Human Development

Issue	Key Question
Continuity within change	How do we account for underlying continuity in qualities, behaviors, and skills in spite of apparent change?
Lifelong growth and loss	What is the potential for growth and loss—emotionally, cognitively, socially, and physically?
Changing meanings and vantage points	How do key life events change in meaning throughout childhood and adolescence and as a result of changing roles and experiences?
Developmental diversity	What factors create differences in individuals' development?

One challenge of developmental psychology is to identify the factors that underlie developmental changes that occur over the periods with which it deals. In essence, the field looks for the continuities hidden within long-term changes. Developmental psychologists ask, “Who is the person underlying long-term changes, and how do they direct and influence the changes?” Consider an eighteen-year-old who protested over being separated from his parents at age two but now enjoys a secure relationship with his parents. Is there an underlying continuity between his behavior at two and his behavior at eighteen? Perhaps a connection exists, but it is implicit: when, as a two-year-old, he cried at his mother’s departure, maybe he was not just complaining about being “abandoned” but also expressing the strength of his attachment. Perhaps his tantrums over separation even showed his commitment to the relationship, both to his mother and to himself. And his protests actually may have reflected a high comfort level, rather than a low one, in his bond to his mother, showing his confidence that he would not be punished for expressing his opinion! Later, at eighteen, he is in a better position to express his strong attachment directly, particularly because he no longer feels that separations and reunions are completely out of his control. Across the two decades of his life, what was continuous was strong attachment; what was discontinuous or changeable was the way the attachment was expressed.

Lifelong Growth and Loss

Though the focus of this text is from conception through adolescence, we must keep in mind that development is lifelong. Moreover, experiences at one point in development impact future development. This theme of lifespan psychology highlights the potential for growth at all ages, including not only childhood and adolescence but also adulthood and late life. Growth can occur in many areas of living, although it is not inevitable. For example, the psychologist William Damon has explored the development of moral goals in a series of research studies from infancy through midlife (Damon, 1996). By “moral goals,” he refers to the formation of a sense of right and wrong, as well as the disposition to act on this sense. He points out that a moral sense is never formed completely but deepens steadily throughout the lifespan. Note in the following developmental sequence how developmental growth in one’s moral sense is based upon borrowing and incorporating ideas and commitments from all of a person’s previous experiences.

- During infancy and the early preschool years, moral goals depend heavily on a child’s ability to *empathize* (actually feel what someone else feels) and to *sympathize* (be aware of another’s feelings even though not experiencing the other’s feelings directly). Empathy and sympathy direct many actions of preschoolers; a three-year-old might, for example, hand a favorite teddy bear to a crying playmate.
- During the elementary school years, children use empathy and sympathy to develop moral concepts—ideas about equity and fairness—but their opinions at this age may not necessarily translate into action consistent with their beliefs. For example, a ten-year-old will have definite personal opinions about how to distribute a reward of candy to group members when they have worked on a common project. Damon argues that elementary-aged children have not yet linked their moral goals with their self-concepts or self-identifies. So at this age, it is possible to believe one thing about morality (e.g., “pay according to effort”) but do another (e.g., “pay equally to all”).
- In adulthood, however, moral goals gradually become reconciled with self-identity—though only a minority do so completely (Colby & Damon, 1992). Who “I” am is increasingly defined by what I believe to be right and wrong or good and bad. Aligning my “self” with moral ideas leads to stronger commitments to actions that embody these ideals (Damon, 2008). If I believe in a certain method of payment for group work, as in the example above, I am likely to say so. At the same time, the increasing sophistication of my thinking means I may also balance self-assertion against other moral commitments, such as not offending others unnecessarily—a demonstration of empathy and sympathy. The result is less “verbal hypocrisy,” as seen during childhood, but also less predictability and more diversity of both belief and action in adulthood.

From birth through late life, moral goals and moral thinking grow continuously while also changing character: from an exclusive basis in intuitions (empathy and sympathy), to distinct verbal beliefs, to beliefs and actions partially reconciled with a sense of self. The moral complexities of adulthood are based on the abilities to empathize and sympathize—the abilities developed initially in infancy and the preschool years.

Although loss is thought of as primarily occurring during late life, some aspects of loss occur much earlier in life. For example, infants are capable of discriminating between sounds in both native and nonnative languages, an ability that declines substantially between the ages of six months and one year of age (Kuhl et al., 2005).

Changing Meanings and Vantage Points

By nature, developmental psychology deals with key events and themes of life from a number of different lenses. Work, play, love, having friends, and the family: these and other universal experiences mean different things as a person ages and mean different things depending on a person's current roles and responsibilities. Friendships take on new forms and significance, for example, as children grow older; it means one thing to have a friend to play with as a four-year-old but something quite different to a sixteen-year-old whose friend serves as a confidant. Friendships also look quite different to those in the friendship than to their parents, for example.

Lifespan psychologist Jacqueline Goodnow illustrated the extent of such differences in perspective using one type of work, everyday household chores (Goodnow, 1996). Most families, whatever their size and composition, work out understandings about which family member should do which chores. Whether or not the work is divided equally, the arrangement itself is supposed to be known and agreed on by all. Goodnow points out, however, that this ideal is rarely achieved fully. An “official” division of household labor may really be understood or accepted only by the parents or even just by one parent. Multiple, competing views of “who should do what” are common. Other family members (such as children) may have their own ideas about how much housework they ought to do and about which particular jobs reasonably belong to each person. Furthermore, the multiple views are also likely to change over time. One reason is that children grow and therefore acquire new housekeeping skills, engage in activities that make new housekeeping demands (like hosting friends as they get older), or leave home altogether. The other reason is that parents also grow and change their own activities and obligations;



An important issue in lifespan psychology has to do with accounting for the diversity among individuals, families, and communities. Are there principles that hold true for all people—including this Mennonite family and this African American family—regardless of circumstances?

Source: (left) Sandra Foyt/Shutterstock.com, (right) Monkey Business Images/Shutterstock.com.

a parent may start working or get a divorce, for example, and the new conditions will alter the parent's view of what housework really needs doing and by whom. The result of these factors is twofold: in most families, conflict about housework is likely at least some of the time, and any current conflict is likely to disappear eventually, to be replaced by other disagreements about housework. It is still the same housework, but people's views of it change.

Developmental Diversity

Developmental psychology searches for general trends and patterns that account for important changes during infancy, childhood, and adolescence. But developmental psychology is also likely to note *differences* in patterns of development: differences created both by individual experiences and by social and cultural circumstances (Baltes & Staudinger, 1996). The “A Multicultural View” feature, for example, describes the experience of street children in Paraguay, noting how the circumstances in Paraguay modify the impact of life on the street in that society compared to more economically developed societies such as the United States and Canada. In Paraguay, a child who lives on the street some of the time is not necessarily cut off from the support of family or other responsible adults. And not all street children live in the street full time; in fact, most do so only for limited periods. The effect of street life on children's development is therefore more variable; sometimes, in fact, street life creates a more positive context for growing up than staying in school, which costs money and often does not always lead to employment later in life.

The diversity among street children in Paraguay suggests the importance of attending to diversity in development in general, and to diversity among North American children in particular. Just as in Paraguay, being a street child in the United States or Canada may be a different experience and hold different significance depending on a child's circumstances, such as the quality of prior family relationships, the resources available to the child and to the family, and the like. Understanding the developmental impact of life on the street requires taking these differences into account.

