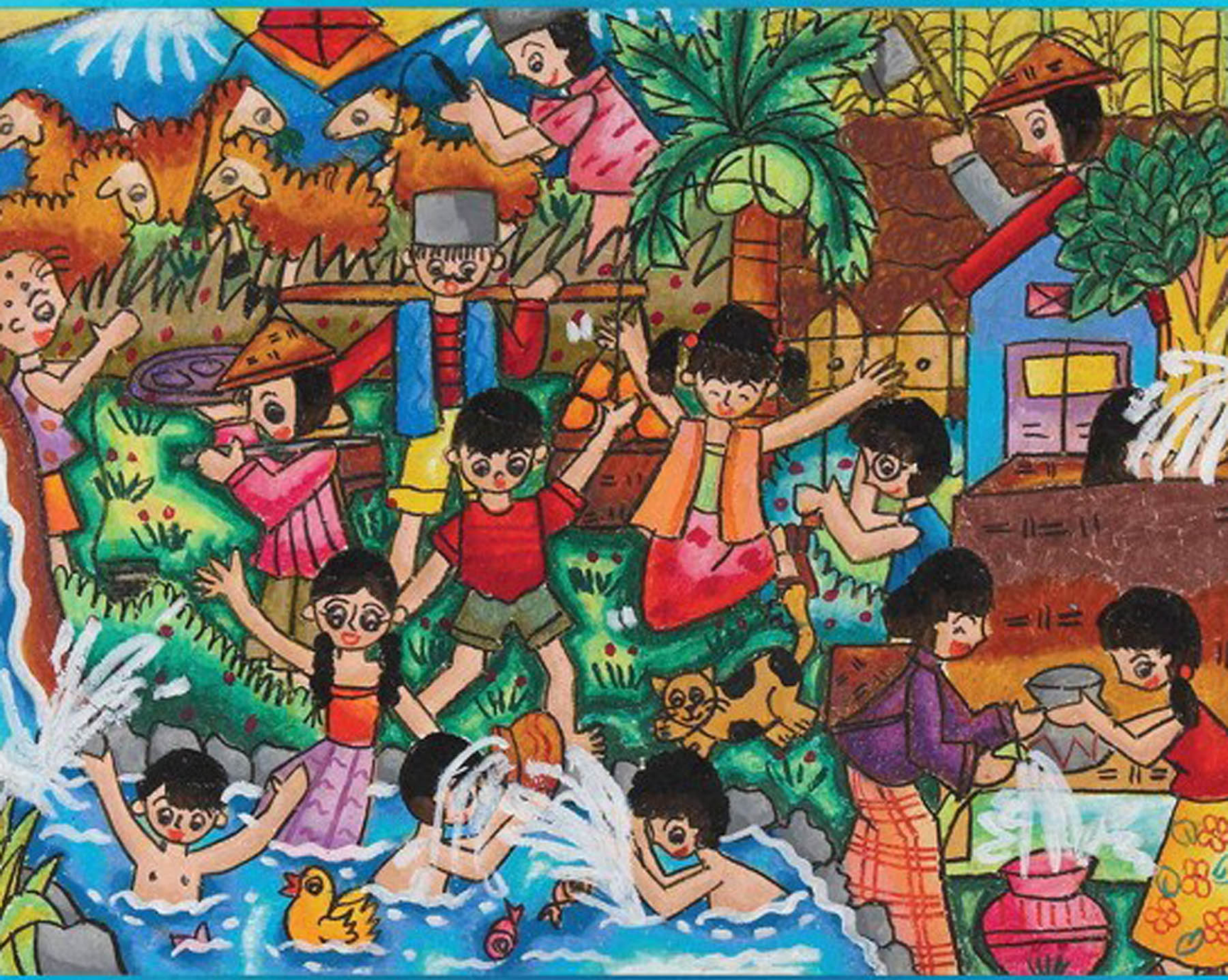
Infants and Children

Prenatal Through Middle Childhood

EIGHTH EDITION



Laura E. Berk | Adena B. Meyers

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Prenatal Through Middle Childhood

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Laura E. Berk

Illinois State University

Adena B. Meyers

Illinois State University

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In loving memory of my parents, Sofie and Philip Eisenberg L. E. B.
For my grandmothers, Rose Honig and Edith Polin, with love and gratitude A. B. M.

