Development of Children and Adolescents

Penny Hauser-Cram • J. Kevin Nugent
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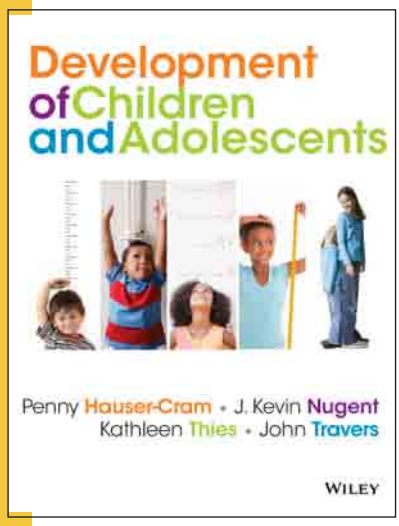

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The Development of Children and Adolescents

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ABOUT THE AUTHORS

Penny Hauser-Cram is Professor of Developmental and Educational Psychology at Boston College in the Lynch School of Education. She received her EdD in Human Development from the Graduate School of Education at Harvard University. Her research focuses on the importance of the family system and effects of early education on children's optimal development. She has conducted longitudinal studies on the developmental pathways of children living in poverty and on the experiences of children and adolescents with developmental disabilities and their families.

J. Kevin Nugent is the Director of the Brazelton Institute in the Department of Developmental Medicine at Boston Children's Hospital. He is on the faculty of the Harvard Medical School and is also Professor Emeritus of Children, Families and Schools at the University of Massachusetts at Amherst. His research focuses on newborn behavior and development, the study of parent-child relationships in different cultural settings, and neurobehavioral assessment and early intervention.

Kathleen M. Thies received her PhD from Boston College in developmental psychology. She chaired the Department of Nursing at Colby–Sawyer College, and was program director of the Graduate School of Nursing at the University of Massachusetts Medical School, where she maintains an academic affiliation. Most recently, as the researcher for the Elliot Health System in New Hampshire, Dr. Thies has developed research studies on perinatal mood disorders, and in adult and neonatal intensive care. This is her third book with John F. Travers.

John F. Travers received his EdD from Boston College and was a professor at Boston College in the Lynch School of Education for more than 50 years. He was the author and coauthor of 19 books and numerous publications in the fields of educational and developmental psychology. He passed away in May 2011, but his legacy lives on through his students, colleagues, and family.

To John Travers—an extraordinary colleague, mentor, and friend, a teacher and scholar who inspired generations of students, and a man who unequivocally bequeathed good to all who were fortunate enough to meet him.

Brief Contents

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Preface

When the four of us came together as authors to write *The Development of Children and Adolescents*, we shared a deep personal conviction about the importance of understanding development in our contemporary world. At the same time, we brought four quite different perspectives to the task. Our backgrounds encompassed research, clinical practice, and teaching, and our specialties ranged from the prenatal period through adolescence, and included the vital intersection of development and health. We believed that this breadth of perspective would enable us to create a unique offering in the field.

As we wrote the book, we had several key goals in mind. We intended our book primarily for students pursuing careers in psychology, education, health, and human services, as well as for those taking a child development course because they expect to be parents someday. First and foremost, we wanted to help these students understand how children develop, from conception through adolescence. We especially wanted them to appreciate the dynamic and integrative nature of this development. We also wanted to enable them to apply what they learn in their lives, both professional and personal. We brought these goals to life in the three major themes running through this book.

THEMES OF THE BOOK

Three major themes shape the organization of *The Development of Children and Adolescents*: understanding the concepts, integrating the concepts, and applying the concepts.

Understanding the Concepts

To help students *understand* the fundamental concepts, we present research that supports the state of today's knowledge about children's development. In addition, our book uses some special features to guide learning.

A Focus on Research. As students begin the absorbing task of following children's developmental journey, they will encounter a great deal of research data. This research is at the core of developmental psychology, and students need to understand its importance. To help them do this, we have made sure that the many studies highlighted in our text have been carefully selected, clearly explained, and directly applied to practical situations. Our examples include both classic and current research studies, and we believe students will find them both interesting and enlightening.

In addition, new research and remarkable brain imaging studies have broadened our knowledge of children's brain development. Therefore, based on current insights gained from the neurosciences, we include an exciting and accessible teaching tool that graphically illustrates what happens in children's brains when they perform such common behaviors as reading and walking. This feature, *What Happens in the Brain*, relies on the most recent scholarly information and includes clear descriptions of the central brain mechanisms involved.

A Guided Learning Approach. To foster understanding, we take a guided learning approach within each chapter. Following an opening narrative (called *Making a Difference*) that focuses on improving children's lives, we pose *Key Questions* to guide readers through the chapter. These questions are keyed to the major sections in the chapter and to the end-of-chapter summary. *Check Your Progress* questions at the end of each major section give students the opportunity to review their understanding of the section contents; and *Critical Thinking* questions at the end of each chapter encourage students to reflect on issues discussed in the chapter.

Integrating the Concepts

Understanding individual concepts is important, of course, but to truly appreciate how children develop, students need to *integrate* these concepts. Our approach to the relationship between nature and nurture, between maturation and learning, is holistic. We assume a complex, dynamic relationship between the changing individual child and the ever-changing environment—each transforming and being transformed by the other.

A Systems Approach to Development. In describing how child and environment interact, we assume that each aspect of development—physical, cognitive, and psychosocial—is dynamically related to the others. Learning to walk or learning to go up or down stairs, for example, is a landmark motor milestone in children's lives, but it is important, too, because it transforms their sense of competence and sense of self. These motor milestones give infants a new sense of satisfaction and a growing awareness of themselves as independent and autonomous beings.

The developmental systems approach that we follow in the book is necessarily multidisciplinary. Therefore, in integrating concepts, we touch on a number of diverse areas. Because biology is an essential part of understanding child behavior, we discuss the biological underpinnings of development in Chapter 2 and in sections throughout the book labeled *The Developing Brain*, as well as in the *What Happens in the Brain* features mentioned earlier. We highlight cultural influences on development in special *Culture and . . .* features and through integrate coverage of this topic throughout the text. Developmental science inevitably produces results related to the promotion of healthy child and family development. For that reason, we discuss various aspects of national policy concerning children, and advocacy for children in our opening features, titled *Making a Difference*, and our *Policy* sections, described further below.

Children's Health—A Key Developmental Issue. Worthy of special note is our emphasis on the critical intersection of health and children's cognitive and psychosocial development. Normative development has its foundations in the biology of good health, and we cannot take health for granted. Consistent with our systems approach, we emphasize the roles of families and communities in promoting children's health. For example, we address how lack of access to prenatal and well-child care, and lack of health-related services in the community or at school, can undermine children's ability to grow and develop normally.

Given the increased incidence of chronic illness among children, we help future child professionals and parents to understand how medications, disease processes, and nutrition affect learning and behavior. We also suggest ways to promote children's health and safety at home, at school, and in their communities.

Applying the Concepts

Today's students need to *apply* what they have learned to their chosen occupations—education, psychology, nursing and other health-care fields, child care, behavioral pediatrics, and social work, among others. Furthermore, many will become parents. To emphasize the relationship between research and theory on the one hand, and application on the other, we have integrated applications throughout the chapters that focus on three themes—Parenting, Policy, and Practice. This unique feature highlights our efforts to offer readers not only pertinent theories and research but also examples of how these ideas affect the daily lives of children.

