

# 1 An Introduction to Child Development



## MODULE 1.1

### AN ORIENTATION TO CHILD DEVELOPMENT

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## MODULE 1.2

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## Learning Objectives

### MODULE 1.1

- LO1 What is child development?
- LO2 What is the scope of the field of child development?
- LO3 What are major societal influences that determine development?

### MODULE 1.2

- LO4 How have views of childhood changed historically?
- LO5 What are the key issues and questions in the field of child development?
- LO6 What is the future of child development likely to hold?

## PROLOGUE: Conceptions, Old and New

She was famous from the moment she was born. But it wasn't who she was that made others curious about her: It was how she was conceived.

Louise Brown, who is now in her mid-30s, has always been known as the world's first "test tube baby." She was born by *in vitro fertilization (IVF)*, a procedure in which fertilization of a mother's egg by a father's sperm takes place outside of the mother's body.

Louise was a preschooler when her parents told her about how she was conceived, and throughout her childhood she was bombarded with questions. It became routine to explain to her classmates that she in fact was not born in a laboratory.

As a child, Louise sometimes felt isolated. "I thought it was something peculiar to me," she recalled. But as she grew older, her isolation declined as more and more children were born in the same manner.

Today, Louise is hardly isolated. More than 1.5 million babies have been born using the procedure, which has become almost routine. And at the age of 28, Louise became a mother herself, giving birth to a baby boy named Cameron—conceived, by the way, in the old-fashioned way (Moreton, 2007; Hastings, 2010).



Louise Brown and son.

## >>> LOOKING AHEAD

Louise Brown's conception may have been novel, but her development, from infancy onward, has followed predictable patterns. While the specifics of our development vary—some encounter economic deprivation or live in war-torn territories; others contend with family issues such as divorce and stepparents—the broad strokes of the development set in motion in that test tube three decades ago are remarkably similar for all of us.

Louise Brown's conception in the lab is just one of the brave new worlds of the 21st century. Issues ranging from cloning to the consequences of poverty on development to the effects of culture and race raise significant developmental concerns. Underlying these are more fundamental issues: How do children develop physically? How

(continued)

does their understanding of the world grow and change over time? And how do our personalities and social world develop as we move from birth through adolescence?

These questions, and many others we'll encounter throughout this book, are central to the field of child development. Consider, for example, the range of approaches that different specialists in child development might take when considering the story of Louise Brown:

- Child development researchers who investigate behavior at the level of biological processes might determine if Louise's physical functioning before her birth was affected by her conception outside the womb.
- Specialists in child development who study genetics might examine how the biological endowment from Louise's parents affects her later behavior.
- For child development specialists who investigate the ways thinking changes during childhood, Louise's life might be examined in terms of how her understanding of the nature of her conception changed as she grew older.
- Other researchers in child development who focus on physical growth might consider whether her growth rate differed from children conceived more traditionally.
- Child development experts who specialize in the social world of children might look at the ways that Louise interacted with other children and the kinds of friendships she developed.

Although their interests take many forms, these specialists in child development share one concern: understanding the growth and change that occur during the course of childhood and adolescence. Taking many differing approaches, developmentalists study how both our biological inheritance from our parents and the environment in which we live jointly affect our behavior.

Some researchers in child development focus on explaining how our genetic background can determine not only how we look but also how we behave and how we relate to others—that is, matters of personality. These professionals explore ways to identify how much of our potential as human beings is provided—or limited—by heredity. Other child development specialists look to the environment in which we are raised, exploring ways in which our lives are shaped by the world that we encounter. They investigate the extent to which we are shaped by our early environments and how our current circumstances influence our behavior in both subtle and obvious ways.

Whether they focus on heredity or environment, all child development specialists hope that their work will ultimately inform and support the efforts of professionals whose careers are devoted to improving the lives of children. Practitioners in fields ranging from education to health care to social work draw on the findings of child development researchers, using those findings to advance children's welfare.

In this chapter, we orient ourselves to the field of child development. We begin with a discussion of the scope of the discipline, illustrating the wide array of topics it covers and the range of ages it examines, from the moment of conception through the end of adolescence. We also survey the foundations of the field and examine the key issues and questions that underlie child development. Finally, we consider where the child development field is likely to go in the future.

MODULE

1.1

## AN ORIENTATION TO CHILD DEVELOPMENT

**LO 1-1** What is child development?

**LO 1-2** What is the scope of the field of child development?

**LO 1-3** What are major societal influences that determine development?

Have you ever wondered how it is possible that an infant tightly grips your finger with tiny, perfectly formed hands? Or marveled at how a preschooler methodically draws a picture? Or pondered the way an adolescent can make involved decisions about whom to invite to a party or the ethics of downloading music files?

If you've ever wondered about such things, you are asking the kinds of questions that scientists in the field of child development pose. **Child development** is the scientific study of the patterns of growth, change, and stability that occur from conception through adolescence.

Although the definition of the field seems straightforward, the simplicity is somewhat misleading. To understand what child development is actually about, we need to look underneath the various parts of the definition.

In its study of growth, change, and stability, child development takes a scientific approach. Like members of other scientific disciplines, researchers in child development test their assumptions about the nature and course of human development by applying scientific methods. As we'll see in the next chapter, they develop theories about development, and they use methodical, scientific techniques to validate the accuracy of their assumptions systematically.

Child development focuses on *human* development. Although there are some developmentalists who study the course of development in nonhuman species, the vast majority examine growth and change in people. Some seek to understand universal principles of development, while others focus on how cultural, racial, and ethnic differences affect the course of development. Still others aim to understand the unique aspects of individuals, looking at the traits and characteristics that differentiate one person from another. Regardless of approach, however, all child developmentalists view development as a continuing process throughout childhood and adolescence.

As developmental specialists focus on the ways people change and grow during their lives, they also consider stability in children's and adolescents' lives. They ask in which areas and in what periods people show change and growth and when and how their behavior reveals consistency and continuity with prior behavior.

Finally, although child development focuses on childhood and adolescence, the process of development persists throughout *every* part of people's lives, beginning with the moment of conception and continuing until death. Developmental specialists assume that in some ways people continue to grow and change right up to the end of their lives, while in other respects their behavior remains stable. In other words, developmentalists believe that no particular, single period of life governs all development. Instead, they believe that every period of life contains the potential for both growth and decline in abilities and that individuals maintain the capacity for substantial growth and change throughout their lives.

## Characterizing Child Development: The Scope of the Field

Clearly, the definition of child development is broad and the scope of the field is extensive. Consequently, professionals in child development cover several quite diverse areas, and a typical developmentalist will specialize in both a topical area and age range.