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About the Authors

© BARBARA ADELMAN, ÉLAN STUDIOS

Laura E. Berk is a distinguished professor of psychology at Illinois State University, where she has taught child, adolescent, and lifespan development for more than three decades. She received her bachelor's degree in psychology from the University of California, Berkeley, and her master's and doctoral degrees in child development and educational psychology from the University of Chicago.

Berk has been a visiting scholar at Cornell University, UCLA, Stanford University, and the University of South Australia. She has published widely on effects of school environments on children's development, the development of children's private speech, and the role of make-believe play in development. She has been featured on National Public Radio's *Morning Edition* and in *Parents Magazine, Wondertime,* and *Readers' Digest,* and has contributed to *Psychology Today* and *Scientific American.*

In addition to *Infants, Children, and Adolescents,* Berk's best-selling texts include *Child Development, Development Through the Lifespan,* and *Exploring Lifespan Development,* published by Pearson. Her other books include *Private Speech: From Social Interaction to Self-Regulation; Scaffolding Children's Learning: Vygotsky and Early Childhood Education; Awakening Children's Minds: How Parents and Teachers Can Make a Difference;* and *A Mandate for Playful Learning in Preschool: Presenting the Evidence.*

Berk is active in work for children's causes. She recently completed nine years of service on the national board of Jumpstart for Young Children and currently serves on the governing board of the Illinois Network of Child Care Resource and Referral Agencies. She is a fellow of the American Psychological Association, Division 7: Developmental Psychology.

Adena B. Meyers is a professor of psychology and member of the school psychology faculty at Illinois State University. She received her bachelor's degree in women's studies from Brown University and her doctoral degree in clinical-community psychology from the University of Illinois at Urbana-Champaign, and is a licensed clinical psychologist.

Meyers's areas of specialization include contextual influences on child and adolescent development, with an emphasis on family-, school-, and community-based interventions that promote children's social and emotional functioning. She has served as a consultant to the Collaborative for Academic, Social, and Emotional Learning (CASEL), and as a supervisor of mental health consultants working in Head Start preschool settings. She also supervises clinicians providing mental health services to elementary and secondary school students.

Meyers's publications have focused on school-based consultation; adolescent pregnancy, parenthood, and sexual development; school-based preventive interventions; and the role of pretend play in child development. Her clinical interests include therapeutic interventions related to stress and trauma, and mindfulness-based stress reduction. She has taught a wide variety of courses, including introductory psychology, child and adolescent development, human sexuality, introduction to women's studies, and statistics for the social sciences.

Berk and Meyers are faculty colleagues in the Department of Psychology at Illinois State University. They have collaborated on numerous projects, most recently coauthoring the chapter on make-believe play and self-regulation for the *Sage Handbook of Play and Learning in Early Childhood.*

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A Personal Note to Students

Our many years of teaching child development have brought us in contact with thousands of students like you—students with diverse college majors, future goals, interests, and needs. Some are affiliated with our own field of psychology, but many come from other related fields—education, sociology, anthropology, biology, family studies, social service, and health sciences, to name just a few. Each semester, our students' aspirations have proved to be as varied as their fields of study. Many look toward careers in applied work—teaching, caregiving, nursing, counseling, social work, school psychology, and program administration. Some want to teach, and a few want to do research. Most hope someday to become parents, whereas others are already parents who come with a desire to better understand and rear their children. And almost all arrive with a deep curiosity about how they themselves developed from tiny infants into the complex human beings they are today.

Our goal in preparing this eighth edition of *Infants and Children* is to provide a textbook that meets the instructional goals of your course as well as your personal interests and needs. To achieve these objectives, we have grounded this book in a carefully selected body of classic and current theory and research brought to life with stories and vignettes about children and families, most of whom we have known personally. In addition, the text highlights the joint contributions of biology and environment to the developing child, explains how the research process helps solve real-world problems, illustrates commonalities and differences among ethnic groups and cultures, and pays special attention to policy issues that are crucial for safeguarding children's well-being in today's world. Woven throughout the text is a unique pedagogical program that will assist you in mastering information, integrating the various aspects of development, critically examining controversial issues, applying what you have learned, and relating the information to real life.