Parenting A child's parents, of course, play a central role in the child's development. Children thrive in the context of close and dependable relationships that provide love, nurturance, and security. In our book, parenting is presented as a dynamic process influenced by the parents' child-rearing goals and practices, and shaped by the powerful influence of the child and by the social and cultural context in which development takes place. Our *Parenting* sections discuss many issues parents face—from writing a birth plan, to encouraging their young children to become readers, to dealing with sexual behavior in their teenagers—and offer research-based ideas about how best to face these issues.

Policy Students who become teachers, health-care providers, social workers, psychologists, nurses, and other service providers will quickly find themselves immersed in decision making related to public policy. Their understanding of key laws and other public policies will affect how they do their jobs. We therefore introduce in each chapter a critical piece of federal legislation, such as the Individuals with Disabilities in Education Act, or some other policy issue, such as public health concerns about childhood obesity. Our *Policy* sections serve as another reminder to students that child development occurs within a broad context with many influences—one of them at the level of policy making.

Practice An important feature of our book is the emphasis that we place on practice in settings such as education and health, as well as at home. In our *Practice* sections, we discuss, for example, how teachers can use the ideas of theorists like Piaget and Vygotsky to promote learning in their classrooms and explain what kinds of education work best for English-language learners. *Practice* sections in several chapters deal with preschool child-care environments; we also discuss such diverse topics as baby-friendly hospitals, developmental screening, and treatment of concussions in children and adolescents.

Chapter-by-Chapter Coverage

The Development of Children and Adolescents is divided into 6 parts and 16 chapters. Part One comprises an introductory chapter, and Part Two deals with "biological beginnings," including the biological foundations of child development, prenatal development, and birth and the newborn. Parts Three through Six describe, in turn, physical development and health, cognitive development, and psychosocial development in each of four age periods, presented chronologically: infancy and toddlerhood, early childhood, middle childhood, and adolescence. The chronological approach encourages students to recognize how the different domains of development are related to each other within each age period, as well as to appreciate how development builds and changes throughout these periods.

A summary of the chapter contents follows.

Chapter 1: A CHILD'S JOURNEY

The book's introductory chapter examines what development is, how it differs from change, and what kinds of issues the study of development involves. It presents a brief glimpse of a child's development at home and in the community, and touches on the relationship between children and technology. After explaining the major theories currently influencing the study of children's development, the chapter describes the research methods psychologists use to study development and the ethics of such research.

Chapter 2: BIOLOGICAL FOUNDATIONS OF CHILD DEVELOPMENT

Chapter 2 reviews the essential biology of life to underscore how molecules and cells form the building blocks of development. It examines how genes and the environment interact over the course of development, discusses the implications of the brain and nervous system for child development, and introduces some health-care issues that will be revisited throughout the book. The chapter emphasizes a key theme: that nature and nurture work together, from "neurons to neighborhoods."

Chapter 3: PRENATAL DEVELOPMENT

Chapter 3 describes conception and normal fetal development in the womb. The chapter also discusses agents outside the womb that can affect a child's development for a lifetime. It covers women's health during pregnancy, and begins several discussions on health, parenting, and culture that will continue throughout the book. As part of these discussions, the chapter delves into the science and policy of fertility, infertility, and reproductive assistance.

Chapter 4: BIRTH AND THE NEWBORN

Chapter 4 begins by describing childbirth, including its life-changing effects on parents. It goes on to discuss the effects of birth complications, such as prematurity and low birth weight, on future development, and addresses the question of what can be done to prevent infant mortality. The chapter then focuses on the remarkable capacities of the newborn and the newborn's ability to engage caregivers. Finally, it discusses the emergence of the parent-infant bond and the developmental challenges facing the infant as the newborn period comes to an end.

Chapter 5: PHYSICAL DEVELOPMENT AND HEALTH IN INFANCY AND TODDLERHOOD

Chapter 5 introduces the framework for the book's chapters on physical development and health. The framework, developed by the Center on the Developing Child at Harvard University, underscores the vital relationship between health and development. The chapter goes on to examine physical, motor, and perceptual development in infancy and toddlerhood. It explains why these first years are so critical for health and development. It also discusses what happens when physical abilities are compromised, and stresses the importance of early intervention.

Chapter 6: COGNITIVE DEVELOPMENT IN INFANCY AND TODDLERHOOD

Chapter 6 focuses on the remarkable cognitive abilities of infants and toddlers. It begins by examining various theories of early cognitive development. It then reviews the ingenious research methods and technological advances that allow today's scientists to study cognitive development in infants and toddlers in ways that once could scarcely have been imagined. The chapter also discusses how language emerges and develops in the first years of life. It ends with a review of educational programs specifically designed for infants and toddlers.

Chapter 7: PSYCHOSOCIAL DEVELOPMENT IN INFANCY AND TODDLERHOOD

In describing psychosocial development in infants and toddlers, Chapter 7 starts by looking at how the major theories of psychosocial development view these early years. Next, the chapter discusses the lifelong importance of infants' attachment relationships with caregivers. It also explains how changes in the brain affect psychosocial development, and how emotional and social growth are interwoven. The chapter goes on to address the developing sense of self. It concludes by analyzing how caregivers, on the one hand, and the child's own temperament, on the other, play vital roles in early psychosocial development.

Chapter 8: PHYSICAL DEVELOPMENT AND HEALTH IN EARLY CHILDHOOD

Chapter 8 opens with a discussion of physical growth, brain development, and motor development during early childhood. It then describes various ways of promoting health in young children. Because young children's immune systems are immature, making them vulnerable to infection, immunization is one aspect of health promotion, along with nutrition and dental health. After discussing these issues, the chapter reviews the role of caregivers and community resources in keeping children healthy and safe. It concludes with coverage of asthma and ear infections—two of the most common health disruptions in young children.

Chapter 9: COGNITIVE DEVELOPMENT IN EARLY CHILDHOOD

Chapter 9 covers children's cognitive growth during the early childhood years. It begins with two contrasting views of how young children develop cognitively: those of Jean Piaget and Lev Vygotsky. It next discusses the central aspects of language development during this period and then examines developments in cognitive processes, especially those related to executive function, such as paying attention. These processes serve as a foundation for school readiness skills. Finally, the chapter looks at the role of preschool programs in influencing children's cognitive development and school readiness.

Chapter 10: PSYCHOSOCIAL DEVELOPMENT IN EARLY CHILDHOOD

Erik Erikson's view of the psychosocial tasks of early childhood opens Chapter 10. The chapter goes on to discuss two important aspects of emotional development—recognizing and regulating emotions. It also examines how young children gradually acquire a sense of self. Next, in describing children's relationships with peers, the chapter covers play, prosocial and antisocial behaviors, and theory of mind. It then explores how children begin to make moral judgments. Finally, it examines parenting practices and their importance during early childhood.