**Topical Areas in Child Development.** The field of child development includes three major topics or approaches:

- Physical development
- Cognitive development
- Social and personality development

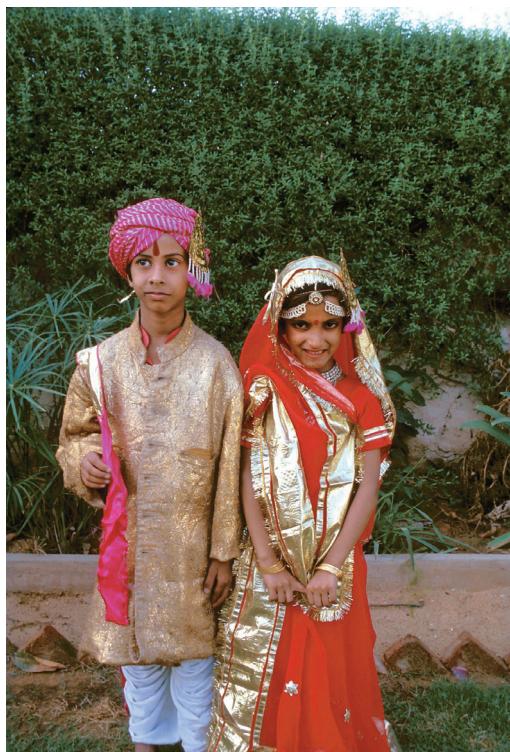
A child developmentalist might specialize in one of these topical areas. For example, some developmentalists focus on **physical development**, examining the ways in which the body's makeup—the brain, nervous system, muscles, and senses and the need for food, drink, and sleep—helps determine behavior. For example, one specialist in physical development might examine the effects of malnutrition on the pace of growth in children, while another might look at how an athlete's physical performance changes during adolescence.

Other developmental specialists examine **cognitive development**, seeking to understand how growth and change in intellectual capabilities influence a person's

**child development** The field that involves the scientific study of the patterns of growth, change, and stability that occur from conception through adolescence

**physical development** Development involving the body's physical makeup, including the brain, nervous system, muscles, and senses and the need for food, drink, and sleep

**cognitive development** Development involving the ways that growth and change in intellectual capabilities influence a person's behavior



This wedding of two children in India is an example of how cultural factors play a significant role in determining the age when a particular event is likely to occur.

behavior. Cognitive developmentalists examine learning, memory, problem solving, and intelligence. For example, specialists in cognitive development might want to see how problem-solving changes over the course of childhood or if cultural differences exist in the ways people explain the reasons for their academic successes and failures. They would also be interested in how a person who experiences significant or traumatic events early in life remembers them later in life (Alibali, Phillips, & Fischer, 2009; Dumka et al., 2009; van Wesel et al., 2011).

Finally, some developmental specialists focus on personality and social development. **Personality development** is the study of stability and change in the enduring characteristics that differentiate one person from another. **Social development** is the way in which individuals' interactions with others and their social relationships grow, change, and remain stable over the course of life. A developmentalist interested in personality development might ask whether there are stable, enduring personality traits throughout the life span, while a specialist in social development might examine the effects of racism, poverty, or divorce on development (Lansford, 2009; Vélez et al., 2011; Carter et al., 2011). These three major topic areas—physical, cognitive, and social and personality development—are summarized in Table 1-1.

**Age Ranges and Individual Differences.** As they specialize in chosen topical areas, child developmentalists typically look at particular age ranges. They usually divide childhood and adolescence into broad age ranges: the prenatal period (the period from conception to birth), infancy and toddlerhood (birth to age 3), the preschool period (ages 3 to 6), middle childhood (ages 6 to 12), and adolescence (ages 12 to 20).

It's important to keep in mind that these broad periods—which are largely accepted by child developmentalists—are social constructions. A *social construction* is a shared notion of reality, one that is widely accepted but is a function of society and culture at a given time.

**TABLE 1-1** Approaches to Child Development

Orientation	Defining Characteristics	Examples of Questions Asked*
<b>Physical Development</b>	Examines how brain, nervous system, muscles, sensory capabilities, and needs for food, drink, and sleep affect behavior	What determines the sex of a child? (3) What are the long-term consequences of premature birth? (4) What are the benefits of breastfeeding? (4) What are the consequences of early or late sexual maturation? (5)
<b>Cognitive Development</b>	Emphasizes intellectual abilities, including learning, memory, language development, problem solving, and intelligence	What are the earliest memories that can be recalled from infancy? (7) What are the consequences of watching television? (15) Are there benefits to bilingualism? (8) Are there ethnic and racial differences in intelligence? (9) How does an adolescent's egocentrism affect his or her view of the world? (6)
<b>Personality and Social Development</b>	Examines enduring characteristics that differentiate one person from another and how interactions with others and social relationships grow and change over the life span	Do newborns respond differently to their mothers than to others? (4) What is the best procedure for disciplining children? (13) When does a sense of gender develop? (12) How can we promote cross-race friendships? (14) What are the causes of adolescent suicide? (10)

**personality development** Development involving the ways that the enduring characteristics that differentiate one person from another change over the life span

**social development** The way in which individuals' interactions with others and their social relationships grow, change, and remain stable over the course of life

\*Numbers in parenthesis indicate in which chapter the question is addressed.

Although most child developmentalists accept these broad periods, the age ranges themselves are in many ways arbitrary. Although some periods have one clear-cut boundary (infancy begins with birth, the preschool period ends with entry into public school, and adolescence starts with sexual maturity), others don't.

For instance, consider the separation between middle childhood and adolescence, which usually occurs around the age of 12. Because the boundary is based on a biological change, the onset of sexual maturation, which varies greatly from one individual to another, the specific age of entry into adolescence varies from one person to the next.

Furthermore, some developmentalists have proposed entirely new developmental periods. For instance, psychologist Jeffrey Arnett argues that adolescence extends into *emerging adulthood*, a period beginning in the late teenage years and continuing into the mid-20s. During emerging adulthood, people are no longer adolescents, but they haven't fully taken on the responsibilities of adulthood. Instead, they are still trying out different identities and engage in self-focused exploration (Schwartz, Côté, & Arnett, 2005; Lamborn & Groh, 2009; Arnett, 2010, 2011).

In short, there are substantial *individual differences* in the timing of events in people's lives. In part, this is a biological fact of life: People mature at different rates and reach developmental milestones at different points. However, environmental factors also play a significant role in determining the age at which a particular event is likely to occur. For example, the typical age at which people develop romantic attachments varies substantially from one culture to another, depending in part on the way that relationships are viewed in a given culture.