Diversity occurs not only within cultures and societies but also between cultural groups within a society. In North American society, for example, cultural differences can influence the supports for and expectations of a child in major ways. Patricia Greenfield demonstrated such influence in a research study of routine parent-teacher conferences between Anglo teachers and Latina mothers (Greenfield, 1995). Greenfield observed and analyzed the conferences in terms of differences in personal and family values expressed or implied during the conferences. During the conferences, the Anglo teachers uniformly sought to highlight the individual achievements of the child (“Carmen is doing well with her spelling”). But many of the Latina mothers preferred to direct the conversation toward how the child fit into the family and into the classroom group (“Carmen is such a help to me and so friendly”). The parents' remarks reflected differences in general cultural values—the Anglo parents valuing independence somewhat more, but the Latinx parents (sometimes) valuing *interdependence* more. The result was frustration with the conference on the part of both teachers and parents and less effective support for the children in their efforts to succeed socially and academically.

Yet even among these parents and teachers, there were differences: some parents and teachers adjusted to each other's conversational priorities, regardless of ethnic background. This adjustment was fortunate because chronic miscommunication among caregivers—and the subsequent less effective support—can impair a child's social and cognitive development in the long term.

Methods of Studying Developmental Psychology

As a field of study, developmental psychology bases its knowledge on systematic research, study, or investigation of continuity and change in human beings. The methods used are quite diverse, but all bear some relationship to the **scientific method**, procedures to ensure

scientific methods General procedures of study involving (1) formulating research questions, (2) stating questions as a hypothesis, (3) testing the hypothesis, and (4) interpreting and publicizing the results.

What Do You Think?

A psychologist once said that “every parent believes in nurture until they have their *second* child.” What do you think she was getting at with this comment? If you happen to be a parent of at least two children, share your opinion of the comment with a classmate who is not a parent or with one who is a first-time parent. And vice versa: if you’ve raised no children, or only one, compare your opinions to those of a second- or third-time parent.

objective observations and interpretations of observations. As noted in this section, the scientific method allows for considerable variety in how research studies might be conducted. In fact, it is more accurate to speak of many scientific methods rather than just one.

The Scientific Method

Due to their adherence to the scientific method, all scientific research studies have a number of qualities in common, whatever their specific topic. For various practical reasons, the qualities cannot always be realized perfectly, but they form ideals to which to aspire (Cherry, 1995; Levine & Parkinson, 1994). The procedures are as follows:

1. *Formulating research questions.* Research begins with questions. Sometimes these questions refer to previous studies, such as when a developmental psychologist asks, “Are Professor Deepthought’s studies of thinking consistent with studies of thinking from other countries?” Other times they refer to issues important to society, such as “Does early childhood education make kids more socially skilled later in childhood?” This part of the research process is similar to the reflection and questioning often engaged in by parents, teachers, nurses, and other professionals concerned about human growth and development.
2. *Stating questions as hypotheses.* A **hypothesis** is a statement that expresses a research question precisely. In making a hypothesis out of the earlier question regarding early childhood education, a psychologist needs to be more specific about the terms *early childhood education* and *social skills*. Is any child care center considered *early childhood education* or only those with employees with degrees in early childhood education? Does *socially skilled* mean making eye contact and smiling, or does it require initiation of activities with others? After the terms of the question are clarified, the hypothesis is usually stated as an assertion that can be tested (“Children who attend preschools with early childhood education experts initiate more activities than those who did not”), rather than as a question (“Does early childhood education make children more socially skilled?”).
3. *Testing the hypothesis.* Having phrased a research question as a hypothesis, researchers can conduct an actual study about it. As the next section describes further, they can do this in a number of ways. The choice of method usually depends on the type of research question being asked, as well as convenience or efficiency, ethics, and scientific appropriateness. No research method is perfect, although some are more suited for particular research questions than others.
4. *Interpreting and publicizing the results.* After conducting the study itself, psychologists have a responsibility to report its outcomes to others by presenting them at conferences and publishing them in journal articles. Their reports should include reasonable interpretations or conclusions based on the results and enough details for all other psychologists to replicate (or repeat) a study themselves to test the conclusions. In practice, the limits of time (at a conference presentation) or space (in a journal) sometimes compromise this ideal.

hypothesis A precise prediction based on a scientific theory; often capable of being tested in a scientific research study.

TABLE 1.3 Methods of Studying Human Development

Research Question	Method	Description
Question about Causality	Experimental study	Observes persons where circumstances are carefully controlled so that just one factor varies at a time
	Cross-sectional study	Observes persons of different ages at one point in time
	Longitudinal study	Observes same group(s) of persons at different points in time
	Sequential studies	Observes persons from different cohorts at the same <i>and</i> different points in time.
Question about Association	Naturalistic study	Observes persons in naturally occurring situations or circumstances
	Correlational study	Observes tendency of two behaviors or qualities of a person to occur or vary together; measures this tendency statistically
	Survey	Brief, structured interview or questionnaire about specific beliefs or behaviors of large numbers of persons
	Interview	Conversation used to gather complex, detailed information from individuals
	Case study	Investigation of just one individual or a small number of individuals using a variety of sources of information

There is a wide range of ways to carry out these steps, each with its own strengths and limitations. Viewed broadly, psychological studies can be organized into two groups based upon the type of research questions that the studies are designed to address: studies that attempt to answer questions about *causality* and studies that attempt to answer questions about *association*. Researchers that ask questions about causality focus on how changes in one variable cause changes in another, while researchers who pose questions about association focus on identifying relationships (i.e., “covariations” or “correlations”) between variables. Different methods are then employed by researchers to seek answers to these two types of questions. These methods vary in the length of time required to complete the study, the extent of intervention and control exercised by the researcher, and the sampling strategies used to recruit participants. The methodologies often get combined in various ways, depending on the questions the studies are investigating. Table 1.3 summarizes the various possible methods and is helpful in reviewing the explanations given in the sections that follow.

Researching Questions About Causality

- What is the effect of video game violence on aggressive behavior?
- What are the effects of age on children’s abilities to interpret emotions?
- What are the long-term effects of a preschool program for low-income children on academic achievement and occupational success?
- What are the effects of smartphone use at bedtime on adolescent sleep quality?

Each of the above questions addresses important cause-and-effect relationships. To clearly and convincingly answer these questions and others like them, researchers must conduct experiments.

Street Children: Comparing Paraguay and North America

Like all countries of Latin America, Paraguay contains children and youths who are colloquially known as “street children.” They are a serious concern for the officials in this country, as indeed they are everywhere, including in North America. Who are the street children, and what do they need? The sociologist and social worker Benno Glauser investigated these questions in Paraguayan society, using interviews and case studies of street children and their families. He was surprised to find it was not at all clear what street children have in common with one another or what they therefore needed (Glauser, 1997). The ambiguities he encountered have implications for how we should think about and deal with street children in more developed societies such as the United States or Canada.