Chapter 11: PHYSICAL DEVELOPMENT AND HEALTH IN MIDDLE CHILDHOOD

Chapter 11 reviews the physical changes of middle childhood and discusses their implications for school readiness, physical fitness, and participation in sports. The chapter also notes various problems that can arise for many children during this period: poor nutrition, obesity, illness, and the unrelenting pressure to succeed, which can lead to emotional stress and physical injuries. The chapter goes on to discuss the role of school health services in improving and maintaining children's health. It ends with a review of the potential effects of disease and treatment on learning and behavior.

Chapter 12: COGNITIVE DEVELOPMENT IN MIDDLE CHILDHOOD

Chapter 12 opens its examination of how children develop cognitively in the middle-childhood years by revisiting the theories of Piaget and Vygotsky. Next, it turns to information processing theory, focusing on recent research into attention and memory. It continues by considering the meaning of intelligence, the role of IQ tests, and different perspectives on what it means to be intelligent. It ends by discussing language development, including the need for many children to learn a second language, and the school-related skills of literacy and mathematics acquired during middle childhood.

Chapter 13: PSYCHOSOCIAL DEVELOPMENT IN MIDDLE CHILDHOOD

The middle-childhood years are significant and exciting times in psychosocial development. To explain why, Chapter 13 first covers emotional development, discussing how children are increasingly aware of their emotions and increasingly able to regulate them as they move through this period. Children's greater understanding of their emotions is related to their understanding of themselves, and the chapter next describes growth in self-understanding during middle childhood. It goes on to explore the development of friendships and the social cognition necessary to understand the perspectives of others—an important skill in children's expanding social world. Finally, the chapter considers moral development and how children of this age think about and reason through moral dilemmas.

Chapter 14: PHYSICAL DEVELOPMENT AND HEALTH IN ADOLESCENCE

Chapter 14 examines various physical aspects of puberty and growth, including brain development in adolescence. It then covers several topics important in adolescent health, including nutrition and physical activity, sleep and stress, and such health behaviors as sexual activity and substance use. Motor vehicle safety, access to health care, and sports injuries are also important health issues in adolescence, and the chapter examines these areas before concluding with a discussion of managing a chronic illness—diabetes—during the teen years.

Chapter 15: COGNITIVE DEVELOPMENT IN ADOLESCENCE

A discussion of Piaget's theory opens Chapter 15, which covers cognitive development in adolescence. The chapter also examines in some detail the more recent perspectives provided by the information processing theorists, as well as the sociocultural perspective of Vygotsky. Next, the chapter examines changes in the adolescent brain that relate to cognitive development. Finally, because cognitive development during adolescence is closely related to educational experiences, it considers the role of schooling during the adolescent years.

Chapter 16: PSYCHOSOCIAL DEVELOPMENT IN ADOLESCENCE

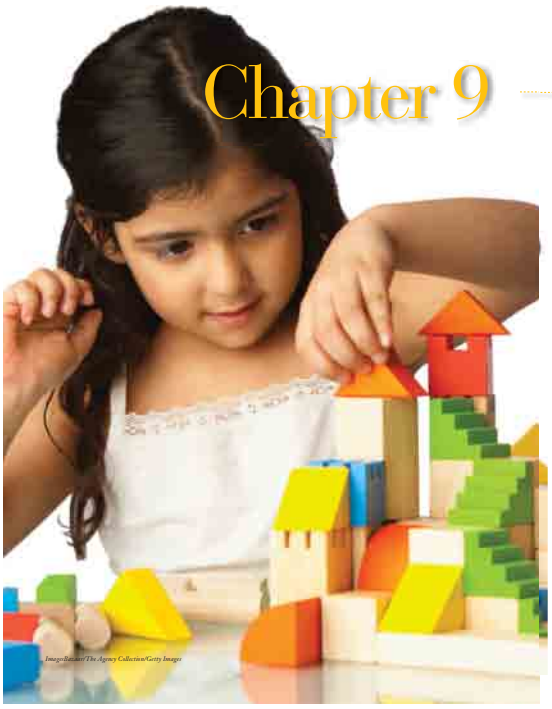
Chapter 16 considers the major psychosocial changes occurring during adolescence—a time of enormous psychosocial change. It begins with the central question of identity development. It then turns to ways in which adolescents relate to others who are important in their lives, including parents and peers. Adolescents often face situations that involve moral decisions, and the chapter next discusses this important aspect of adolescents' lives. The final section considers one of the most frequent risk factors of the adolescent period: the risk of developing mental health difficulties, including major depressive disorder and eating disorders. It also examines the role of resilience in protecting against risk factors.

Pedagogical Features

To achieve the objectives we have just described, and to help students engage in meaningful learning, we include the following pedagogical features in our book:

Chapter-Opening Vignettes

Chapter-opening vignettes, entitled Making a Difference, describe how a particular individual or organization has worked to improve the status of children in our society in a way that reflects the content of the chapter.



Chapter 9

Cognitive Development in Early Childhood

MAKING A difference

The Harlem Children's Zone

Geoffrey Canada became an activist for children because of his own experiences growing up in the South Bronx in New York. He knows firsthand the struggles of children and families living in poverty. His father left the family after his mother had given birth to four sons. His mother often had trouble finding work, and she sometimes lacked enough money to feed and clothe Geoffrey and his brothers. But he recalls that despite these struggles, his mother took the time to emphasize the importance of getting an education, encouraging her boys to read and taking them to museums. "My mother was famous for finding out when things were free" (Quoted in Tough, 2008, p. 101). His first-grade teacher introduced him to books that told stories through rhymes, and many years later, at a talk he gave at Syracuse University, Geoffrey emphasized that "poetry saved my life" (Stevens, 2004). As early as age 9, he decided he wanted to help children like himself who live in the inner city.

Now a public advocate, Geoffrey Canada has established the Harlem Children's Zone, a 60-block area that offers a range of educational, social, medical, and support programs to families, wrapping children in a safety net of supportive programs. Those programs include a preschool program, a family support center, classes for new parents, an after-school program, and a charter school. He reflects that his motivation "is all based on a personal understanding of what these kids go through and what the rest of the world doesn't see" (quoted in Tough, 2008, p. 123).

The Harlem Gems, the preschool program in the Harlem Children's Zone, has elements similar to other preschools in its strong support of children's psychosocial development, but it differs in substantial ways as well. It is a full-day program, has a low teacher–child ratio, and operates 11 months of the year. Although the activities are similar to those in any preschool, including imaginative play, music, and block-building, it differs in its emphasis on language. Because studies indicate that children from the lowest socioeconomic group enter school with little knowledge about letter names and letter-sound associations and a limited range of vocabulary, Canada worked with teachers to develop a preschool program that introduces language skills in all activities, essentially making the classroom a verbal "hothouse." In addition, the staff at the Harlem Children's Zone encourages parents to read to their preschool-aged children every night.

CHAPTER OUTLINE

[KEY QUESTIONS] *for* READING CHAPTER 9

1. What are the characteristics of children's thinking during the preoperational stage, according to Piaget?
2. In what ways do others assist children in learning, according to Vygotsky?
3. What are examples of executive function displayed in early childhood?
4. What changes occur in children's language development during early childhood?
5. What are some important skills that help prepare children for formal schooling?