We hope that learning about child development will be as rewarding for you as we have found it over the years. We would like to know what you think about both the field of child development and this book. We welcome your comments; please contact us through our textbook website: *www.infantschildrenandadolescents.com*.

Laura E. Berk and Adena B. Meyers

Preface for Instructors

A Message from Laura Berk

It is my pleasure to introduce **Adena B. Meyers,** new coauthor of *Infants and, Children,* Eighth Edition. How excited I was when she readily responded "yes!" to my invitation to join in preparing this edition. Adena and I live and work in the same community: We have been departmental colleagues for many years and have written together on numerous occasions. Our coauthorship of the eighth edition is a natural extension of our previous joint endeavors.

Adena brings to the text outstanding scholarship, areas of specialization that complement my own, a similar writing style, a shared commitment to research-based applications, and wide-ranging direct experiences with children and families. In addition to her talents as a teacher, researcher, and clinician, she is an exemplary parent of two remarkable teenagers.

Adena's gracious partnership throughout the journey of preparing this revision realizes my fondest hopes when I first set my pen to page to craft *Infants and Children:* that future editions will be numerous, and that instructor and student enthusiasm for the text will continue to be a deep source of author pride and satisfaction for many years to come.

Laura E. Berk

The Eighth Edition

In preparing this eighth edition of *Infants and Children,* we drew inspiration from the hundreds of students of child development with whom we have worked in our combined half-century of college teaching. As in previous editions, we aimed for a text that is intellectually stimulating, provides depth as well as breadth of coverage, portrays the complexities of child development with clarity and excitement, and is relevant and useful in building a bridge from theory and research to children's everyday lives.

The more than two decades since *Infants and Children* first appeared have been a period of unprecedented expansion and change in theory and research. This eighth edition represents these rapidly transforming aspects of the field, with a wealth of new content and enhanced teaching tools:

- ***Diverse pathways of change are highlighted.*** Investigators have reached broad consensus that variations in biological makeup, everyday tasks, and the people who support children in mastery of those tasks lead to wide individual differences in children's paths of change and resulting competencies. This edition pays more attention to variability in development and to recent theories—including ecological, sociocultural, dynamic systems, and epigenesis—that attempt to explain it. Multicultural and cross-cultural findings, including international comparisons, are enhanced throughout the text and in revised and expanded Cultural Influences boxes.

- ***The complex, bidirectional relationship between biology and environment is given greater attention.*** Accumulating evidence on development of the brain, motor skills, cognitive and language competencies, temperament and personality, emotional and social understanding, and developmental problems underscores the way biological factors emerge in, are modified by, and share power with experience. The interconnection between biology and environment is revisited throughout the text narrative and in Biology and Environment boxes with new and updated topics.

- ***Inclusion of interdisciplinary research is expanded.*** The move toward viewing thoughts, feelings, and behavior as an integrated whole, affected by a wide array of influences in biology, social context, and culture, has motivated developmental researchers to strengthen their ties with other areas of psychology and with other disciplines. Topics and findings included in this edition increasingly reflect the contributions of educational psychology, social psychology, health psychology, clinical psychology, neurobiology, pediatrics, sociology, anthropology, social service, and other fields.

- ***The links among theory, research, and applications—a theme of this book since its inception—are strengthened.*** As researchers intensify their efforts to generate findings that can be applied to real-life situations, we have placed even greater weight on social policy issues and sound theory- and evidence-based interventions and practices. Further applications are provided in the Applying What We Know tables, which give students concrete ways of building bridges between their learning and the real world.

- ***The educational context of development becomes a stronger focus.*** The home, school, and community are featured as vital educational contexts in which the child develops. Research on effective teaching practices appears in all chapters and in new and revised Social Issues: Education boxes.

- ***The role of active student learning is made more explicit.*** The *Take a Moment*…feature, built into the chapter narrative, asks students to think deeply and critically as they read. Ask Yourself questions at the end of each major section have been revised to promote four approaches to engaging actively with the subject matter: *Review, Connect, Apply,* and *Reflect.* This feature assists students in thinking about what they have read from multiple vantage points. The *Look and Listen* feature presents students with opportunities to observe what real children say and do and attend to influences on children in their everyday environments.