In Paraguay, political leaders, social workers, and other makers of public opinion used the term “street children” to refer to youngsters in cities who lacked a home or family, spent nights on the street, and either begged or worked at various semi-legal or illegal activities to get money for food. Yet Glauser found that real street children were much more diverse than this definition implies. Some still slept with their families, for example, and usually spent days on the street only to attend to a job (e.g., selling flowers). Some deliberately slept out, but only occasionally or for selected periods because of their employment (e.g., giving street directions to tourists for money could be done

only in the tourist season). Some never saw their parents but slept in the home of another relative or some other responsible adult. And some (a minority) fit the definition of the authorities: they never saw family or relatives, banded together with other homeless children for mutual protection, and always slept on the street. This last group was much more vulnerable to physical abuse, more likely to become sick, and more likely to become trafficked or involved in criminal and other illicit activities (e.g., drugs or child prostitution). This finding has been confirmed by other research on street children (Campos et al., 1994).

Unfortunately, as Glauser discovered, the authorities tended to treat all street children as if they belonged to this last group and, therefore, were all in need of rather heavy-handed protection from abuse, disease, and poverty. Policies and actions favored (1) interrupting children’s economic activities (e.g., washing car windshields at street corners), (2) moving children out of sight by having police pick them up and take them to more remote areas of the city, and (3) encouraging children to attend school and their caregivers to support children’s attendance. Most of these actions proved either inappropriate or ineffective. Usually, for example, a child’s job was not a “hobby” in spite of its informal status. Poor families often needed the child’s income, or at least needed the child not to be an economic burden on the family. So parents and other relatives did not

Experimental Studies

If a researcher was interested in determining if playing violent video games causes an increase in aggressive behavior, the researcher could manipulate the level of violence in video games to which two groups of players are exposed—one group of participants plays a violent video game and another group plays a nonviolent video game. In order to ensure that the results from the study reflect only the effects of the level of violence in the video games, all other potential variables must be kept constant. For example, the two groups of video game players should be equivalent with respect to age, sex, level of education, familiarity with video games, etc. The conditions under which each group plays the video games should be the same as well: each group should play the games for the same amount of time and in the same kind of environment. Last, the researcher needs to be able to systematically and accurately measure the level of aggression each player exhibits after playing the video games. An **experimental study** just like this was conducted by Hasan, Bègue, Scharnow, and Bushman (2013) that involved two groups of college students who played either violent or nonviolent video games twenty minutes a day for three consecutive days. After each video game session, the level of aggression of the players was assessed by measuring the duration and volume of a blast of loud noise to which the players subjected a *confederate* (someone working with the experimenter who was pretending to be a participant in the study). The results were clear: college students who played the violent video games were far more likely to subject a confederate to louder and longer blasts of noise than college students who played nonviolent video games.

experimental study A study in which circumstances are arranged so that just one or two factors or influences vary at a time.

Street Children: Comparing Paraguay and North America *continued*

regret a child working. In fact, they often believed that a job developed character and a sense of responsibility. School, on the other hand, was widely regarded as a bad investment among poor families because it led to few jobs and cost money for tuition once a child moved beyond the earliest grades (schoolchildren, in fact, often felt *more* rather than less pressure to work simply to pay the cost of education). And removing children from sight, as the police frequently did, accomplished little in the long term. Children simply walked back to their workplace or living places and began again—though often after experiencing humiliation at the hands of the police. For two reasons, in fact, Glauser suspected that Paraguayan policies and practices regarding street children were serving the interests not of the children but of well-off adults. The first was the emphasis by the police (and other leaders of society) on simply getting street children out of sight, a strategy all too common in some American communities as well (Vissing, 1996). The second was the neglect of children who might need protection and help but are “hidden” from public view, such as unpaid child servants, child prostitutes, or child soldiers in the Paraguayan army. These groups were at least as common as street children but were ignored in all public discourse.

The Paraguayan experience has two important implications for street children in more economically developed countries such as the United States. One implication

is about diversity: it is likely here, as in Paraguay, that “street children” come in different types, from those who merely work the street during the day, to those who sleep there intermittently, to those who live there essentially full time. All may need protection, though not necessarily to the same extent or in the same way. As in Paraguay, street children do not necessarily lose touch totally with parents, other relatives, or other responsible adults. Alternative living arrangements (e.g., a foster home) may—or may not—be better for a child in any particular case, especially for children who already receive significant, though partial, care from their biological parents or other close relatives.

A second point is that in a more economically developed country such as the United States, we understandably hope that school is a more productive investment than may be the case in Paraguay. Here, police and social workers may be more justified in encouraging street children to attend school than they are in less developed countries. But such reasoning may be more hope than reality even in the United States, where living conditions for poor families sometimes approach those conditions in developing nations in spite of proximity to wealth, and where schools face tremendous educational challenges as a result (Dalglish, 1998; Kozol, 1991, 1995). Children of more industrialized nations, or at least some of them, may not be so very different from children of developing nations.

The significant differences between the two groups grew larger after each day’s video game session. Figure 1.3 illustrates the observed pattern of aggression.

Because this study was an experiment, Hasan and his colleagues held constant all the factors that might influence aggressive behavior *except* video game content, the one they were studying. This deliberately varied factor that we believe is the cause is often called the **independent variable**. The factor that varies as a result of the independent variable, showing an effect—in this case, the level of aggression exhibited toward another person—is often called the **dependent variable**.

The experimental method also requires making decisions about the population, or group, to which the study refers. When every member of the population has an equal chance of being chosen for the study, the people selected comprise a **random sample**. If not everyone in a population has an equal chance of being chosen, the sample is said to be *biased*. Investigators can never be completely sure they have avoided systematic bias in selecting individuals to study, but they can improve their chances by defining the population they are studying as carefully as possible and then selecting participants only from that population. When Hasan (2013) and his research team studied the effects of violent video games on college students, for example, the population to which they limited their observations consisted only of young adults who were attending college, and they sampled students from this population at random. Interpretations of their results therefore apply only to this population of young adults. In later studies, they (or other investigators) could sample other populations, such as persons of other ages or cultural backgrounds.

independent variable

A factor that an experimenter manipulates (varies) to determine its influence on the population being studied.

dependent variable

A factor that is measured in an experiment and that *depends on*, or is controlled by, one or more independent variables.

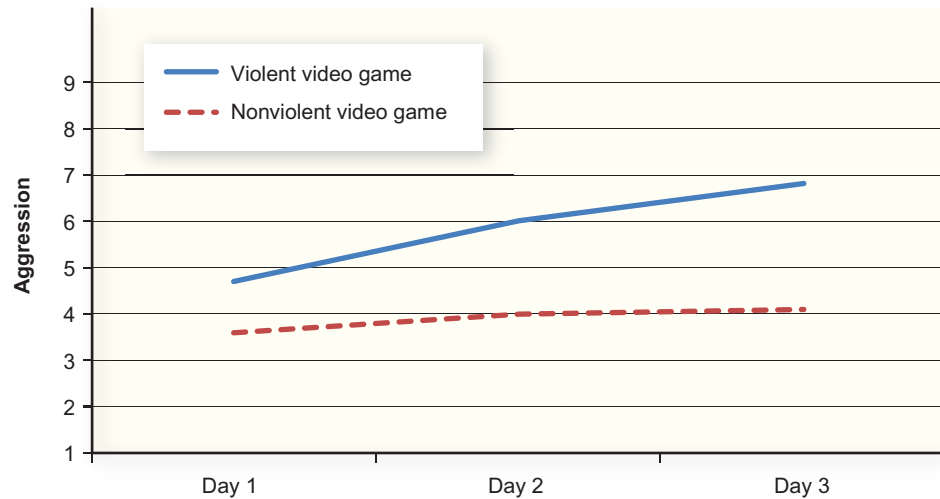
random sample In research studies, a group of individuals from a population chosen such that each member of the population has an equal chance of being selected.