✓CHECK YOUR PROGRESS

1. According to Piaget, what are three limitations to children's thinking in the preoperational stage?
2. Give an example of how children's egocentrism might affect their communication with other children or adults.
3. Suppose you hear a 3-year-old girl say "It's a rose, it's not a flower." In what way would her thinking be typical of children in the preoperational stage?

CHAPTER SUMMARY

Piaget's Theory and Preoperational Thought

[KEY QUESTION] 1. What are the characteristics of children's thinking during the preoperational stage, according to Piaget?

- Piaget emphasized that during early childhood, children are preoperational (that is, prelogical) and are not yet able to reason with logical mental operations. As a result, they tend to provide human qualities to inanimate objects (animism), have difficulty considering perspectiv
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Children improve in their executive functioning during early childhood, especially in their ability to focus and shift attention, to purposefully remember, to inhibit responses, and to show cognitive flexibility.

Language Development

[KEY QUESTION] 4. What changes occur in children's language development during early childhood?

- Children's vocabulary growth increases rapidly through a process called fast mapping.

CRITICAL THINKING QUESTIONS

1. **Piaget's Theory.** What do you consider to be the most important criticism of Piaget's theory and why?
2. **Vygotsky's Sociocultural Theory.** Do you think it is possible for classroom teachers to instruct all children in a classroom based on knowledge of each child's ZPD? Why or why not?
3. **Information Processing Theory.** What are some predictions you would make about the different behaviors you might see in children on a playground based on whether they had strong or weak response inhibition skills?
4. **Language Development.** Do you think that all children should learn to speak more than one language? Discuss your response, using research.
5. **School Readiness.** Why do you think that learning to say the alphabet is a necessary but not sufficient aspect of learning to read?
6. **Cultural Perspectives.** Vygotsky proposed that culture affects the tools children learn to become full participants in society. Consider how the tools necessary to learn in American society today might differ from those of a different cultural group, such as a nomadic society. How might the process of learning those tools be in some ways similar, and in other ways different in these different cultural groups?

Guided Learning

Chapter-opening ***Key Questions*** highlight the most important material for students to consider while reading each section. We return to these questions throughout the chapter as a guided review for readers in our ***Check Your Progress*** features, which help students assess their understanding of key topics and concepts. We also connect the questions to the main headings under ***Chapter Summary***, which provides an integrated review of the chapter. At the end of each chapter, we pose a set of ***Critical Thinking*** questions to challenge readers to think more deeply about topics discussed in the chapter.

Everyday Stories appear in each section of every chapter. These stories present interesting real-world examples of the concepts and topics being covered. **What if...?** questions ask students to think about how they would respond to various scenarios, and help them to deepen and apply their understanding of developmental concepts. Instructors also may find these questions useful in initiating class discussions.

DRAWING A STAR WITH SELF-TALK Isabella is working on drawing a star for a picture she is making of the night sky. Her friend has shown her a way of making a five-pointed star, and she is trying to remember and follow the directions the friend gave her. As she draws the star, she says out loud, "You start here. Then it goes down to here, then up to here, then over to here, then down, then up. And you're done!" Repeating these directions to herself out loud has helped her remember how to draw the star in the way her friend taught her. Eventually she will be able to make this kind of drawing without saying the directions out loud, but she still may say them to herself silently.

Everyday stories

what if...?

Suppose you are a day-care provider at a neighborhood center. You notice that Ben, who is usually upbeat, seems quite gloomy and distracted today, and then you see that he has a burn on his arm. When you ask him about the burn, he covers it up by pulling his shirt sleeve down, and then he runs away from you. You are concerned about him but don't want to make him uncomfortable in the classroom. What would you do?

Parenting, Policy, and Practice

Parenting, Policy, and *Practice* applications are integrated throughout each chapter. These highlight knowledge that will help students both as parents and in their chosen occupations, such as education, health care, child care, psychology, and social work, among others.

Implications of Piaget's Theory for Preschool Classrooms — Practice

Piaget's emphasis on children's construction of knowledge has many implications for educational settings. You can see from the following suggestions that this orientation often involves providing young children with opportunities to learn by engaging in activities.

1. Children learn best by being engaged in an activity, not by simply being told information or being asked to memorize information. For example, encourage children to discover what happens when they blend primary colors in their painting rather than telling them that "blue and yellow make green."

Helping Preschool Children Become Readers — Parenting

Even if parents are not strong readers themselves, they can promote preliteracy skills in their preschool children. Parents can integrate many of these tasks into their daily routines with their children. Epstein (2002) lists 12 ways in which parents can help young children become readers:

1. Have daily conversations with children. This can involve looking at family pictures together and discussing them, as well as playing word games like, "I'm thinking of something in the refrigerator that begins with the sound '*m*'.
2. Keep lots of printed and written materials in the home.

The Individuals with Disabilities Education Act (IDEA) — Policy

In 1975, federal legislation was enacted to ensure that the more than 6 million children with disabilities in the United States would receive the education they needed from birth to early adulthood. The law, now known as the Individuals with Disabilities Education Act (IDEA), has been revised several times since it was first enacted in 1975 as Public Law 94-142. The law currently has three major provisions, which apply to individuals from ages 3 to 21:

1. *Children with disabilities are entitled to receive a free and appropriate public education.* The interpretation of what "appropriate" means is usually made at the district and

WHEN SYSTEMS CONNECT

Developing a Theory of Mind

Communicating well with others requires children to understand that others may think differently than they do and have a different perception of a situation. This type of thinking requires a "theory of mind." **Theory of mind** is a term used to refer to children's understanding of the mental states (that is, the "minds") of themselves and of others (Tager-Flusberg, 1999). Theory of mind is an aspect of social cognition, because it in-

When Systems Connect discussions, integrated throughout the text, highlight coverage of developmental systems theory. Similarly, special headings identify **The Developing Brain** discussions, which explain how new findings in brain development add to our understanding of children's behavior.

THE DEVELOPING BRAIN

A Growth Spurt in Executive Function. Adele Diamond (2001) proposes that a growth spurt occurs in executive function from ages 3 to 6, making the early childhood period a critical time for changes in this area of functioning. As we mentioned in Chapter 8, studies in neuroscience indicate that much of this growth occurs in the prefrontal cortex, as stronger networks are created between this area of the brain and other regions of the cortex in which language, mathematical, and spatial skills are represented (see Figure 9.7).