Text Philosophy

The basic approach of this book has been shaped by our professional and personal histories as teachers, researchers, and parents. It consists of seven philosophical ingredients that we regard as essential for students to emerge from a course with a thorough understanding of child development:

1. An understanding of major theories and the strengths and shortcomings of each. The first chapter begins by emphasizing that only knowledge of multiple theories can do justice to the richness

of child development. As we take up each age period and domain of development, we present a variety of theoretical perspectives, indicate how each highlights previously overlooked facets of development, and discuss research that evaluates it. Consideration of contrasting theories also serves as the context for an evenhanded analysis of many controversial issues.

2. An appreciation of research strategies for investigating child development. To evaluate theories, students must have a firm grounding in research methods and designs. In addition to a special section in Chapter 1 covering research strategies, numerous studies are discussed in sufficient detail throughout the book for students to use what they have learned to critically assess the findings, conclusions, and implications of research.

3. Knowledge of both the sequence of child development and the processes that underlie it. Students are provided with a description of the organized sequence of development along with processes of change. An understanding of *process*—how complex interactions of biological and environmental events produce development—has been the focus of most recent research. Accordingly, the text reflects this emphasis. But new information about the timetable of change is constantly emerging. In many ways, children are considerably more competent than they were believed to be in the past. Current evidence on the sequence and timing of development, along with its implications for process, is presented throughout the book.

4. An appreciation of the impact of context and culture on child development. A wealth of research indicates that children live in rich physical and social contexts that affect all domains of development. In each chapter, students travel to distant parts of the world as we review a growing body of cross-cultural evidence. The text narrative also discusses many findings on socioeconomically and ethnically diverse children within the United States and on children with varying abilities and challenges. Besides highlighting the role of immediate settings, such as family, neighborhood, and school, we make a concerted effort to underscore the impact of larger social structures—societal values, laws, and government programs—on children's well-being.

5. An understanding of the joint contributions of biology and environment to development. The field recognizes more powerfully than ever before the joint roles of hereditary/constitutional and environmental factors—that these contributions to development combine in complex ways and cannot be separated in a simple manner. Numerous examples of how biological dispositions can be maintained as well as transformed by social contexts are presented throughout the book.

6. A sense of the interdependency of all domains of development—physical, cognitive, emotional, and social. Every chapter takes an integrated approach to understanding children. We show how physical, cognitive, emotional, and social development are interwoven. Within the text narrative and in a special series of Ask Yourself *Connect* questions at the end of major sections, students are referred to other sections of the book to deepen their grasp of relationships among various aspects of change.

7. An appreciation of the interrelatedness of theory, research, and applications. Throughout this book, we emphasize that theories of child development and the research stimulated by them provide the foundation for sound, effective practices with children. The links among theory, research, and applications are reinforced by an organizational format in which theory and research are presented first, followed by practical implications. In addition, a current focus in the field—harnessing child development knowledge to shape social policies that support children's needs—is reflected in every chapter. The text addresses the current condition of children in the United States and around the world and shows how theory and research have combined with public interest to spark successful interventions.

Text Organization

The chronological organization of this text assists students in thoroughly understanding each age period. It also eases the task of integrating the various domains of development because each is discussed in close proximity. At the same time, a chronologically organized book requires that theories covering several age periods be presented piecemeal. This creates a challenge for students, who must link the various parts together. To assist with this task, we frequently remind students of important earlier achievements before discussing new developments, referring back to related sections with page references. Also, chapters devoted to the same topic (for example, cognitive development) are similarly organized, making it easier for students to draw connections across age periods and construct an overall view of developmental change.

New Coverage in the Eighth Edition

Child development is a fascinating and ever-changing field, with constantly emerging new discoveries and refinements in existing knowledge. The eighth edition represents this burgeoning contemporary literature with more than 1,500 new citations. Cutting-edge topics throughout the text underscore the book's major themes. Here is a sampling:

CHAPTER 1 New chapter introduction, inviting readers to become acquainted with the coauthors • Revised and updated section on developmental neuroscience, with special attention to developmental social neuroscience • New Social Issues: Health box on how family chaos undermines children's well-being • Revised and updated Cultural Influences box on immigrant youths • Updated examples of research designs, including the benefits of massive longitudinal projects yielding multipurpose data banks • Inclusion of children's assent as part of informed consent guidelines for protection of human subjects