FIGURE 1.3

Effects of Violent and Nonviolent Video Games on Aggression over Time

Exposure to video games for twenty minutes during three consecutive days resulted in significantly higher rates of aggression in college students who played violent video games compared to those who played nonviolent video games.

Source: Adapted from Hasan, Bègue, Scharkow, and Bushman (2013).



random assignment

In research studies, each participant has an equal chance of being placed in, or assigned to, each group. This increases our confidence that differences in the dependent variable are due to the independent variable.

validity The degree to which research findings measure or observe what is intended.

experimental group In an experimental research study, the group of participants who experience the experimental treatment while in other respects experiencing conditions similar or identical to those of the control group.

control group In an experimental research study, the group of participants who experience conditions similar or identical to the experimental group, but without experiencing the experimental treatment.

When assigning participants into groups, such as the violent video game group and the nonviolent video game group, **random assignment** is used. When participants are randomly assigned to a group, each participant has an equal chance of being placed in any group so that, theoretically, each group is balanced. As we noted previously, in the Hasan (2013) study, we would want participants in each group to be similar in age, sex, education, socioeconomic status, previous violent behavior, experience playing video games, etc. Random assignment allows us to be relatively sure that any change in our dependent variable is due to differences in our independent variable and not because all of the skilled gamers are in the violent video game group.

Experimental studies incorporate a number of precautions to ensure that their findings have **validity**, meaning they measure or observe what they intend to measure. One way to improve validity is to observe not one but two sample groups, one an experimental, or treatment, group and the other a control group. The **experimental group** receives the treatment, or intervention related to the purposes of the experiment. The **control group** experiences conditions that are as similar as possible to the conditions of the experimental group, but without experiencing the crucial experimental treatment. Also, to ensure that the experimental and control groups are comparable prior to receiving any treatment or intervention, participants are usually *randomly assigned* to each group. Comparing the results of the two groups helps to explicitly establish the effects of the experimental treatment.

Because of its logical organization, the experimental method often gives clearer results than other types of studies do. But because people sometimes do not behave naturally in experimental situations, one criticism of the experimental method is that its results can be artificial.

Another limitation to the experimental method is that participants cannot always be randomly assigned to the experimental and control groups. This is frequently the case when researchers are seeking the answers to causal questions involving variables like gender, ethnicity, marital status, and age. With each of these variables, participants are already in a group (for example, male or female, single or married, child or adult, etc.); random assignment to these groups is not possible. This poses a challenge when researchers try to produce clear and compelling answers to questions like “What are the effects of age on self-esteem in elementary-aged children?” or “What are the effects of gender on the way adolescents use social media?” Because participants cannot be randomly assigned to experimental and control groups with these kinds of variables—often called “participant variables” because they describe characteristics of certain types of participants—researchers cannot be sure whether the results of their studies are caused by the variable that defines the groups (that is, the participant variable) or by some other variable.

In other words, it is impossible to conduct true experiments if the independent variable is a participant variable. Instead, when researchers ask such causal questions, they must conduct **quasi-experiments**.

Quasi-Experimental Studies

In general, quasi-experimental studies represent a large variety of studies that share a common feature: members of preexisting groups are selected for comparison. Of particular interest to developmental psychologists are quasi-experiments that address causal questions pertaining to changes (or continuities) in people over time. Quite often, *age* is employed as a way to quantify time or to categorize participants. Developmental psychologists can either compare people of different ages at one point in time (called a *cross-sectional study*) or compare the same people at different times as they get older (called a *longitudinal study*). A method that combines elements of both time frames is the *sequential study*. Each method has its advantages and problems.

A **cross-sectional study** compares persons of different ages at a single point in time. One such study compared preschool children (age four) and early-school-age children (age six) on their ability to distinguish between real and apparent emotions (Joshi & MacLean, 1994). Half of the children lived in India, and the other half lived in Great Britain. All of the children listened to stories in which a character sometimes had to conceal his or her true feelings (such as when an uncle gives a child a toy that the child did not really want) and described both how the character really felt and how the character seemed to feel. The results shed light on how children distinguish sincerity from tactfulness. The older children were more sensitive to this distinction than the younger ones were, but the Indian children (especially girls) also were more sensitive to it than the British children were.

A **longitudinal study** observes the same participants periodically over a relatively long period, often years. An example is a study that measured the amount of screen time children were exposed to during the first two years of life and cognitive skills when children were two, three, and four years old (Supanitayanon et al., 2020). Researchers gathered information about when children first had screen time, how much screen time they were exposed to, and the type of programming they consumed. Children's motor skills and language skills, as well as parents' parenting styles, were assessed at ages three and four. The findings of this longitudinal study show that children who experience early initiation to screen time and spend an excessive amount of time being exposed to screens have less verbal interaction with caregivers and subsequently have worse motor skills and language skills at age four. Cross-sectional and longitudinal studies both have advantages and limitations. Cross-sectional studies can be completed more quickly, but they do not guarantee to show actual change *within* individuals. In the study of children's knowledge of emotions, for example, the fact that older children were more knowledgeable does not ensure that each *individual* child becomes more knowledgeable. It shows only an average trend for the group; in certain individuals, knowledge of emotions may improve little as they get older, or even decrease, whereas other individuals may experience a huge leap in knowledge! Why these differences in individual change occur remains a question—and an urgent one if you work with people as a teacher, a nurse, or a counselor. See, for example, the experiences described in the interview with Taylor Scott, MSE, EdS, school psychologist, in the “Working With” feature.

From the perspective of lifespan psychology, however, a more serious limitation of cross-sectional studies is their inability to distinguish among **cohorts**, or groups of people born at the same time and therefore having undergone similar developmental experiences. For example, a cohort of children born in 1990 shared experiences of less pre-kindergarten education and fewer electronic devices than a cohort born in 2000. As a result of this difference, comparing their abilities and skills with electronics in the 2020s may make the older cohort (the ones born in 1990) appear less intellectually able and less skilled. A cross-sectional study may leave the impression that differences in the cohorts reflect true developmental change instead of the effects of being born earlier in the technology boom.

quasi-experiments

Experiments in which participants cannot be randomly assigned to the experimental and control groups; instead, members of preexisting groups are selected for comparison (for example, females versus males, children versus adolescents, or private school students versus public school students).

cross-sectional study A study that compares individuals of different ages at the same point in time.

longitudinal study A study of the same individuals over a relatively long period, often months or years.

cohort In developmental research, a group of subjects born at a particular time who therefore experience particular historical events or conditions.

Longitudinal studies are well-suited for studying long-term constancy and change in individuals. How are people the same after several years of maturing, and how are they different?

Source: Lyudmyla Kharlamova/Shutterstock.com.



Cross-sectional studies always contain this ambiguity, especially when they compare groups that differ widely in age, as is common in studies of adulthood.