Culture and Learning Numbers

Many studies have found that children in East Asian countries tend to outperform children in North America on assessments of mathematics skills (Göbel, Shaki, & Fischer, 2011; Organisation for Economic Co-operation and Development, 2006). Although there are many reasons for this difference, one involves the way that math ideas are represented by language. For example, in Chinese the term for a triangle is "sao jiao xing" which means "three corner shape." Although in English the word "triangle" describes the meaning of the shape, which has three angles, to a young child this is a complex term because the child needs to understand that "tri" means "three" and needs to know

Language	*Number 1*	*Number 10*	*Number 11*
Japanese	ichi	juu	juu-ichi
Korean	ii	ship	ship ii
Chinese	yi	shi	shi-yi

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Culture

Discussions of culture appear throughout the chapters. In addition, a *Culture and . . .* feature in each chapter highlights both cross-cultural and multicultural examples, such as *Culture and Medical Beliefs, Culture and Learning Numbers,* and *Culture and Showing Pride and Shame.*

Focus On: Barbara Rogoff

In referring to cultural processes I want to draw attention to the configurations of routine ways of doing things in any community's approach to living. I focus on people's participation in their communities' cultural practices and traditions, rather than equating culture with the nationality or ethnicity of individuals. (Rogoff, 2003, p. 3)

Barbara Rogoff contributes to our understanding of child development by recognizing the importance of everyday routines and showing us how children's participation in those activities is shaped by culture. Inspired by the work of Lev Vygtosky, she has studied how children are guided by older children and adults in the communities in which they live. For example, young girls in a Mayan community in Guatemala often learn various tas dren migh

Rose Cartwright

Rogoff's work draws on examples from many cultural groups and shows how we make assumptions about what is "normal" from experiences within our culture. For example, she describes how views of praising a child differ in different cultural groups. We may think that praising a child by saying "good job" or "good for you" is a normal part of good parenting. In some cultures, however, such praise is avoided because it is seen as making chil-

Focus On features spotlight important individuals in child development, such as Albert Bandura, Eric Kandel, and Barbara Rogoff. **Research Insights** features highlight a pertinent research study, such as a study examining the question *Do Violent Video Games Promote Aggression?* or the question *Can You Grow Your Intelligence?*

Research Insights: Do Children with Autism Lack a Theory of Mind?

As we noted in Chapter 7, autism spectrum disorders are developmental disorders marked by severe deficits in social interaction, communication, and imagination, as well as repetitive and restricted patterns of interests and behaviors (DSM-5, 2013; Volkmar, Lord, Baily, Schultz, & Klin, 2004). Children with autism fail to orient to social stimuli when they are young and have difficulties with social reciprocity and communication skills (Tager-Flusberg, 2010). Current estimates from the Centers for Disease Control and Prevention (2012) indicate that approximately 1 in 88 children in the United States have been diagnosed with the disorder. This is an estimated 350% increase in the last 10 years, and the difficulties with false-belief tasks (Peterson, Wellman, & Liu, 2005). Researchers conclude that children with autism most likely process these types of tasks in a different way than do typically developing children and that such differences also lead to the social aloofness seen in children with autism (Peterson et al., 2005).

One type of current neuropsychological research is focusing on specific neurons, called *mirror neurons* because they react when an individual observes an action as well as produces one. (You may recall that we discussed mirror neurons in Chapter 4.) Some studies have found that the mirror neurons in specific brain regions (e.g., the medial prefron-

Real Development

Wiley's *Real Development* provides the basis for an active learning project at the end of each chapter. The activities focus on developing and assessing higher-order thinking skills. Students will be asked to analyze, critically evaluate, synthesize, and reflect on the information presented.

REAL Development

Psychosocial Development in Early Childhood

In the accompanying Real Development activity, you are interested in learning more about the development of peer interactions. A developmental psychologist at your university, Dr. Jones, has researched extensively on different types of play. You will read about different types of play described below and then use these descriptions to help Dr. Jones identify different forms of play in Adeline's pre-school classroom.

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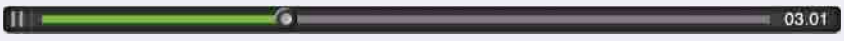
WileyPLUS Go to WileyPLUS to complete the *Real Development* activity.

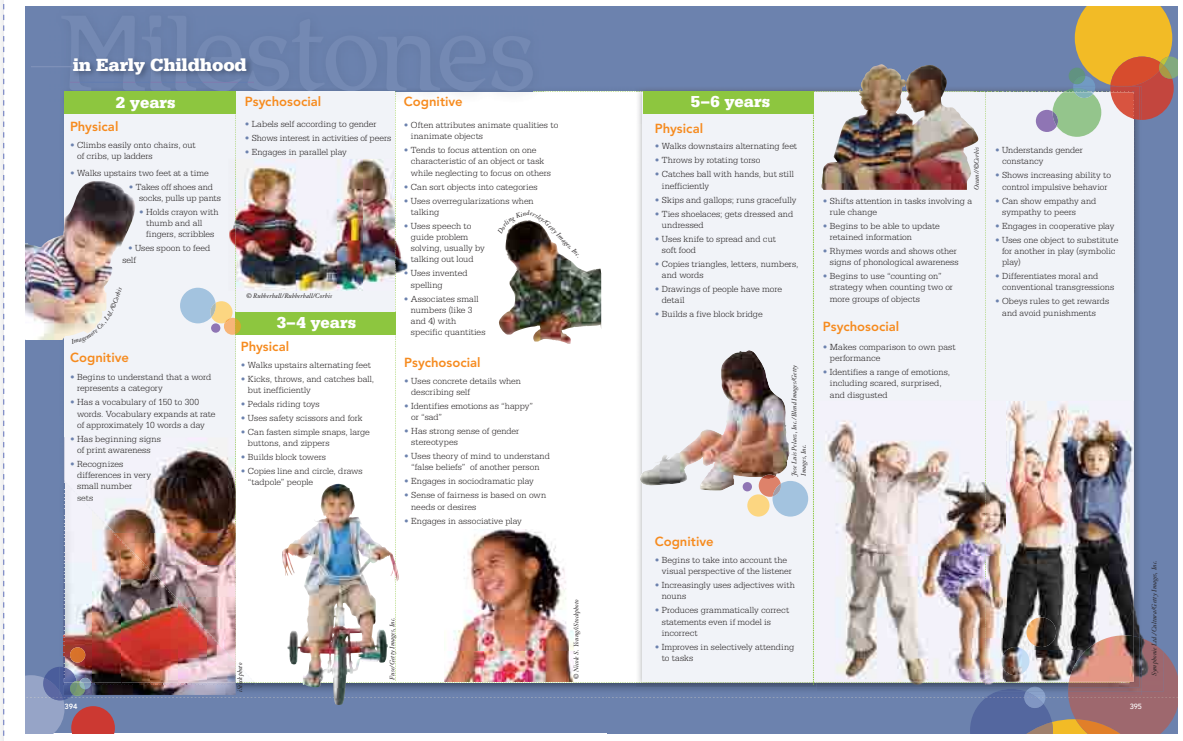


What Happens in the Brain

What Happens in the Brain is a key teaching feature that helps bring neuroscience directly into the lives of readers. Visual and accessible two-page layouts appear throughout the book illustrating what happens in children's brains in which they are performing everyday activities, such as reading or walking. These layouts provide students with up-to-date, understandable information about the neural mechanisms at work in the child's developing brain.

Milestones

Milestones at the ends of Parts Three, Four, Five, and Six summarize important accomplishments in the physical, cognitive, and psychosocial domains for each period of development.



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Wiley's Real Development

REAL Development

Child development does not happen in isolation. It happens in larger familial, interpersonal and cultural contexts. Capturing these powerful dynamics in a child development course was a challenge—until now.

Wiley's *Real Development* is an innovative multimedia product that uses authentic video capturing moments from four real families, allowing students to view the pivotal stages of child development within larger interpersonal and cultural contexts. In each *Real Development* activity, created by Nicole C. DiDonato of Montclair State University and Christine J. Hatchard of Monmouth University, students analyze and evaluate concepts—demonstrated in a variety of naturalistic and professional settings—through assessment activities grounded in real-world applications. Through this active engagement with visual media, pictures and artifacts, students will gain a deeper understanding of developmental theories and concepts.