CHAPTER 2 Updated discussion of gene–gene interactions, including the distinction between protein-coding genes and regulator genes • Consideration of social and cultural influences on the

male-to-female birth sex ratio • New evidence on older paternal age and increased risk of DNA mutations contributing to serious disorders, including autism and schizophrenia • Enhanced attention to the impact of poverty on development, with special attention to interventions that help children surmount developmental risks • Revised and updated Social Issues: Education box on the impact of worldwide education of girls • Updated research on neighborhood influences on children's physical and mental health • Expanded attention to the role of ethnic minority extended families in promoting resilience in the face of prejudice and economic deprivation • Current statistics on the condition of children and families in the United States compared with other Western nations • Enhanced discussion of gene–environment interaction • Expanded section on epigenesis, including the role of methylation

CHAPTER 3 Revised and updated section on motivations for parenthood • Enhanced attention to fetal brain development, sensory capacities, and behavior • Updated Biology and Environment box on the prenatal environment and health in later life • Expanded and updated consideration of a wide range of teratogens • New evidence on the long-term consequences of emotional stress during pregnancy • Updated Social Issues: Health box on the Nurse–Family Partnership—reducing maternal stress and enhancing child development through social support

CHAPTER 4 New statistics and research on benefits and risks of medical interventions during childbirth • Consideration of the role of chronic maternal stress in preterm and low birth weight • New findings on the risks of late preterm birth—as little as 1 or 2 weeks early • New research on parenting and development of preterm and low-birth-weight infants • Expanded and updated Social Issues: Health box on health care and other policies for parents and newborn babies • Updated findings on hormonal changes in both mothers and fathers around the time of birth, and in foster and adoptive mothers, that facilitate caregiving • New evidence on factors contributing to sudden infant death syndrome (SIDS), along with the importance of public education efforts • New research on the role of sleep in infant learning • Updated discussion of "proximal care"—extensive holding of young babies—in reducing infant crying • Enhanced discussion of techniques for reducing infant stress to painful medical procedures • New findings on prenatal influences on newborn taste perception

CHAPTER 5 Updated introduction to major measures of brain functioning, including the EEG geodesic sensor net (GSN) and near-infrared spectroscopy (NIRS) • Enhanced discussion of brain development, with special attention to the prefrontal cortex • Updated Biology and Environment box on early brain plasticity • New research on children adopted from Romanian orphanages, bearing on whether infancy is a sensitive period of development • Enhanced attention to cultural influences on infant sleep • New findings on long-term consequences of malnutrition in infancy and toddlerhood • New Social Issues: Health box on U.S. public policy changes that improve infant feeding practices in low-income families • Updated discussion of the controversy surrounding newborns' capacity to imitate • New dynamic systems research on development of walking, reaching, and grasping • Updated findings on implications of infants' capacity to analyze the speech stream for later language progress • Enhanced discussion of the impact of crawling and walking experience on perception of depth-at-an-edge • New evidence on the perceptual narrowing effect in speech, music, and species-related face perception, and in gender- and race-related face perception

CHAPTER 6 Updated evidence on toddlers' grasp of pictures and videos as symbols, including experiences that enhance symbolic understanding • New research on infants' ability to discriminate and perform simple arithmetic operations on large sets of items • Revised section introducing information-processing concepts, including working memory, automatic processes, processing speed, and executive function • Updated Biology and Environment box on infantile amnesia, addressing contributions of neurological change, language, and adult–child conversations about past events to stable long-term memories • New research on cultural variations in scaffolding infant and toddler learning • New evidence on the importance of sustained, high-quality child care from infancy through the preschool years for cognitive, language, literacy, and math performance at kindergarten entry • Updated evaluation findings on Early Head Start • New Biology and Environment box on the capacity of deaf children to invent language when exposed to limited or grammatically inconsistent input • Updated findings on babies' participation in imitative exchanges and joint attention, revealing their developing capacity for effective communication • New research on toddlers' preverbal gestures, with implications for spoken language development • Enhanced attention to SES differences in early vocabulary development as a predictor of vocabulary size at kindergarten entry • New evidence highlighting the vital role of a responsive adult in early language development