It is important to keep in mind, then, that when developmental specialists discuss age ranges, they are talking about averages—the times when people, on average, reach particular milestones. Some children will reach the milestone earlier, some later, and many—in fact, most—will reach it around the time of the average. Such variation becomes noteworthy only when children show substantial deviation from the average. For example, parents whose child begins to speak at a much later age than average might decide to have their son or daughter evaluated by a speech therapist.

Furthermore, as children grow older, they become more likely to deviate from the average and exhibit individual differences. In very young children, a good part of developmental change is genetically determined and unfolds automatically, making development fairly similar in different children. But as children age, environmental factors become more potent, leading to greater variability and individual differences as time passes.

**The Links between Topics and Ages.** Each of the broad topical areas of child development—physical, cognitive, and social and personality development—plays a role throughout childhood and adolescence. Consequently, some developmental experts focus on physical development during the prenatal period and others on what occurs during adolescence. Some might specialize in social development during the preschool years, while others look at social relationships in middle childhood. And still others might take a broader approach, looking at cognitive development through every period of childhood and adolescence (and beyond).

The variety of topical areas and age ranges studied within the field of child development means that specialists from many diverse backgrounds and areas of expertise consider themselves child developmentalists. Psychologists who study behavior and mental processes, educational researchers, geneticists, and physicians are only some of the people who specialize and conduct research in child development. Furthermore, developmentalists work in a variety of settings, including university departments of psychology, education, human development, and medicine, as well as nonacademic settings as varied as human service agencies and child care centers.

The diversity of specialists working under the broad umbrella of child development brings a variety of perspectives and intellectual richness to the field of child development. In addition, it permits the research findings of the field to be used by practitioners in a wide array of applied professions. Teachers, nurses, social workers, child care providers, and social policy experts all rely on the findings of child development to make decisions about how to improve children's welfare.



## DEVELOPMENTAL DIVERSITY AND YOUR LIFE

### How Culture, Ethnicity, and Race Influence Development

*Mayan mothers in Central America are certain that almost constant contact between themselves and their infant children is necessary for good parenting, and they are physically upset if contact is not possible. They are shocked when they see a North American mother lay her infant down, and they attribute the baby's crying to the poor parenting of the North American. (Morelli et al., 1992)*

What are we to make of the two views of parenting expressed above? Is one right and the other wrong? Probably not, if we take into consideration the cultural context in which the mothers are operating. In fact, different cultures and subcultures have their own views of appropriate and inappropriate childrearing, just as they have different developmental goals for children (Tolchinsky, 2003; Feldman & Masalha, 2007; Huijbregts et al., 2009).

Specialists in child development must take into consideration broad cultural factors. For example, as we'll discuss further in Chapter 11, children growing up in Asian societies tend to have a *collectivistic orientation*, focusing on the interdependence among members of society. In contrast, children in Western societies are more likely to have an *individualistic orientation* in which they concentrate on the uniqueness of the individual.

Similarly, child developmentalists must also take into account ethnic, racial, socioeconomic, and gender differences if they are to achieve an understanding of how people change and grow throughout the life span. If these specialists succeed in doing so, not only can they achieve a better understanding of human development, but they may also be able to derive more precise applications for improving the human social condition.

Efforts to understand how diversity affects development have been hindered by difficulties in finding an appropriate vocabulary. For example, members of the research community—as well as society at large—have sometimes used terms such as *race* and *ethnic group* in inappropriate ways. *Race* is a biological concept, which should be employed to refer to classifications based on physical and structural characteristics of species. In contrast, *ethnic group* and *ethnicity* are broader terms, referring to cultural background, nationality, religion, and language.

The concept of race has proven particularly problematic. Although it formally refers to biological factors, race has taken on substantially more meanings—many of them inappropriate—that range from skin color to religion to culture. Moreover, the concept of race is exceedingly imprecise; depending on how it is defined, there are between 3 and 300 races, and no race is genetically distinct. The fact that 99.9% of humans' genetic makeup is identical in all humans makes the question of race seem insignificant (Smedley & Smedley, 2005; Coleman, 2011; Fish, 2011).

In addition, there is little agreement about which names best reflect different races and ethnic groups. Should the term *African American*—which has geographical and cultural implications—be preferred over *black*, which focuses primarily on skin color? Is *Native American* preferable to *Indian*? Is *Hispanic* more appropriate than *Latino*? And how can researchers accurately categorize people with multiethnic backgrounds? The choice of category has important implications for the validity and usefulness of research. The choice even has political implications. For example, the decision



The face of the United States is changing as the proportion of children from different backgrounds is increasing.

to permit people to identify themselves as “multiracial” on U.S. government forms and in the 2000 U.S. Census initially was highly controversial, although it is now routine (Perlmann & Waters, 2002; Saulny, 2011).

As the proportion of minorities in U.S. society continues to increase, it becomes crucial to take the complex issues associated with human diversity into account to fully understand development. In fact, it is only by looking for similarities and differences among various ethnic, cultural, and racial groups that developmental researchers can distinguish principles of development that are universal from ones that are culturally determined. In the years ahead, then, it is likely that child development will move from a discipline that primarily focuses on children with North American and European backgrounds to one that encompasses the development of children around the globe (Matsumoto & Yoo, 2006; Wardle, 2007; Kloep et al., 2009). ■



**Watch** the Video *Chi Hae: Raising an Eleven-Month-Old* in **MyPsychLab**.

## Cohort Influences on Development: Developing with Others in a Social World

Bob, born in 1947, is a baby boomer. He was born soon after the end of World War II, when an enormous bulge in the birthrate occurred as soldiers returned to the United States from overseas. He was an adolescent at the height of the civil rights movement and the beginning of protests against the Vietnam War. His mother, Leah, was born in 1922; she is part of the generation that passed its childhood and teenage years in the shadow of the Great Depression. Bob’s son, Jon, was born in 1975. Now building a career after graduating from college and starting his own family, he is a member of what has been called Generation X. Jon’s younger sister, Sarah, who was born in 1982, is part of the next generation, which sociologists have called the Millennial Generation.

These people are in part products of the social times in which they live. Each belongs to a particular **cohort**, a group of people born at around the same time in the same place. Such major social events as wars, economic upturns and depressions, famines, and epidemics (such as the one due to the AIDS virus) work similar influences on members of a particular cohort (Mitchell, 2002; Dittmann, 2005).

*Cohort effects* provide an example of *history-graded influences*, which are biological and environmental influences associated with a particular historical moment. For instance, children who lived in New York City during the 9/11 terrorist attack on the World Trade Center experienced shared biological and environmental challenges due to the attack. Their development is bound to be affected by this normative history-graded event (Bonanno, Galea, Bucciarelli, & Vlahov, 2006; Laugharne, Janca, & Widiger, 2007; Mani & Plunkett, 2011).