Longitudinal studies do not eliminate the ambiguity created by historical changes in cohorts, but they at least reveal more truly “developmental” change because they show the steps by which particular individuals or groups actually change over time. But in doing so, they pose a practical problem: by definition, longitudinal studies take months or even years to complete. Over this time, some of the original participants may move away or die and stop participating, which is known as attrition. Investigators may become hopelessly bogged down with other work and fail to complete the original study, or government funding to support the work may disappear prematurely. Given these problems, psychologists have conducted cross-sectional studies much more often than longitudinal studies, despite the latter’s special value. The dilemmas and ambiguities posed by time frames can be partially solved by **sequential studies**, which combine elements of cross-sectional and longitudinal studies. In sequential research, at least two cohorts are observed longitudinally, and comparisons are made both within each cohort across time and between the cohorts at particular points in time. This approach provides information about actual developmental changes within individuals but also about historical differences among cohorts that might create the impression of truly developmental changes.

A good example of sequential research is the work by K. Warner Schaie (1994, 2013) studying changes in the cognitive abilities of adults. A variety of earlier, cross-sectional research suggested that adults’ general reasoning ability *decreases* with age—for example, that older adults score lower than younger ones on tests of general academic intelligence. Schaie’s sequential research, however, modified this picture substantially. By testing several successive cohorts of young adults and then testing each cohort again at a later age, Schaie found that (1) many cognitive skills do not decline with age, particularly if they are used on a daily basis; (2) earlier cohorts generally achieved lower scores than later cohorts on tests of cognitive abilities; and (3) some individuals showed more decline with age than did others. None of these findings would have resulted from either a cross-sectional or a longitudinal study alone.

Researching Questions About Association

- How is time spent at home related to the level of stress experienced by adolescents and their parents?
- How is bed-wetting related to the social stressors faced by young children?
- How are stereotypes based on race or ethnicity related to actual academic performance?
- How is bilingualism related to the reading abilities of eleven-year-olds?



In naturalistic research, psychologists study human behavior as it normally occurs in everyday settings. What could be learned from observing these children playing with blocks together?

Source: Twinstereo/ Shutterstock.com.

Notice how these questions about association differ from the earlier questions about causation. Questions about association do not imply a causal connection between two variables; they simply suggest that a relationship of some kind exists between two variables. Also, there is no implied order or sequencing of events in questions of association as there is in questions of causation. Researchers can investigate questions about association using a wide variety of research methodologies, often described as “observational methods.” Researchers can either observe and note the behaviors of people directly in a variety of settings (for example, in classrooms, on playgrounds, at movie theaters, or in laboratory settings), or they can ask people to observe and report on their own behaviors by asking them to respond to a set of questions. The various methods for researching questions about association are reviewed next.

Naturalistic Studies

Naturalistic studies purposely observe behavior as it normally occurs in natural settings, such as at home, at school, or in the workplace. Bei and colleagues used this strategy to explore how adolescent sleep differed when in school and when on vacation (Bei et al., 2014). As you can imagine, sleeping in a sleep lab is inconvenient and uncomfortable, so the researchers in this study used an actigraph, similar to a wrist-based fitness tracker, to monitor participant sleep every day for four weeks: the last week of one term, two weeks during break, and the first week of the next term. Specifically, researchers were able to monitor when participants went to bed, how long it took them to fall asleep, how long they slept, and how much they woke up at night. During the first week of break, adolescents went to bed later and slept longer than during the school term, a pattern that stabilized during the second week of break. Older adolescents went to bed later than younger adolescents, and females in the study took longer to fall asleep and slept longer than males. Though these results might not be surprising to many, this type of information is only available to us when we can measure such behaviors where they happen and when they normally happen.

A particular strength of naturalistic research is that researchers observe naturally occurring or genuine behavior in settings that are a normal part of the participants’ day. Naturalistic research does not face the criticism often levied at experimental research due to the experiment’s dependence on highly controlled (and thereby, contrived) testing environments, but naturalistic observational research does run a greater risk of generating ambiguous results.

naturalistic study A study in which behavior is observed in its natural setting.

Correlations

Whether they are using naturalistic or more controlled research environments, most research studies look for correlations among variables. A **correlation** is a systematic relationship, or association, between two behaviors, responses, or human characteristics. When two variables tend to change in the same direction—both variables increase together or decrease together—the relationship is called a *positive correlation*; when they tend to

correlation An association between two variables in which changes in one variable tend to occur with changes in the other. The association does not necessarily imply a causal link between the variables.

Specialized Education Needs Across Development

Taylor Scott is a school psychologist for children in pre-kindergarten through high school. In her work, she is charged with assessing children's needs; developing data- and evidence-based interventions; and helping students succeed academically, socially, behaviorally, and emotionally.

Megan: *Can you tell me a little bit about some common things you deal with in your work as a school psychologist?*

Taylor: The majority of the time when I am working with a student, it is because they are receiving an initial evaluation or reevaluation for special education services. I administer general intelligence and academic assessments to students, review teacher and parent rating scales, and conduct observations for their evaluations. Students are reevaluated for special education services every three years, and my evaluation aids in determining goals for the student's individualized education program (IEP). The IEP provides the student with the support of an intervention specialist to receive specially designed instruction, as well as to work on their goals at school. I also work on behavioral interventions with students. In summary, I help students to receive extra support at school.

Megan: *You work with quite a wide range of ages. Do you find differences in the needs of younger versus older children?*

Taylor: The assessments that I give vary depending on student age. For example, for a preschool student, I may use a general intelligence assessment called the Wechsler Preschool and Primary Scale of Intelligence, whereas for school-aged students, I would use the Wechsler Intelligence Scale for Children. However, once a student reaches the age of eighteen, I have to give a different assessment, such as the Kaufman Brief Intelligence Test. Other types of assessments might vary by age.

Megan: *In this textbook, we cover the topics of physical development, cognitive development, and psychosocial development for different age groups. Can you talk a bit about any overlap you see in these domains?*

Taylor: As a whole, I am a big advocate of social-emotional learning, and I think it would benefit all students to have social skills implemented into their daily routines at school. Research studies have found that if students' social-emotional needs are met, then they are able to learn better at school. If we address social-emotional skills first, then learning may take place easier.

No two students are the same, but it is possible that a student with cognitive impairments may also have social-skill impairments as well. As a school psychologist, I rely on the input from teachers and parents who work with the student every day to share their concerns.

change in opposite directions, it is called a *negative correlation*. An individual's height and weight reflect a positive correlation: taller people tend to weigh more than shorter people (although not strictly so). The age of a child and the frequency of bed-wetting is a negative correlation: the older the child, the less frequent the bed-wetting (although again, not strictly so).

When correlated factors can be expressed numerically, psychologists use a particular statistic, the *correlation coefficient* (abbreviated r), to indicate the degree of relationship between two behaviors or characteristics. The correlation coefficient is calculated in such a way that its value always falls between +1.00 and -1.00. The closer to +1.00 the value, the more positive the correlation; the closer to -1.00 the value, the more negative the correlation. Correlations near 0.00 indicate no systematic relationship between behaviors or characteristics or an essentially random relationship. For various reasons, psychologists tend to consider correlations above +0.70 or below -0.70 as strong ones and those between +0.20 and -0.20 as weak ones.

When you read or talk about correlations, it is important to remember that correlations by themselves do not indicate whether one behavior or characteristic causes another; they indicate only that some sort of association exists between the two. The distinction is illustrated in Figure 1.4, which graphs the number of baby pictures taken versus the weight of the mother taking the photos. While the graph shows an inverse correlation—heavier

Specialized Education Needs Across Development *continued*

If the student has social-skill concerns or physical concerns, then I would include more components in their evaluation. For example, if I have a student with social-emotional concerns, I would have teachers, parents, and potentially the student (depending on age) fill out rating scales that investigate these areas of concern. This helps me know what the student needs to continue working on at school, and I would be able to help create a goal area on the student's IEP. So, if both teacher and parent rate a student with very elevated scores in the area of inattention, I would know that the student needs to maintain productive classroom behavior by attending to tasks.