Real Development also includes a filterable topic-based library with dozens of selections by Shawn Guiling of Southeast Missouri State University. It includes observational footage and interviews with children and professionals to help further illustrate key concepts central to the understanding of child development in today's world. The result is an authentic media experience that prompts students to apply and interact with the course material in ways that will be meaningful in their personal and professional lives.

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- **Web Resources.** Annotated web links put useful electronic resources for psychology into the context of your Developmental Psychology course.

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- Every chapter contains a **Lecture PowerPoint presentation,** prepared by Lee Ann Jolley of Tennessee Tech University and Janette Kopp of Mississippi Gulf Coast Community College, with a combination of key concepts, figures and tables, and examples from the textbook.
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- The **Test Bank,** prepared by Betsye Robinette of Indiana Wesleyan University, is available in a word document format or through Respondus or Diploma. The questions are available to instructors to create and print multiple versions of the same test by scrambling the order of all questions found in the Word version of the test bank. This allows users to customize exams by altering or adding new problems. The test bank has over 100 multiple choice, true-false, text-entry, and essay questions per chapter. Each question has been linked to a specific, student learning outcome, and the correct answer provided with section references to its source in the text.

Gradebook: ***WileyPLUS*** provides instant access to reports on trends in class performance, student use of course materials, and progress toward learning objectives, helping inform decisions and drive classroom discussions.

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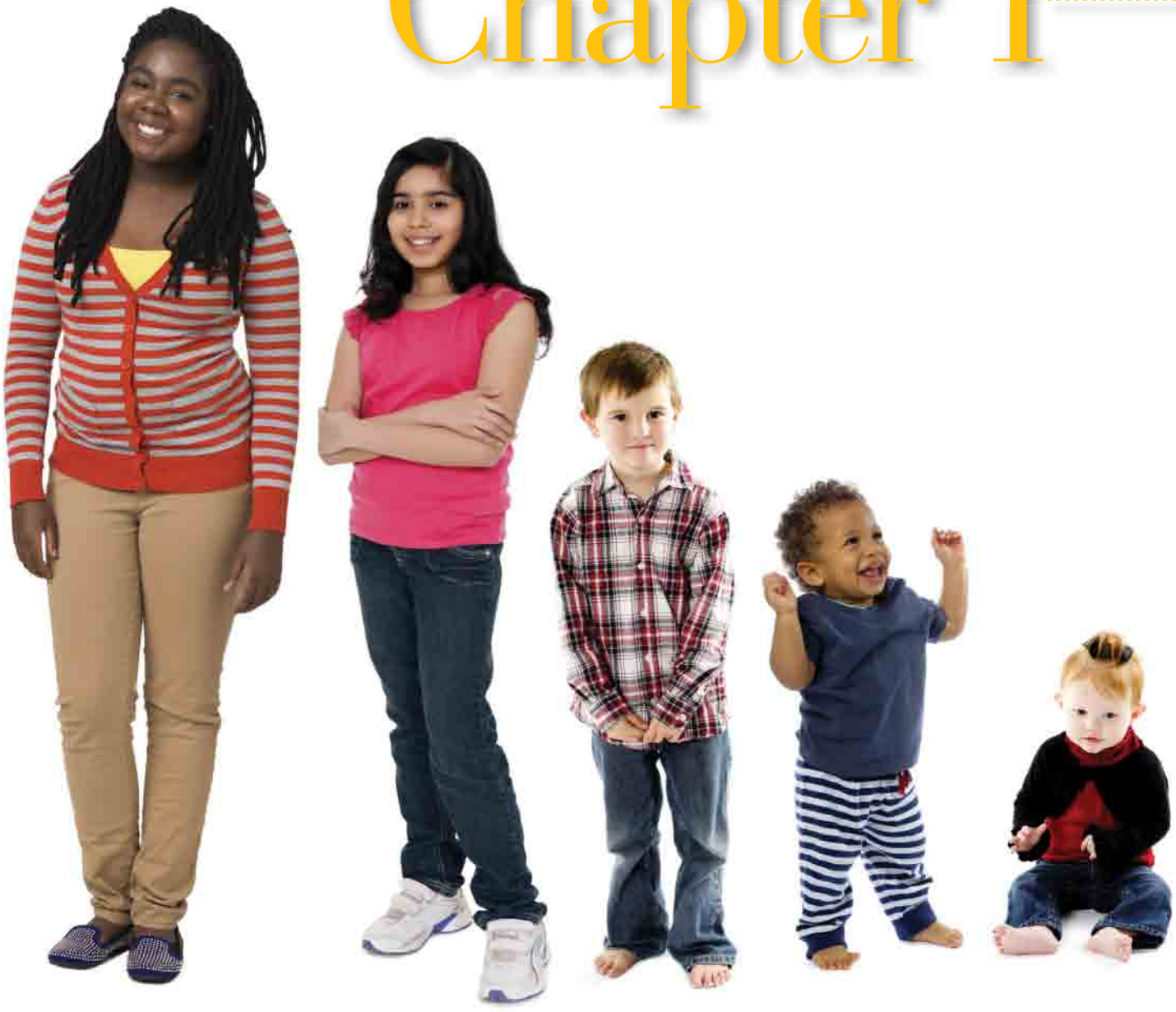
The Development of Children and Adolescents

Chapter 1



A Child's Journey

MAKING A difference

All Children Have Birthdays

Two young sisters, Makayla and Joy, are celebrating their birthdays in grand style. The girls join their friends in getting their faces painted with fanciful designs, collecting treats from a birthday piñata, playing games for prizes, and feasting on cupcakes and candy. What's different about Makayla and Joy's birthday party is that it's taking place in a homeless shelter.

Most children look forward to celebrating their birthdays. For many children, a birthday is a time to have a party where friends and family pay lots of attention to them and give them gifts—a day to feel really special. But children living in homeless shelters, like Makayla and Joy, seldom have the chance for such an experience. Their parents or guardians generally do not have the funds for a party, and most shelters do not have a big enough budget or staff to sponsor parties for children. A birthday for these children is just another day.

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CHAPTER OUTLINE

To three women volunteering in homeless shelters in Massachusetts, this situation looked like a problem that needed solving. In 2002, these three volunteers—Lisa Vasiloff, Karen Yahara, and Carol Zwanger—formed Birthday Wishes, Inc., to hold birthday parties for children living in shelters. Today, the organization serves more than 165 shelters and other, similar living facilities in Massachusetts, Rhode Island, and New York. (You can find out more about this organization at www.birthdaywishes.org.)

Volunteers working with Birthday Wishes plan each party based on the child's choice of a theme. They supply materials for craft projects and other activities like games and musical entertainment, along with goodie bags for all the children, a cake that fits the party theme, and a special gift. In planning, the volunteers pay attention to the family's cultural traditions concerning birthday celebrations, as described by the child's parents. Knowledge of child development also helps, because parties for 2-year-olds must be different from parties for 10-year-olds.