In contrast, *age-graded influences* are biological and environmental influences that are similar for individuals in a particular age group, regardless of when or where they are raised. For example, biological events such as puberty and menopause are universal events that occur at relatively the same time throughout all societies. Similarly, a sociocultural event such as entry into formal education can be considered a normative age-graded influence because it occurs in most cultures around age 6.

Development is also affected by *sociocultural-graded influences*, which include ethnicity, social class, subcultural membership, and other factors. For example, sociocultural-graded influences will be considerably different for immigrant children who speak English as a second language than for children born in the United States who speak English as their first language (Rose et al., 2003; Kärtner et al., 2011).

Finally, *non-normative life events* also influence development. Non-normative life events are specific, atypical events that occur in a particular person’s life at a time when such events do not happen to most people. For instance, the experience of Louise Brown, who grew up with the knowledge that she was the first person to be conceived using in vitro fertilization, constitutes a non-normative life event. In addition, children can create their own non-normative life events. For instance, a high school girl who enters and wins a national science competition produces a non-normative life event for herself. In a sense, she is actively constructing her own environment, thereby participating in her own development.

### FROM AN EDUCATOR'S PERSPECTIVE:

How would a student's cohort membership affect his or her readiness for school? For example, what would be the benefits and drawbacks of coming from a cohort in which Internet use was routine, compared with earlier cohorts prior to the appearance of the Internet?

**cohort** A group of people born at around the same time in the same place



Society's view of childhood and what is appropriate to ask of children has changed through the ages. These children worked full time in mines in the early 1900s.

## Review, Check, and Apply

### Review

1. The field of child development involves the scientific study of the ways in which children grow and develop from the time before birth to the end of adolescence.
2. Child development examines physical, cognitive, and social and personality development across broad age ranges and across individuals.
3. Development is affected by race, ethnicity, gender, and culture and is sensitive to cohort effects, age-graded influences, sociocultural influences, and non-normative life events.

### Check

1. Child development takes a scientific approach to development, and it considers \_\_\_\_\_ as well as change, in the lives of children and adolescents.
2. The field of child development includes three major topics or approaches: physical development, \_\_\_\_\_ development, and social and personality development.
3. Specialists in child development must take into consideration broad \_\_\_\_\_ factors and account for ethnic, racial, socioeconomic, and gender differences if they are to understand how people change and grow throughout the life span.
4. Major social events have similar influences on members of a particular \_\_\_\_\_, a group of people born at around the same time in the same place.

### Apply

1. What are some examples of the ways culture (either broad culture or aspects of culture) has affected your development?
2. How do different age-graded influences and history-graded influences contribute to making you and your parents different?

*To see more review questions, log on to MyPsychLab.*

ANSWERS: 1. stability 2. cognitive 3. cultural 4. cohort

MODULE 1.2

## CHILDREN: PAST, PRESENT, AND FUTURE

**LO 1-4** How have views of childhood changed historically?

**LO 1-5** What are the key issues and questions in the field of child development?

**LO 1-6** What is the future of child development likely to hold?

Children have been the target of study from the time that humans have walked the planet. Parents are endlessly fascinated by their children, and the growth displayed throughout childhood and adolescence is a source of both curiosity and wonderment. But it is relatively recent in the course of history that children have been studied from a scientific vantage point. Even a brief historical look at the field of child development shows that there has been considerable change in the way that children are viewed.

## Early Views of Children

Although it is hard to imagine, some scholars believe that there was a time when childhood didn't even exist, at least in the minds of adults. According to Philippe Ariès, who studied paintings and other forms of art, children in medieval Europe were not given any special status before 1600. Instead, they were viewed as miniature, somewhat imperfect adults. They were dressed in adult clothing and not treated specially in any significant way. Childhood was not seen as a stage qualitatively different from adulthood (Ariès, 1962; Acocella, 2003; Hutton, 2004).

Although the view that children during the Middle Ages were seen simply as miniature adults may be somewhat exaggerated—Ariès's arguments were based primarily on art depicting the European aristocracy, a very limited sample of Western culture—it is clear that childhood had a considerably different meaning than it does now. Moreover, the idea that childhood could be studied systematically did not take hold until later.

**Philosophers' Perspectives on Children.** During the 16th and 17th centuries, philosophers took the lead in thinking about the nature of childhood. For example, English philosopher John Locke (1632–1704) considered a child to be a *tabula rasa*, which is Latin for “blank slate.” In this view, children entered the world with no specific characteristics or personalities. Instead, they were entirely shaped by their experiences as they grew up. As we'll see in the next chapter, this view was the precursor of the modern perspective known as behaviorism.

French philosopher Jean-Jacques Rousseau (1712–1778) had an entirely different view of the nature of children. He argued that children were *noble savages*, meaning that they were born with an innate sense of right and wrong and morality. Seeing humans as basically good, he argued that infants developed into admirable and worthy children and adults unless corrupted by negative circumstances in their lives. Rousseau also was one of the first observers of childhood to suggest that growth occurred in distinct, discontinuous stages that unfolded automatically—a concept that is reflected in some contemporary theories of child development that we'll discuss in the next chapter.

**Baby Biographies.** Among the first instances in which children were methodically studied were *baby biographies*, which were popular in the late 1700s in Germany. Observers—typically parents—tried to trace the growth of a single child, recording the physical and linguistic milestones achieved by their child.

But it was not until Charles Darwin, who developed the theory of evolution, that observation of children took a more systematic turn. Darwin was convinced that understanding the development of individuals within a species could help identify how the species itself had developed. He made baby biographies more scientifically respectable by producing one of his own, recording his own son's development during his first year.

A wave of baby biographies was produced following publication of Darwin's book. Furthermore, other historical trends were helping to propel the development of a new scientific discipline focusing on children. Scientists were discovering the mechanisms behind conception, and geneticists were beginning to unlock the mysteries of heredity. Philosophers were arguing about the relative influences of nature (heredity) and nurture (factors in the environment).

**Focus on Childhood.** As the adult labor pool increased, children were no longer needed as a source of inexpensive labor, paving the way for laws that protected children from exploitation. The advent of more universal education meant that children were separated from adults for more of the day, and educators sought to identify better ways of teaching children.

Advances in psychology led people to explore such matters as the influence of childhood events on adults' later lives. As a consequence of a growing sophistication regarding the nature and wide-ranging importance of social changes during childhood, child development became recognized as a field of its own.