Megan: *Have you noticed any long-term impact of COVID-19 on your students?*

Taylor: Yes. Unfortunately, since COVID-19, our district has been trying to serve our students and play catch-up on missed quality instruction. Students missed months of school, some were home-schooled, and some learned remotely for a year. We are trying to implement tiered intervention for all ages to dig deeper into students' "learning gaps," and we are trying to fill those gaps with evidence-based, quality intervention. I believe that intervention is needed for all ages and grade levels across the entire school district.

Megan: *That seems like quite an undertaking in addition to your standard workload. What drives you to remain in such a challenging field?*

Taylor: Well, the most satisfying part of my career is when I am able to dismiss a student from special education services. It is also satisfying to see students who have received special education services get a job or go to a postsecondary institution and be successful after school.

What Do You Think?

1. Taylor noted that she uses different assessments for students of different ages. Do a quick online search for two of the tests that she mentioned, and talk to a classmate about how different tests might evaluate different developmental skills.
2. Taylor reevaluates students who receive special education services every three years. Why do you think this is, and what type of study does this most closely resemble (cross-sectional, longitudinal, sequential)?
3. Taylor has noticed that students of all ages are experiencing "learning gaps" from missing in-person instruction during COVID-19. Talk to a classmate about how cohort effects may play a role in this. What "learning gaps" might a kindergartener have compared to a student in middle school at that time?

mothers take fewer pictures—this does not mean that taking baby pictures is a good way to lose weight. In other words, there is no causal relation between the two. More likely, the correlation reflects the influence of a third factor that has an impact on both behaviors.

Surveys

Developmental studies vary in how many people researchers collect information about or observe. The size of the group studied is called the research **sample**. At one extreme are large-scale **surveys** in which large numbers of people are asked to respond to specific questions. Grace Kao (1995) used this method to examine patterns of school achievement among Asian American youth. She was particularly interested in a common stereotype of Asian youngsters as "model students," the belief that they excel academically. Using survey responses from about 1,500 Asian American students, parents, and teachers, as well as from about 25,000 white counterparts, Kao compared family incomes, educational levels, and ethnic backgrounds with academic achievement. She found that the stereotype of the model student is rather misleading. Academic success varies substantially among particular Asian ethnic groups. It also depends more heavily on how much time and money particular parents invest in education for their particular children than on the educational, financial, or ethnic backgrounds of the family as such. In these ways, the Asian American students were no different from their white counterparts.

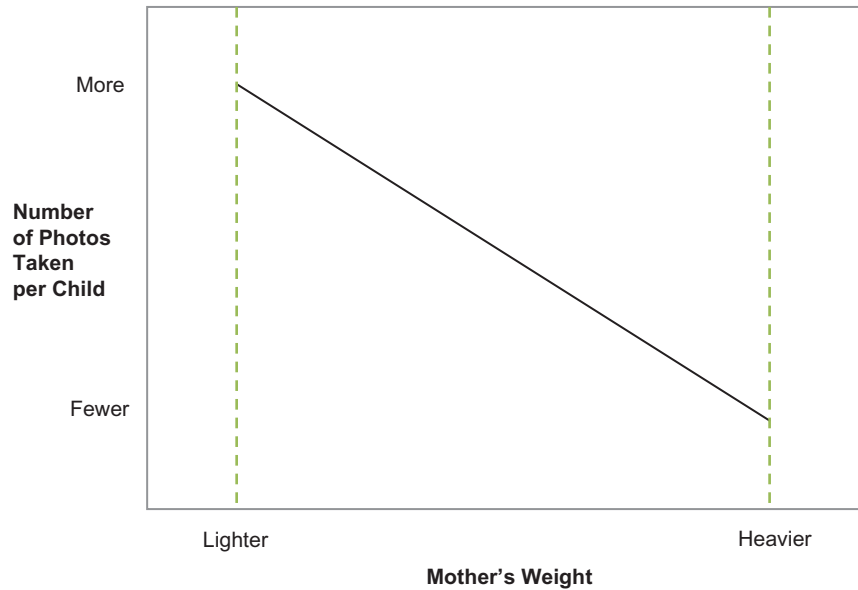
sample A group that is studied for research purposes.

survey A research study that samples specific knowledge or opinions of large numbers of individuals.

FIGURE 1.4

Correlation Is Not Causation

The number of pictures taken of an infant correlates with the weight of the child's mother, with heavier mothers taking fewer pictures. But this does not mean that gaining weight *causes* mothers to stop taking pictures or that taking pictures causes mothers to gain weight. More likely, a third factor, such as the number of previous children to whom the mother has given birth, causes both factors separately.



These conclusions seem especially persuasive because of the rather large sample of families on which they are based—an advantage of the survey method. But the method also has limitations. Survey questions tend to be “cut and dried” to ensure that the responses can be compared among large numbers of respondents. They tend not to explore subtleties of thinking or the reasons people have for taking certain actions or holding certain beliefs. Did some of the Asian American families in Kao’s study invest more in education because their culture encourages them to do so or because they anticipated discrimination due to their ethnic background and regarded education as insurance against the negative effects of such discrimination? To answer questions such as these, researchers need methods that invite respondents to comment more fully, such as interviews and case studies.

Interviews

interview A face-to-face, directed conversation used in a research study to gather in-depth information.

A research study that seeks complex or in-depth information may use **interviews**, or directed conversations. Because they take time, interview studies usually focus on a smaller number of individuals than surveys do. Kelsey McKinnon and her colleagues used semistructured interviews with ten adolescents who were patients at a children’s hospital to determine how adolescents look for information about health online and how they evaluate the information that they find (McKinnon et al., 2020). The adolescents, ranging from ten to eighteen years of age, were asked to complete a search for health information, and afterward an interview was conducted to determine what adolescents were doing and thinking during the search. The researchers found that the adolescents tended to utilize resources that were presented at the top of an online search for symptoms rather than looking for credible information. Moreover, the participants overestimated their ability to evaluate the quality of information provided on websites. The participants, who were likely to have more knowledge of health information than adolescents without health issues, would still benefit from training in health literacy and evaluation of evidence, and that training could improve their health outcomes.

Case Studies

case study A research study of a single individual or small group of individuals considered as a unit.

When a study uses just one or a few individuals, it is called a **case study**. In general, a case study tries to pull together a wide variety of information and observations about the individual case and then present the information as a unified whole, emphasizing relationships among specific behaviors, thoughts, and attitudes in the individual. An example is a study by Robert Jimenez, Georgia Garcia, and David Pearson (1995) comparing the language skills and knowledge about reading of just three eleven-year-old children: one proficiently bilingual Latina student, one proficiently monolingual white student, and one modestly bilingual Latina student. Each child was interviewed at length about her perceptions of

her own skills with each language. Each was also invited to “think aloud” while reading samples of text in each language (that is, the child told about her thoughts as she read along). Because of the time taken with each individual, the investigators were able to discover important subtleties about how each student read. The proficient bilingual reader, for example, thought of *each* language as an aid to understanding the other language, whereas the less fluent bilingual reader believed simply that her Spanish assisted her English.