Sometimes all it takes is a simple observation—like the lack of birthday parties—to find an important way to make a difference for children. Throughout this book, we will be introducing different ways in which students, parents, teachers, health-care professionals, and others have made a difference in the lives of children. You may find that you, too, can make a difference.

[KEY QUESTIONS] *for* READING CHAPTER 1

1. What are some of the key issues in understanding development?
2. How has modern society affected child development and its study?
3. How would you describe the major theories of child development?
4. What specific research methods do psychologists use to learn about children's development?

IN THIS CHAPTER, you will embark on learning about an exciting field, one that is relevant to the everyday lives of most people: child development. Many of us study child development because we want to improve the lives of children, like the volunteers in our chapter-opening feature. As you will see, however, there are many different ideas about how children develop and what helps them develop optimally. We begin this chapter by examining what development is, how it differs from change, and what kinds of issues the study of development involves. Then, to introduce some significant influences on a child's life, we present a brief glimpse of a child's development at home and in the community. We also discuss the relationship between children and technology. Next, we describe the major theories currently influencing the study of children's development. From there we turn to the research methods psychologists use to study development. We conclude with a summary of guidelines for ethical practices in conducting research with children.

Children and Their Development

[KEY QUESTION] 1. What are some of the key issues in understanding development?

How thoughts about children and childhood have changed over time! More than a hundred years ago, William James, a famous American psychologist, described the newborn's world as "one great blooming, buzzing confusion" (1890, p. 488). James, in other words, felt that infants come into the world helpless and unable to make any sense at all of what is going on around them. Contrast that view with those of the noted pediatrician T. Berry Brazelton (1973), who designed a way to assess the capabilities of newborn infants (Brazelton & Nugent, 1995). According to Brazelton, the newborn—far from simply reacting to a "blooming, buzzing confusion"—behaves in a way that is complex and competent. Most psychologists today, informed by genetic research, neuroscientific evidence, and sophisticated environmental studies, agree with Brazelton.

Still, there is no doubt that the competent newborns Brazelton writes about develop rapidly into ever more competent toddlers, then children, then adolescents as they journey through childhood and into adulthood. How this occurs leads us to the definition of development that will guide our work.

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Young infants are fascinated by patterns and movement. Psychologists today know that newborns are capable of far more than people once believed.

What Is Development?

If we are going to consider how children develop, we need to start by defining what development is. To do that, we need to think about the relationship between development and change. Ask yourself these two questions: Does development mean change? Does change mean development? The answer to the first question is yes, and the answer to the second is no.

That said, the answers to these questions aren't as contradictory as they may first seem. In answering yes to the first question, we agree with most psychologists who study child development that development is about change (Overton, 2006). Such psychologists are concerned with changes in size, behavior, thinking, and personality during any age period. Thus, development, in a general sense, refers to change (Lerner, 2010; Rutter & Rutter, 1993).

In no way, however, does this mean that development and change are the same thing. Many changes in children have nothing to do with development. A young girl may be grumpy, complaining that her cereal is not sweet. Her father adds fruit to the cereal, and the child is now happy. The change in the child's mood has little to do with development. Clearly, development involves a very specific kind of change.

For change to be developmental, it must be *systematic*, it must be *organized*, and it must have a *successive* character (Lerner, 2002; Lerner, 2010; Overton, 2006; Rutter & Rutter, 1993; Travers & Travers, 2008). For example, most very young children walk with assistance, usually by holding the hands of a brother, sister, or parent, before they can walk on their own. By the time these children enter school just a few years later, they are not only walking but also running, hopping, and skipping with ease. Changes like this are developmental because they are *systematic*; that is, they occur in an orderly and predictable way. Walking with assistance occurs before walking independently, and walking independently occurs before skipping. Such changes are *organized* in that many systems work together in a specific way to support a child's first attempts at walking, including brain organization and muscle strength, which you will read about in Chapter 5. Finally, changes are *successive* in that those occurring at a later time have been influenced by those that occurred at an earlier time, as the ability to skip is influenced by the ability to walk and hop.

The Study of Development

Development, then, is change that is systematic, organized, and successive in character. As we discuss children's development throughout this book, we will often cite the work of developmental psychologists. **Developmental psychology** is a field concerned with describing and understanding how people grow and change systematically over their lifetimes. In studying development, psychologists focus on *what* developmental changes are, *how* they occur, *how* they are maintained, and *how* the course of development varies among individuals (Rutter & Rutter, 1993). Next, we look at a few of the basic issues that arise in the study of development.

Development Change that is systematic, organized, and successive in character.

Developmental psychology The field of psychology concerned with describing and understanding how people grow and change over their lifetimes.

Physical domain An area of development that involves patterns of change in children's biology and health, including sensory abilities and motor skills.

WHEN SYSTEMS CONNECT

Developmental Domains

Developmental psychologists typically divide their analyses into three general domains: physical, cognitive, and psychosocial. The **physical domain** relates to patterns of change in children's biology and health, including sensory abilities and motor skills.

Cognitive domain An area of development that involves patterns of change in children's intellectual abilities, including reasoning, learning, attention, memory, and language skills.

Psychosocial domain An area of development that involves patterns of change in children's personalities as well as their social and emotional skills, including relationships with others and the ability to regulate their own emotions.

Table 1.1 Examples of Elements of Developmental Domains

Physical	Cognitive	Psychosocial
Genetics	Language acquisition	Attachment
Brain development	Information processing	Temperament
Pregnancy and birth	Problem solving	Emotions
Physical growth	Memory	Self-regulation
Health	Perception	Relationships with peers

The **cognitive domain** involves patterns of change in children's intellectual abilities, including reasoning, learning, attention, memory, and language skills. The **psychosocial domain** relates to patterns of change in children's personalities, as well as their social and emotional skills, including relationships with others and their ability to regulate their own emotions.

Table 1.1 lists selected elements from each domain. Of course, simply listing these elements tells us little about development. We must consider how the various elements interact. For example, genetic damage (in the physical domain) may negatively affect various ways of reasoning (in the cognitive domain), and immature reasoning may lead to poor relationships with peers (in the psychosocial domain) (Chang et al., 2010; Travers & Travers, 2008). The interactions among these domains, though generally complex and multidirectional, illustrate that aspects of children's development seldom occur in isolation but instead are part of a developmental system (Lerner, Easterbrooks, & Mistry, 2013). As you will see, we pay a great deal of attention to such system connections throughout this book.

Developmental Epochs: Is Age the Answer?

We can also use a framework based on age to organize information about development. The childhood and adolescent years are typically divided into the age periods, often called epochs, listed in Table 1.2: the prenatal period, infancy and toddlerhood, early childhood, middle childhood, and adolescence. These periods make up the organizational frame of this book.

Age is useful as a general standard to assess a child's developmental status; but age by itself says little about the specific *causes* of a child's behavior (Rutter, 2006). As you continue to read this book, remember these important points:

- *Age by itself tells us about expected biological maturation*, but actual maturation varies from one individual to the next. For example, two children of the same age may differ widely in their skills.
- *Different aspects of development proceed at different rates*. For example, intellectual and physical development may follow quite divergent developmental paths, and a child may be more advanced in one area than in another.
- *Age alone reveals little about the underlying mechanisms of development*. For example, knowing a child is 9 years old and a skilled reader does not tell us how that child developed that skill.