## The 20th Century: Child Development as a Discipline

Several figures became central to the emerging field of child development. Alfred Binet, a French psychologist, not only pioneered the study of children's intelligence but also investigated memory and mental calculation. G. Stanley Hall pioneered the use of questionnaires to



During medieval times in Europe, children were thought of as miniature, although imperfect, adults. This view of childhood was reflected in how children were dressed—identically as adults.

illuminate children's thinking and behavior. He also wrote the first book that targeted adolescence as a distinct period of development—aptly titled *Adolescence* (Hall, 1904/1916).

**Contributions of Women.** Even though prejudice hindered women in their pursuit of academic careers, they made significant contributions to the discipline of child development during the early 1900s. For example, Leta Stetter Hollingworth, who studied at Columbia University under Edward Thorndike, a noted pioneer in educational testing, and later became a professor of education at Columbia's Teachers College, was one of the first psychologists to focus on child development (Hollingworth, 1943/1990; Denmark & Fernandez, 1993).

During the first decades of the 1900s, one emerging trend that had enormous impact on our understanding of children's development was the rise of large-scale, systematic, and ongoing investigations of children and their development throughout the life span. For example, the Stanford Studies of Gifted Children began in the early 1920s and continue today. Similarly, the Fels Research Institute Study and the Berkeley Growth and Guidance Studies helped identify the nature of change in children's lives as they became older. Using a normative approach, these studies followed large numbers of children to determine the nature of normal growth (Dixon & Lerner, 1999).

The women and men who built the foundations of child development shared a common goal: to use scientific methods to study the nature of growth, change, and stability throughout childhood and adolescence. They helped to bring the field to where it is today.

## Today's Key Issues and Questions: Child Development's Underlying Themes

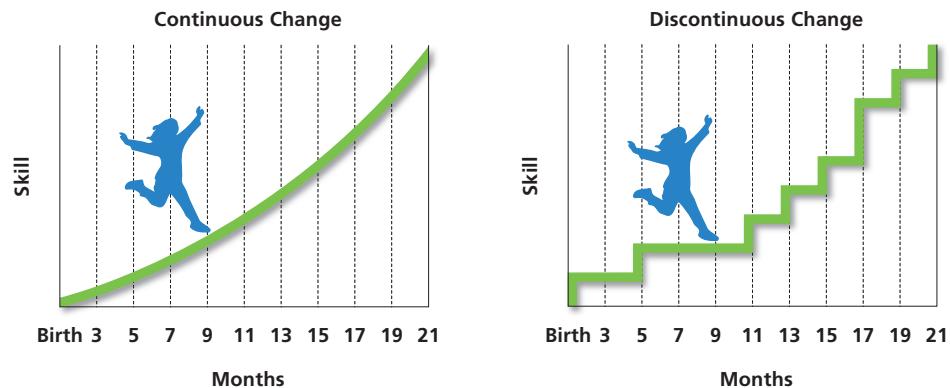
Today, several key issues and questions dominate the field of child development. Among the major issues (summarized in Table 1-2) are the nature of developmental change, the importance of critical and sensitive periods, life span approaches versus more focused approaches, and the nature–nurture issue.

**Continuous Change versus Discontinuous Change.** One of the primary issues challenging child developmentalists is whether development proceeds in a continuous or discontinuous fashion (illustrated in Figure 1-1). In **continuous change**, development is gradual,

**TABLE 1-2 Major Issues in Child Development**

<b>Continuous Change</b>	<b>Discontinuous Change</b>
<ul style="list-style-type: none"> <li>Change is gradual.</li> <li>Achievements at one level build on previous level.</li> <li>Underlying developmental processes remain the same over the lifespan.</li> </ul>	<ul style="list-style-type: none"> <li>Change occurs in distinct steps or stages.</li> <li>Behavior and processes are qualitatively different at different stages.</li> </ul>
<b>Critical Periods</b>	<b>Sensitive Periods</b>
<ul style="list-style-type: none"> <li>Certain environmental stimuli are necessary for normal development.</li> <li>Emphasized by early developmentalists.</li> </ul>	<ul style="list-style-type: none"> <li>People are susceptible to certain environmental stimuli, but consequences of absent stimuli are reversible.</li> <li>Current emphasis in life span development.</li> </ul>
<b>Life Span Approach</b>	<b>Focus on Particular Periods</b>
<ul style="list-style-type: none"> <li>Current theories emphasize growth and change throughout life, relatedness of different periods.</li> </ul>	<ul style="list-style-type: none"> <li>Infancy and adolescence are emphasized by early developmentalists as most important periods.</li> </ul>
<b>Nature (Genetic Factors)</b>	<b>Nurture (Environmental Factors)</b>
<ul style="list-style-type: none"> <li>Emphasis is on discovering inherited genetic traits and abilities.</li> </ul>	<ul style="list-style-type: none"> <li>Emphasis is on environmental influences that affect a person's development.</li> </ul>

**continuous change** Gradual development in which achievements at one level build on those of previous levels



**FIGURE 1-1 Two Approaches to Developmental Change**

The two approaches to development are continuous change, which is gradual, with achievements at one level building on those of previous levels, and discontinuous change, which occurs in distinct steps or stages.

with achievements at one level building on those of previous levels. Continuous change is quantitative; the basic underlying developmental processes that drive change remain the same over the course of the life span. Continuous change, then, produces changes that are a matter of degree, not of kind. Changes in height prior to adulthood, for example, are continuous. Similarly, as we'll see later in the chapter, some theorists suggest that changes in people's thinking capabilities are also continuous, showing gradual quantitative improvements rather than developing entirely new cognitive processing capabilities.

In contrast, **discontinuous change** occurs in distinct steps or stages. Each stage brings about behavior that is assumed to be qualitatively different from behavior at earlier stages. Consider the example of cognitive development. We'll see in Chapter 2 that some cognitive developmentalists suggest that thinking changes in fundamental ways as children develop and that the changes are not just a matter of quantitative change, but also of qualitative change.

Most developmentalists agree that taking an either/or position on the continuous-discontinuous issue is inappropriate. While many types of developmental change are continuous, others are clearly discontinuous (Flavell, 1994; Heimann, 2003).

### Critical and Sensitive Periods: Gauging the Impact of Environmental Events.

If a woman comes down with a case of rubella (German measles) in the 11th week of pregnancy, the consequences for the child she is carrying are likely to be devastating: They include the potential for blindness, deafness, and heart defects. However, if she comes down with the same strain of rubella in the 30th week of pregnancy, damage to the child is unlikely.

The differing outcomes of the disease in the two periods demonstrate the concept of critical periods. A **critical period** is a specific time during development when a particular event has its greatest consequences. Critical periods occur when the presence of certain kinds of environmental stimuli is necessary for development to proceed normally, or exposure to certain stimuli results in abnormal development. For example, mothers who take drugs at particular times while pregnant may cause permanent harm to the developing child (Uylings, 2006; Harris, 2010; Glynn & Sandman, 2011).