By its nature, a case study can explore an aspect of human development, looking for new or unexpected connections among behaviors, needs, or social relationships. This is the most common use of case studies. A second use is to confirm whether connections previously found in experimental studies actually occur in everyday, non-experimental situations, even when conditions are not carefully controlled. The second use resembles the naturalistic studies described earlier in this section.

Ethical Constraints on Studying Development

Sometimes, ethical concerns influence the methods researchers can use to study a particular question about development. Take the question of punishments administered by parents: what kinds of punishment are most effective, and for what reasons? For ethical reasons, we may be unable to experiment with certain aspects of this problem directly. Observing parents actually scolding and reprimanding their children would require delicacy at best. At worst, if the punishment became severe or physical, ethics might require our active intervention simply to protect the child from abuse.

For ethically sensitive questions, we may instead have to satisfy ourselves with less direct but more acceptable methods of study. We can interview a variety of parents about the methods of punishment they use, or we can ask experts who work directly with families what methods they think parents typically use. A few courageous families might allow us to observe their daily activities, with the understanding that we are interested in observing how they punish their children. But by being volunteers, these few families may not represent other families very well. In fact, most research studies conducted with human beings have samples that are disproportionately from Western industrialized nations, highly educated, rich, and democratic, which can limit how we generalize our findings (Henrich et al., 2010).

Generally, research about human beings faces at least three ethical issues: confidentiality, full disclosure of purposes, and respect for the individual’s freedom to participate (American Psychological Association, 2020). In developmental psychology, all of these issues are complicated when the subjects are naturally vulnerable—when they are young, are older, or live with a disability.

1. *Confidentiality.* If researchers collect information that might damage individuals’ reputations or self-esteem, they should take care to protect the identities of the participants. Observing parents’ methods of managing their children might require this sort of confidentiality. Parents may not want just anyone to know how much and how often they experience conflicts with their children. Similar concerns might influence research on teachers’ methods of classroom management or caregivers’ styles of caring for children. In such cases, investigators should not divulge the identities of participants in a study without their consent, either during the conducting of the study or afterward when the results are published.
2. *Full disclosure of purposes.* Participants in a study are entitled to know the true purposes of any research study in which they participate. Most of the time, investigators understand and follow this principle carefully. But at times, it can be tempting to mislead participants. In studying teachers’ techniques for working with disruptive children, for example, researchers may suspect that stating this research purpose honestly will cause certain professionals, as well as the people under their care, to avoid participation. Investigators may suspect that telling the truth about the study will make the participants distort their behavior, hiding their less desirable behaviors and conflicts. In this sort of study, therefore, it might seem that intentional deception would produce more complete observations and in this sense make the

What Do You Think?

Are some methods of developmental study inherently more effective than others? Try answering this question by organizing a multisided debate. Pick a successful developmental study (you can use any of the ones described in this chapter, for example), and assign each of three or four debating teams to design and argue the merits of some *alternative* method of studying the same question. In a second round of the debate, each team can try to refute the arguments of any of the other teams. Remember: there will be more than two sides to this discussion!

research more “scientific.” But investigators would purchase this benefit at the cost of their long-run reputations with participants. Purposeful deception may sometimes be permissible, but only when no other method is possible and when participants are fully informed after the study of the deception and its reasons.

3. *Respect for individuals’ freedom to participate.* As much as possible, research studies should avoid pressuring individuals to participate. This may not be as simple as it first appears. Because psychologists have a relatively high status in society, some people may be reluctant to decline an invitation from them to participate in “scientific research.” Investigators therefore may have to bend over backward to assure some individuals that participation is indeed voluntary. Researchers cannot simply assume that every potential participant automatically feels free to decline if approached. After all, who wants to feel like they’re interfering with the progress of science?

informed consent An agreement to participate in a research study based on understanding the nature of the research, protection of human rights, and freedom to decline to participate at any time.

When all three principles are closely followed, they allow for what psychologists call **informed consent**: the people or groups being studied understand the nature of the research, believe their rights are being protected, and feel free to either volunteer or refuse to participate. Informed consent, therefore, forms a standard, or ideal, for research to aim for and one that most studies do in fact approximate.

As the preceding discussion indicates, however, consent that is completely informed may prove difficult to achieve in some cases. This is especially so for research on vulnerable populations, such as children, people with certain disabilities, older individuals, or members of cultural groups who do not speak the native language. These people tend to depend on the goodwill and wisdom of others, including researchers themselves, to explain the purposes of a study and keep their best interests in mind. In studying an adolescent who speaks little English, for example, investigators may well wonder whether he fully understands the purposes of a study, even when those purposes are explained. Even if the person does understand, does he feel truly free to participate or decline? Or does he, as an individual, simply assume he must cooperate with whatever investigators request?

In studying children in particular, the developmental levels of the participants should influence the way investigators resolve ethical issues (Thompson, 1990). As a rule, children understand the purposes of a research project less well than do adults. Therefore, what the child will be experiencing during the study should be described at an appropriate level, and if the child is old enough to make decisions about participation, researchers should attain assent, or their agreement to participate. Moreover, it is critical that the parents are thoroughly informed and give consent for their child’s participation. Children also are more vulnerable to stressful research procedures, such as experimentation with the effects of personal criticism. Older children and adults, on the other hand, are more prone to self-consciousness and are more likely to detect—and survive—implied personal criticisms. Thus, investigators need to be more careful in studying problems that might shame a person publicly (such as by asking, “How often do you cry?” or “What problems have you had because your parents are divorced?”).

Wherever possible, the right to decide about whether to participate in a research study rests with the individual, provided he or she understands the nature of the study and feels truly free to decline participation. When these conditions hold only partially, such as with

What Do You Think?

Why do you think ethics has become a bigger concern for developmental research in the past three decades? Brainstorm as many ideas about this as you can: have people changed, or research projects, or the conditions of modern life, or . . . ?

a child who speaks limited English, parents or other legal guardians share the ultimate right to decide whether the child should participate. When the conditions do not hold at all, such as with infants or adults with little or no language ability, parents and guardians essentially take over the right to decide about participation.

Strengths and Limitations of Developmental Knowledge

As this chapter has demonstrated, human development has to be studied in particular ways and with certain limitations in mind. Because time is a major dimension of development, its impact must be approached thoughtfully. Yet the very nature of time poses real problems for studying at least some major questions. Especially when studied across infancy, childhood, and adolescence, people may “take too long” to develop within the time frame available to study them. Also, because lifespan psychologists deal with people, they must treat participants with respect and abide by the usual standards of decency and consideration for human needs. Finally, when dealing with especially vulnerable people, developmental psychologists must take extra care to determine the true best interests of individuals who participate in studies, even when those participants do not know what they are being asked to do or do not feel free to refuse even when they do know.

Lest these limitations sound overly discouraging, be assured that in spite of them, developmental psychologists have accumulated considerable knowledge about people of all ages in recent decades and continue to do so. The remaining chapters of this book should make that point amply clear. Developmental psychology may not have definitive answers for all important questions about human nature, but it does have the answers for a good many.