CHAPTER 7 Enhanced discussion of cultural variations in infant emotional expressiveness, with special emphasis on the social smile • New research on consequences of effortful control for cognitive, emotional, and social development • Revised section on genetic and environmental influences on temperament, with updated section on ethnic and gender differences • New section on temperamental differences in toddlers' susceptibility to rearing experiences, highlighting research on the short 5-HTTLPR gene • Revised and updated section on consequences of early availability of a consistent caregiver for attachment security, with special attention to children adopted from Eastern European orphanages • New findings on the joint contributions of infant genotype, temperament, and parenting to disorganized/disoriented attachment, with evidence on the short 5-HTTLPR and DRD4-7 repeat genes • Revised and updated Social Issues: Health box on child care, attachment, and later development • Updated research on cultural variations in early self-development

CHAPTER 8 Updated consideration of early childhood brain development, with emphasis on the prefrontal cortex and executive function • New statistics and research on the health status of young

children, including tooth decay and childhood immunizations • Updated Biology and Environment box on low-level lead exposure and children's development • Enhanced discussion of the contribution of sleep to early childhood physical growth and cognitive development • Expanded attention to the impact of adult mealtime practices on children's eating behavior and weight status • New evidence on parenting practices and young children's unintentional injuries • Expanded attention to cultural variations in development of drawing, including a new Cultural Influences box on why children from Asian cultures are advanced in drawing progress and creativity

CHAPTER 9 New research on young children's natural and supernatural beliefs, including cultural variations • Updated evidence on early childhood categorization, highlighting cultural differences • New findings on cultural variations in effective scaffolding • New Social Issues: Education box on children's questions as a catalyst for cognitive development • Expanded discussion of gains in executive function in early childhood, including attention, inhibition, and planning • New evidence on neurobiological changes in the cerebral cortex accompanying young children's more effective problem solving • New findings on cognitive attainments and social experiences that contribute to mastery of false belief, with attention to cultural differences • Updated Biology and Environment box on autism and theory of mind • Enhanced discussion of SES differences in emergent literacy and math knowledge • New evidence on benefits of universal prekindergarten programs • Revised section on strengthening preschool intervention, including findings on Head Start REDI • Updated discussion of effects of educational television and computer activities on academic learning • New research on preschoolers' strategies for word learning, including cultural variations

CHAPTER 10 New research on the influence of parents' elaborative reminiscing on preschoolers' self-concept and emotional understanding • Updated Cultural Influences box on cultural variations in personal storytelling and its implications for early self-concept • New evidence addressing contributions of sociodramatic and rough-and-tumble play to young children's emotional and social development • Enhanced discussion of cultural variations in sociodramatic play • Expanded and updated section on contributions of early childhood peer relations to school readiness and academic performance • New research on corporal punishment and children's adjustment, with special attention to children at high genetic risk for behavior problems • Updated Cultural Influences box on ethnic differences in the consequences of physical punishment • Expanded discussion of parent training programs in intervening with aggressive children, with special attention to Incredible Years • Updated evidence on hormonal influences on gender typing • New Social Issues: Education box on mother–child conversations as a source of children's gender stereotypes • Updated section on styles of child rearing, including Baumrind's distinction between confrontive and coercive control