Although early specialists in child development placed great emphasis on the importance of critical periods, more recent thinking suggests that in many realms, individuals may be more flexible than was first thought, particularly in the domains of cognitive, personality, and social development. In these areas, there is a significant degree of **plasticity**, the degree to which a developing behavior or physical structure is modifiable. For instance, rather than suffering permanent damage from a lack of certain kinds of early social experiences, there is increasing evidence that children can use later experiences to help overcome earlier deficits.

Consequently, developmentalists are now more likely to speak of sensitive periods rather than critical periods. In a **sensitive period**, organisms are particularly susceptible to certain kinds of stimuli in their environment. A sensitive period represents the optimal period for particular capacities to emerge, and children are particularly sensitive to environmental influences. For example, a lack of exposure to language during sensitive periods may result in delayed language production in infants and toddlers.

**discontinuous change** Development that occurs in distinct steps or stages, with each stage bringing about behavior that is assumed to be qualitatively different from behavior at earlier stages

**critical period** A specific time during development when a particular event has its greatest consequences

**plasticity** The degree to which a developing behavior or physical structure is modifiable

**sensitive period** A specific time when organisms are particularly susceptible to certain kinds of stimuli in their environment

### FROM A CHILDCARE WORKER'S

#### PERSPECTIVE:

What might you do to take advantage of a sensitive period?



**Watch the Video** Special Topics: *The Plastic Brain* in **MyPsychLab**.

It is important to understand the difference between the concepts of critical periods and sensitive periods: In critical periods, it is assumed that certain kinds of environmental influences produce permanent, irreversible consequences for the developing individual. In contrast, although the absence of particular environmental influences during a sensitive period may hinder development, it is possible for later experiences to overcome the earlier deficits. In other words, the concept of the sensitive period recognizes the plasticity of developing humans (Armstrong et al., 2006; Hooks & Chen, 2008; Curley et al., 2011).

**Life Span Approaches versus a Focus on Particular Periods.** On what part of the life span should child developmentalists focus their attention? For early developmentalists, the answers tended to be infancy and adolescence. Most research attention during the early years of the discipline was clearly concentrated on those two periods, largely to the exclusion of other periods of childhood.

Today, however, the story is different. The entire period from conception through adolescence is now regarded as important, for several reasons. One is the discovery that developmental growth and change continue during every stage of life.

Furthermore, an important part of every person's environment is the other people around him or her, the person's social environment. To understand the social influences on children of a given age, we need to understand the people who are in large measure providing those influences. For instance, to understand development in infants, we need to unravel the effects of their parents' age on their social environment. It is likely that a 15-year-old mother will provide parental influences of a different sort from those provided by a 37-year-old mother. Consequently, infant development is in part a consequence of adult development.

**The Relative Influence of Nature and Nurture on Development.** One of the enduring questions of child development involves how much of people's behavior is due to their genetically determined nature and how much is due to nurture, the influences of the physical and social environment in which a child is raised. This issue, which has deep philosophical and historical roots, has dominated much work in child development (Wexler, 2006; Keating, 2011).

In this context, *nature* refers to traits, abilities, and capacities that are inherited from one's parents. It encompasses any factor that is produced by the predetermined unfolding of genetic information—a process known as **maturity**. These genetic, inherited influences are at work as we move from the one-cell organism that is created at the moment of conception to the billions of cells that make up a fully formed human.

Nature influences whether our eyes are blue or brown, whether we have thick hair throughout life or eventually go bald, and how good we are at athletics. Nature allows our brains to develop in such a way that we can read the words on this page.

In contrast, *nurture* refers to the environmental influences that shape behavior. Some of these influences may be biological, such as the impact of a pregnant mother's use of cocaine on her unborn child or the amounts and kinds of food available to children. Other environmental influences are more social, such as the ways parents discipline their children and the effects of peer pressure on an adolescent. Finally, some influences are a result of larger, societal-level factors, such as the socioeconomic circumstances in which people find themselves.

If our traits and behavior were determined solely by either nature or nurture, there would probably be little debate regarding the issue. However, for most critical behaviors, this is hardly the case. Take, for instance, one of the most controversial arenas: intelligence. As we'll consider in detail in Chapter 9, the question of whether intelligence is determined primarily by inherited, genetic factors—nature—or is shaped by environmental factors—nurture—has caused lively and often bitter arguments. Largely because of its social implications, the issue has spilled out of the scientific arena and into the realms of politics and social policy.

**Implications for Child Rearing and Social Policy.** Consider the implications of the nature-versus-nurture issue: If the extent of one's intelligence is primarily determined by heredity and consequently is largely fixed at birth, then efforts to improve intellectual performance later in life may be doomed to failure. In contrast, if intelligence is primarily a result

**maturity** The process of the predetermined unfolding of genetic information

of environmental factors, such as the amount and quality of schooling and stimulation to which one is exposed, then we would expect that an improvement in social conditions could bring about an increase in intelligence.

The extent of social policy affected by ideas about the origins of intelligence illustrates the significance of issues that involve the nature–nurture question. As we address it in relation to several topical areas throughout this book, we should keep in mind that specialists in child development reject the notion that behavior is the result solely of either nature or nurture. Instead, the question is one of degree—and the specifics of that, too, are hotly debated.

Furthermore, the interaction of genetic and environmental factors is complex, in part because certain genetically determined traits have not only a direct influence on children’s behavior but an indirect influence in shaping children’s environments as well. For example, a child who is consistently cranky and who cries a great deal—a trait that may be produced by genetic factors—may influence her environment by making her parents so highly responsive to her insistent crying that they rush to comfort her whenever she cries. Their responsivity to the child’s genetically determined behavior consequently becomes an environmental influence on her subsequent development (Bradley & Corwyn, 2008; Straight, Gallagher, & Kelley, 2008; Olson et al., 2011).

Similarly, although our genetic background orients us toward particular behaviors, those behaviors will not necessarily occur without an appropriate environment. People with similar genetic backgrounds (such as identical twins) may behave in very different ways; people with highly dissimilar genetic backgrounds can behave quite similarly to one another in certain areas (Gracia, Bearer, & Lerner, 2004; Kato & Pedersen, 2005; Tuvblad et al., 2011).

In sum, the question of how much of a given behavior is due to nature and how much to nurture is challenging. Ultimately, we should consider the two sides of the nature–nurture issue as opposite ends of a continuum, with particular behaviors falling somewhere between the two ends. We can say something similar about the other controversies that we have considered. For instance, continuous versus discontinuous development is not an either/or proposition; some forms of development fall toward the continuous end of the continuum, while others lie closer to the discontinuous end. In short, few statements about development involve either/or absolutes (Rutter, 2006; Deater-Deckard & Cahill, 2006).