Chapter Summary

- **What, in general, is human development?** Human development concerns continuities and changes in a person’s long-term growth, feelings, and patterns of thinking. It occurs in several domains: physical, cognitive, and psychosocial. The domains of development interact in many ways, and individuals always develop as whole persons rather than in separate parts.
- **Why is it important to know about human development?** Studying development can help you develop appropriate expectations about human behavior and its changes. It can help you respond appropriately to individuals’ behavior and recognize when unusual behaviors are cause for concern. Studying development can also give you self-knowledge and understanding of your past.
- **How has society’s view of childhood changed over time?** Until just a few hundred years ago, childhood and adolescence were not regarded as distinct periods of life. Social changes, including the industrial revolution, led to awareness of children’s unique needs and vulnerability but also contributed to modern (and mistaken) views of children as incompetent, passive, and unimportant. In the nineteenth and twentieth centuries, the first research studies of children consisted of baby biographies and structured observations of children at specific ages.
- **What general issues are important in human development?** Developmental psychology shares much with other forms of developmental study. However, it also has a distinctive emphasis on four themes: (1) continuity within change, (2) lifelong growth and loss, (3) changing meanings and vantage points, and (4) diversity among individuals.
- **How do developmental psychologists go about studying development from conception to adolescence?** Research about developmental psychology tries to follow the scientific method: formulating research questions, stating them as hypotheses, testing the hypotheses, and interpreting and publicizing the results. Developmental research

tends to focus either on questions about causality—studied by using experimental or quasi-experimental methods—or questions about association—studied by using observational designs, including naturalistic observation, correlational designs, surveys, interviews, or case studies. Cross-sectional studies compare individuals of different ages at one point in time. Longitudinal studies observe human change directly by following the same individuals over relatively long periods of time.

Naturalistic methods observe individuals in natural contexts as much as possible. Experimental methods try to control or hold constant extraneous conditions while varying only one or two specified variables. Surveys, interviews, and case studies each sample different

numbers of people and provide different levels of context in their information.

- **What ethical considerations should guide the study of child and adolescent development?**

Ethical considerations guide how development can be studied, sometimes ruling out certain studies altogether. Generally, studies are guided by principles of confidentiality, full disclosure of purposes, and respect for the individual's freedom to participate. Research about children and vulnerable adults should strive for informed consent from participants and their parents or guardians. The specific ethical concerns in studying development depend on the age or developmental level of the individuals studied, as well as on the content of the study itself.

Apply It

Aviva is a forty-six-year-old woman who has a seventeen-year-old daughter, Storm, from a previous marriage. Aviva's ex-husband lives several blocks away, and Storm alternates weeks between her parents, who have maintained a friendship in order to best care for their daughter. Last year Aviva got remarried, and she and her wife, Makala, age fifty-four, have recently become foster parents to two biological siblings, a four-year-old girl, Nevaeh, and a nine-month-old boy, Chris.

Having small children in the house again has been a bit of an adjustment for the family. Aviva recalls that throughout Storm's infancy and childhood, she was a "good" sleeper—basically following the averages in Chapter 5, page 121—and going to bed by 8 p.m. until she was nearly eight. However, Aviva and Makala have an exceptionally difficult time getting Nevaeh to go to bed before 10 p.m., and she still awakens several times each night, usually when Chris cries, and both need to be soothed back to sleep. Additionally, for the last several years, Storm has made it a habit to stay awake past midnight, and it's not unusual for her to sleep until noon or later on the weekend. Even on the rare mornings when the younger

children sleep until 8 a.m., Makala will accidentally wake up Aviva, as Makala has started rising by 6 a.m. without an alarm. Aviva is exhausted!

- Although it may not seem like it, everyone in the house is sleeping fairly in alignment with what is normative for their stage of development. In a small group or with a partner, apply the four issues of human development—continuity within change, lifelong growth, changing meanings and vantage points, and developmental diversity—to the sleep schedules of the people in this home.
- Aviva is likely frustrated that Nevaeh's sleep is not as "easy" as Storm's sleep was at a similar age. At this point, Aviva has a sample size of two children, so she does not have a good idea of what is normative. Take a look at Table 1.3. If you wanted to design a study to know what sleep timing looks like in a sample of children in the region where you live, what research method would you use? Why? Outline what that study would look like.

Quiz Yourself

1. Changes in feelings, emotions, and how people relate to one another belong primarily to which domain of development?
 - a. Sensory
 - b. Physical
 - c. Cognitive
 - d. Psychosocial
2. At the mesosystem level of Bronfenbrenner's approach, one might examine
 - a. sibling relationships.
 - b. parent-infant bonding.
 - c. parent-teacher relationships.
 - d. Supreme Court decisions concerning abortion.

3. The period of development known as adolescence
 - a. did not exist in medieval times.
 - b. has its roots in the medieval apprenticeship system.
 - c. was slightly shorter in medieval times as compared with the present.
 - d. was of much longer duration in medieval times as compared with the present.
4. Charles Darwin's research is representative of the earliest form of conducted developmental research, called
 - a. experimental study.
 - b. the baby biography.
 - c. genetic manipulation.
 - d. naturalistic observation.
5. Which of the following is the key question involved in the issue of continuity with change?
 - a. What factors create differences in individuals' development across the lifespan?
 - b. How do key events change in meaning across the lifespan as roles and experiences change?
 - c. What is the potential for emotional, cognitive, and physical growth throughout the lifespan?
 - d. How do we account for underlying cohesion in qualities, behaviors, and skills in spite of apparent change?
6. In DaSean's child psychology class, he is conducting a research project on parent-infant interactions. He has already formulated a research question; his next step should be to
 - a. run participants.
 - b. interpret the results.
 - c. get approval to test participants.
 - d. state his question as a hypothesis.
7. Since she was four, ten-year-old Hillary has participated annually in a study of memory development. Hillary is participating in what kind of study?
 - a. Longitudinal
 - b. Experimental
 - c. Chronological
 - d. Cross-sectional
8. In naturalistic research, a scientist attempts to study behavior
 - a. as it normally occurs.
 - b. by comparing different ages at the same time.
 - c. by becoming an active participant in the behavior.
 - d. by manipulating and controlling some environmental variables.
9. Mateo is running a study on the effects of room temperature on performance on an algebra test. One group takes the test in a room heated to 90°F, and the other group takes the test in a room with normal room temperature. What is the independent variable?
 - a. Room temperature
 - b. Algebra test scores
 - c. Grade point average
 - d. Attitude toward algebra
10. When every member of the population has an equal chance of being chosen for a study, we refer to this as a(n)
 - a. random sample.
 - b. unbiased sample.
 - c. naturalistic sample.
 - d. experimental sample.

Answers can be found in the end-of-book Answers section.

Key Terms

ageism (p. 13)
 case study (p. 28)
 cognitive development (p. 5)
 cohort (p. 23)
 control group (p. 22)
 correlation (p. 25)
 cross-sectional study (p. 23)
 dependent variable (p. 21)
 development (p. 4)
 domain (p. 5)

experimental group (p. 22)
 experimental study (p. 20)
 hypothesis (p. 18)
 independent variable (p. 21)
 informed consent (p. 30)
 interview (p. 28)
 longitudinal study (p. 23)
 naturalistic study (p. 25)
 norms (p. 13)
 physical development (p. 5)

psychosocial development (p. 6)
 quasi-experiment (p. 23)
 random assignment (p. 22)
 random sample (p. 21)
 sample (p. 27)
 scientific method (p. 17)
 sequential study (p. 24)
 survey (p. 27)
 validity (p. 22)