Issues in Development

As developmental psychologists observe children's development, they speculate about the forces that produce it and conduct experiments in search of explanations. In this process, they are guided by certain questions. Two of these questions—or issues—have remained important over the history of developmental psychology:

1. What is the relationship between nature and nurture?
2. Does development proceed in a continuous or discontinuous manner?

There are good reasons why these issues have guided, puzzled, and frustrated psychologists as long as they have.

Table 1.2 Developmental Epochs

Period	Characteristics
Prenatal	During the prenatal period—the nine months from conception until birth—the developing organism grows from a single cell to a fetus ready to be born.  *Nestle/Petit Format/ Science Source*
Infancy and toddlerhood (0–2 years)	From birth to about 2 years is the period of most rapid growth. Remarkable physical and cognitive changes occur—for example, walking and talking—and the nature of a child's personality becomes apparent.  *Hilary Helton/Photolibrary/ Getty Images*
Early childhood (2–6 years)	During the years from 2 to about 6, children's bodies continue to change, language develops at a staggering rate, children's thinking edges into the symbolic world, and their personalities begin to shape the nature of their developing relationships.  *JGI/Jamie Grill/Blend Images/ Getty Images, Inc.*
Middle childhood (6–12 years)	The years from 6 to 12 comprise a period of exciting change. Children's talents in all phases of development begin to flourish. Their bodies become more coordinated, they become more involved in the symbolic world especially after they begin school, and their relationships expand briskly as their environment continues to broaden.  *PhotoAlto/Sigrid Olsson/Getty Images*
Adolescence (12–18 or 19 years)	The years from 12 to 18 or 19 are a period of rapid growth, when children begin to leave the comfortable surroundings of childhood and prepare to enter the world of adults. Bodies change; sexual maturity beckons; and society's expectations for children mount as they prepare mentally, physically, and emotionally for adulthood.  *Lisa Petkau/First Light/Getty Images, Inc.*

Nature The biological factors, including genes, that contribute to development.

Nurture The environmental factors and experiences that contribute to development.

Continuity The idea that development is a slow and steady process.

Discontinuity The view that development is characterized by abrupt changes in behavior; often associated with stage theories of development.

Stage theories Theories proposing that development proceeds in a discontinuous manner; each stage is qualitatively different from the ones that precede and follow it.

Nature and Nurture. In learning about child development, you will see that a complex relationship exists between **nature**, which includes biological factors, such as the genes we inherit from our parents, and **nurture**, which includes environmental factors and experience. For a long time, there were arguments about whether nature or nurture is more important in children's development. We can trace the roots of the nature-nurture debate in Western philosophy and in more modern science (Dobbs, 2007; Meaney, 2010; Price, 2009; Sameroff, 2010). The prevailing view has changed from period to period. During the middle of the 20th century, for example, behaviorists strongly argued that environment is dominant. The prominent behaviorist B. F. Skinner (1953, 1983) believed that it is the *consequences of behavior* that shape learning and development. (You will read more about the behaviorists later in this chapter.)

Today, most psychologists reject any separation of nature and nurture to explain development. They prefer to focus on the interaction between these two critical forces (Diamond, 2009; Lenroot & Giedd, 2011; Lerner, 2010). Nevertheless, some psychologists still give relatively more emphasis to either nature or nurture. For example, Elizabeth Spelke (de Hevia & Spelke, 2010; Spelke, Gilmore, & McCarthy, 2011; Spelke & Kinzler, 2007) has argued that babies are born with a certain amount of innate knowledge, called *core knowledge*, a view that emphasizes the role of nature. In contrast, Betty Hart and Todd Risley (1995) believe that young children's vocabulary growth relates to the ways in which parents interact with them, a view that focuses more on the role of nurture.

what if...?

Your cousin and your uncle are watching your sister, Elena, practice playing basketball. Your uncle says, "See how great Elena's aim is? That shows she has inherited my genes for good eye-hand coordination, which will make her a successful basketball player!" Your cousin points out that Elena spends hours every weekend practicing basketball and watching others play it and that is why she is so good at it. You listen to their conversation and claim, "You're both right." What might you say to them to explain how they both could be right?

Continuity and Discontinuity. The issue of continuity versus discontinuity concerns *how* developmental changes occur. **Continuity** in development means that developmental change occurs smoothly, gradually, and predictably over time. A basic question about continuity is: Are you the same person now as you were in infancy or early childhood? Those who hold that development is continuous would say that you are. Maybe you were a shy toddler and you are still shy today. In contrast, **discontinuity** means that development is marked by periods of relative quiet and periods of rapid change. The idea that development is discontinuous is often associated with **stage theories,** such as that of Piaget, which we discuss later in this chapter. Stage theories are based on the idea that development proceeds through a series of distinct stages over time, with each stage qualitatively different from the last.

Everyday stories

CONTINUITY VERSUS DISCONTINUITY An illustration of the difference between continuity and discontinuity can be seen in Figure 1.1. An often-used example of continuous development is the growth of an evergreen tree, which offers few surprises or major transformations. It begins as a small shoot and gradually adds branches. Although it becomes taller and more branches develop, its overall configuration does not dramatically change. The mature tree very closely resembles the immature one. In contrast, consider the change in configuration that occurs when a tadpole turns into a frog. The adult frog bears little resemblance to the tadpole. The transformation from tadpole to frog is an example of discontinuous development.

Continuous Development–A sapling grows bigger and adds branches.

Discontinuous Development–An adult frog seems like an entirely different animal from a tadpole.

FIGURE 1.1 An Example of Continuity and Discontinuity Continuity in development means that change occurs smoothly, gradually, and predictably over time, as when a sapling grows to a mature tree. In contrast, discontinuity means that development is marked by periods of relative quiet and periods of rapid change, as when a tadpole turns into a frog.

It is not always easy to distinguish continuity and discontinuity in children's development, however. What may appear to be discontinuous—such as an infant's apparently sudden ability to roll over—actually occurs because of a series of small gains in motor skill acquisition (Dacey, Travers, & Fiore, 2009; Lerner, 2002). Nevertheless, the theories of development that we discuss later in this chapter differ somewhat in the extent to which they focus on development as a continuous or discontinuous process.

✓CHECK YOUR PROGRESS

1. Explain the differences between development and change.
2. Describe several reasons why knowing a child's age is not sufficient to understand that child's development.
3. What is the nature-nurture debate?
4. Explain the difference between continuity and discontinuity in development.

A Child's Journey in the 21st Century

[KEY QUESTION] 2. How has modern society affected child development and its study?

The journey that children commence in the 21st century is a complicated one. Changes in family structure, society, and technology affect development in many ways (Bass, & Warehime, 2011; Thompson, 2012; Wooldridge & Shapka, 2012). The Research Insights feature gives an example of one way children have changed over the years. At the same time, new ideas, experimental methods, and knowledge from the neurosciences have altered the way developmental psychologists study and describe development. To understand how children develop in the midst of change, we must pay particular attention to the contexts in which children live and learn. We will do so throughout this book. At this point, we look briefly at three important contexts of development in the 21st century: home, culture, and technology.