## The Future of Child Development

We’ve examined the foundations of the field of child development, along with the key issues and questions that underlie the discipline. But what lies ahead? Several trends appear likely to emerge:

- As research in development continues to be amassed, the field will become increasingly specialized. New areas of study and different perspectives will emerge.
- The explosion in information about genes and the genetic foundations of behavior will influence all spheres of child development. Increasingly, developmentalists will link work across biological, cognitive, and social domains, and the boundaries between different subdisciplines will be blurred.
- The increasing racial, ethnic, linguistic, and cultural variety of the population of the United States will lead the field to focus greater attention on issues of diversity.
- A growing number of professionals in a variety of fields will make use of child development’s research and findings. Educators, social workers, nurses and other health-care providers, genetic counselors, toy designers, child care providers, cereal manufacturers, social ethicists, and members of dozens of other professions will all draw on the field of child development.

Work on child development will increasingly influence public interest issues. Discussion of many of the major social concerns of our time, including violence, prejudice and discrimination, poverty, changes in family life, child care, schooling, and even terrorism, can be informed by research in child development. Consequently, child developmentalists are likely to make important contributions to 21st-century society (Zigler & Finn-Stevenson, 1999; Pyszczynski, Solomon, & Greenberg, 2003; Block, Weinstein, & Seitz, 2005). (For one example of the current contributions of work in child development, see the *From Research to Practice* box.)



## FROM RESEARCH TO PRACTICE

### Preventing Violence in Children

*"Life is hard," a probation officer had once told Jimmy Davis. Those words had made Jimmy roll his eyes. If anyone knew about life being hard, it was Jimmy. When he was five, his dad had gone to prison for gunning down a bookee. He'd never seen his father again, but he sure remembered the beatings he'd received at the hands of the old man before he got sent up.*

*His mom drank more after that and lost her job. Then she started bringing men home. The men either ignored Jimmy or beat him. One had threatened to set his bed on fire while he was sleeping.*

*Four years ago, when he was 12, he was arrested for drug possession. Last year, he got popped for stealing a car. Three days ago, he was arraigned on two counts of murder in connection with a robbery. Jimmy hadn't wanted to kill the men, but they'd been in his way. His life was too difficult to worry about anyone but himself. When his attorney asked if he was scared, Jimmy said, "No. Just sick of life."*

Jimmy's descent into violence is representative of the lives of too many children and adolescents in the United States today. Many observers have called the level of violence nothing less than an epidemic. In fact, surveys find that violence and crime rank among the issues of greatest concern to people in the United States (NCADV, 2003; DocuTicker, 2010).

How can we explain the level of violence? How do people learn to be violent? How can we control and remedy aggression? And how can we discourage violence from occurring in the first place?

Child development has sought to answer such questions from several different perspectives. Consider these examples:

- *Explaining the roots of violence.* Some child developmentalists have looked at how early behavioral and physical problems may be associated with later difficulties in controlling aggression. For instance, researchers have found links between early maltreatment, physical and psychological abuse, and neglect of children and their subsequent aggressive behavior. Others have looked at hormonal influences on violent behavior (Gagné et al., 2007; Maas, Herrenkohl, & Sousa, 2008; Skärberg, Nyberg, & Engstrom, 2010).

- *Examining how exposure to aggression may lead to violence.* Other psychologists have examined how exposure to violence in the media and in video games may lead to aggression. For example, psychologist Craig Anderson has found that people who play violent video games have an altered view of the world, seeing it as more violent than those who do not play such games. In addition, those who play such violent video games are more easily triggered into aggressive behavior, and they have decreased empathy for others (Barlett, Harris, & Baldassaro, 2007; Bluemke, Friedrich, & Zumbach, 2010; Anderson et al., 2010).
- *Developing programs to reduce aggression.* According to psychologists Ervin Staub and Darren Spielman, schoolteachers and school administrators must be on the lookout for even milder forms of aggression, such as bullying. Unless such forms of aggression are checked, they are likely to endure and to escalate into more blatant forms.

To combat aggression, Staub and Spielman devised a program to help children develop constructive ways of fulfilling their basic needs. After involvement in an intervention that included role playing, videotaping, and structured discussions, participants' aggressive behavior declined (Spielman & Staub, 2003; Staub, 2011).

As these examples illustrate, developmental researchers are making progress in understanding and dealing with the violence that is increasingly part of modern society. Furthermore, violence is just one example of the areas in which experts in child development are contributing their skills for the betterment of human society. As we'll see throughout this book, the field has much to offer.

- **Why does violence remain such a problem in the United States, and why are the levels of violence (as measured by crime statistics) worse in the United States than in other industrialized countries?**
- **Because research shows that exposure to violent video games raises the level of aggression in players, do you think there should be legal limitations on the sale and distribution of such games? Why or why not?**



## ARE YOU AN INFORMED CONSUMER OF DEVELOPMENT?

### Assessing Information on Child Development

*If you immediately comfort crying babies, you'll spoil them.*

*If you let babies cry without comforting them, they'll be untrusting and clingy as adults.*

*Spanking is one of the best ways to discipline your child.*

*Never hit your child.*

*If a marriage is unhappy, children are better off if their parents divorce than if they stay together.*

*No matter how difficult a marriage is, parents should avoid divorce for the sake of their children.*

There is no lack of advice on the best way to raise a child or, more generally, to lead one's life. From best-sellers with titles such as *The No-Cry Sleep Solution* to magazine and newspaper columns that provide advice on every imaginable topic, each of us is exposed to tremendous amounts of information.

Yet not all advice is equally valid. The mere fact that something is in print, on television, or on a website does not automatically make it legitimate or accurate. Fortunately, some guidelines can help distinguish when recommendations and suggestions are reasonable and when they are not. Here are a few:

- Consider the source of the advice. Information from established, respected organizations such as the American Medical Association, the American Psychological Association, and the American Academy of Pediatrics is likely to be the result of years of study, and its accuracy is probably high.
- Evaluate the credentials of the person providing advice. Information coming from established, acknowledged researchers and experts in a field is likely to be more accurate than that coming from a person whose credentials are obscure.
- Understand the difference between anecdotal evidence and scientific evidence. Anecdotal evidence is based on one or two instances of a phenomenon, haphazardly discovered or encountered; scientific evidence is based on careful, systematic procedures.
- Keep cultural context in mind. Although an assertion may be valid in some contexts, it may not be true in all. For example, it is typically assumed that providing infants the freedom to move about and exercise their limbs facilitates their muscular development and mobility. Yet in some cultures, infants spend most of their time closely bound to their mothers with no apparent long-term damage (H. Kaplan & Dove, 1987; Tronick, Thomas, & Daltabuit, 1994).
- Don't assume that because many people believe something, it is necessarily true. Scientific evaluation has often proved that some of the most basic presumptions about the effectiveness of various techniques are invalid. For instance, consider DARE, the Drug Abuse Resistance Education anti-drug program that is used in about half the school systems in the United States. DARE is designed to prevent the spread of drugs through lectures and question-and-answer sessions run by police officers. Careful evaluation, however, finds no evidence that the program is effective in reducing drug use (Rhule, 2005; University of Akron, 2006).

In short, the key to evaluating information relating to child development is to maintain a healthy dose of skepticism. No source of information is invariably, unfailingly accurate. By keeping a critical eye on the statements you encounter, you'll be in a better position to determine the contributions made by child developmentalists in understanding how we change and grow over the course of childhood and adolescence. ■

## Review, Check, and Apply

### Review

1. Early philosophical views considered the child as an empty slate (*tabula rasa*) on which society had to write, or a noble savage with an innate sense of morality.
2. Advances in psychology led to a more intensive study of influences and implications of childhood events until in the 20th century the field became a formal discipline built on scientific principles.
3. Four issues have emerged as particularly significant for developmental researchers: continuity versus discontinuity in development, the importance of sensitive periods, the focus on distinct periods versus the entire life span, and the nature–nurture controversy.
4. The future of the field is tending toward increased specialization, a greater focus on genetics, the importance of diversity, and the broader use of developmental findings across fields and in public policy.

### Check

1. The predetermined unfolding of genetic information is \_\_\_\_\_.
2. One key issue in child development today includes the comparison and contrast between continuous versus \_\_\_\_\_ change.
3. Another important issue involves the understanding of critical and \_\_\_\_\_ periods.

4. The relative influence of nature versus \_\_\_\_\_ on development illustrates a key question in child development.

### Apply

- What is one way in which the nature–nurture issue has been an important consideration in a modern political or societal controversy?
- In what ways do you think food manufacturers make use of the findings of child researchers? Is such a use ever improper?

*To see more review questions, log on to MyPsychLab.*

ANSWERS: 1. maturation 2. discontinuous 3. sensitive 4. nurture

## The CASE of . . . Too Many Choices

Jenny Claymore, midway through her third year of college, is desperate to pick a career, but she hasn't a clue. The problem isn't that nothing interests her; it's that too many things do. From her reading, radio listening, and TV watching, her head is full of ideas for great-sounding careers.

Jenny loves children, having always enjoyed babysitting and her summer work as a camp counselor—so maybe she should be a teacher. She is fascinated by all she hears about DNA and genetic research—so maybe she should be a biologist or a doctor. She is concerned when she hears about school violence—from bullying to shootings—so maybe she should go into school administration or law enforcement. She is curious about how children learn language—so maybe she should go into speech pathology or, again, teaching. She is fascinated by court cases that rely on the testimony of young children, and how experts on both sides contradict each other—so maybe she should become a lawyer.

Her college counselor once said, “Begin your search for a career by thinking about the classes you’ve taken in high school and college.” Jenny recalls a high school course in early childhood that she loved, and she knows that her favorite class in college is her Child Development course. Would considering a career in child development make sense?

- How well might a career in the field of child development address her love of children and her interest in genetic research?
- What sort of career might focus on the prevention of school violence?
- How might child development relate to her interest in eyewitness testimony and memory?
- Overall, how many careers could you think of that would fit Jenny’s interests?

## LOOKING BACK

### LO 1-1 What is child development?

- Child development is a scientific approach to questions about the growth, change, and stability that individuals experience from conception to adolescence.

### LO 1-2 What is the scope of the field of child development?

- The scope of the field encompasses physical, cognitive, and social and personality development at all ages from conception through adolescence.

### LO 1-3 What are major societal influences that determine development?

- Culture—both broad and narrow—is an important issue in child development. Many aspects of development are influenced not

only by broad cultural differences but also by ethnic, racial, and socioeconomic differences within a particular culture.

- Every person is subject to history-graded influences, age-graded influences, sociocultural-graded influences, and non-normative life events.

### LO 1-4 How have views of childhood changed historically?

- Early views of childhood considered children as miniature adults.
- While Locke viewed a child as a *tabula rasa* (or “blank slate”), Rousseau argued that children had an inborn sense of morality.
- Later views regarded childhood as a distinct period in the life span and led to the emergence of the field of child development.

### LO 1-5 What are the key issues and questions in the field of child development?

- Four key issues in child development are (1) whether developmental change is continuous or discontinuous, (2) whether development is largely governed by critical or sensitive periods during which certain influences or experiences must occur for development to be normal, (3) whether to focus on certain particularly important periods in human development or on the entire life span,

and (4) the nature–nurture question, which focuses on the relative importance of genetic versus environmental influences.

### LO 1-6 What is the future of child development likely to hold?

- Future trends in the field are likely to include increasing specialization, the blurring of boundaries between different areas, increasing attention to issues involving diversity, and an increasing influence on public interest issues.

## KEY TERMS AND CONCEPTS

child development (p. 5)  
physical development (p. 5)  
cognitive development (p. 5)  
personality development (p. 6)

social development (p. 6)  
cohort (p. 9)  
continuous change (p. 12)  
discontinuous change (p. 13)

critical period (p. 13)  
plasticity (p. 13)  
sensitive period (p. 13)  
maturation (p. 14)

## Epilogue

We have covered a lot of ground in our introduction to the growing field of child development. We have reviewed the broad scope of the field, touching on the wide range of topics that child developmentalists may address, and we have discussed the key issues and questions that have shaped the field since its inception.

Before proceeding to the next chapter, take a few minutes to reconsider the prologue of this chapter—the case of Louise Brown, the first child to be born through in vitro fertilization. Based on what you now know about child development, answer the following questions:

- What are some of the potential benefits, and drawbacks, of the type of conception—in vitro fertilization—that was carried out for Louise's parents?

- What are some questions that developmentalists who study either physical, cognitive, or personality and social development might ask about the effects on Louise of being conceived via in vitro fertilization?
- The creation of complete human clones—exact genetic replicas of an individual—is still in the realm of science fiction, but the theoretical possibility does raise some important questions. For example, what would be the psychological consequences of being a clone?
- If clones could actually be produced, how might it help scientists understand the relative impact of heredity and environment on development?

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smartphone apps are sold. You can also view this video in MyPsychLab. For more videos related to this chapter's content, log into MyPsychLab to view the entire Development Video Series.



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- What would the consequences of those decisions be?

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and raising your own virtual child from birth to age 18.