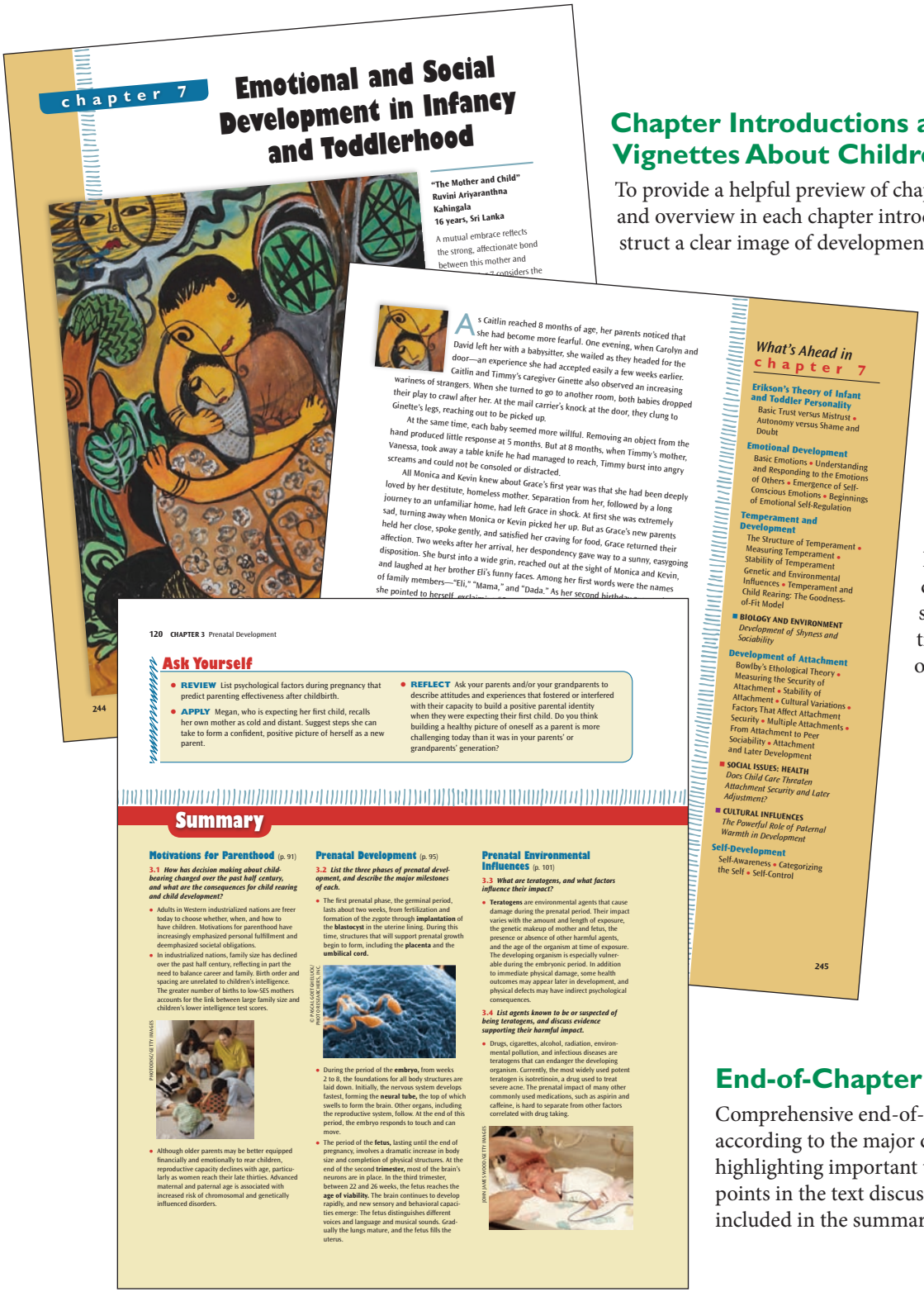
CHAPTER 11 Updated findings on brain development in middle childhood • New evidence on factors contributing to obesity, including parents' demanding work schedules, frequent eating out, and children's capacity for self-regulation • New Social Issues: Health box on family stressors and childhood obesity • Enhanced consideration of the effectiveness of school-based obesity prevention programs • New findings on unintentional injury in middle childhood, with special attention to parental supervision and to school and community safety education programs as preventive strategies • Expanded attention to informal, child-organized games in middle childhood, including SES and cultural variations • Updated statistics on U.S. schoolchildren's physical activity levels and access to physical education and recess

CHAPTER 12 Updated research on school-age children's spatial reasoning, focusing on cognitive maps of large-scale spaces • New sections on executive function and working memory in middle childhood, with implications for academic learning • Updated Biology and Environment box on children with attention-deficit hyperactivity disorder • New findings on the contribution of societal modernization to children's performance on diverse cognitive tasks • Updated evidence on the school-age child's theory of mind, with special attention to recursive thought • New Cultural Influences box on the Flynn effect, dramatic gains in IQ from one generation to the next • New research on contributions of language skills to test bias, with special attention to African-American English • Updated findings on reducing cultural bias in testing through countering the negative impact of stereotype threat • Implications of recursive thought for language development, including understanding irony and sarcasm • Expanded discussion of the diverse cognitive benefits of bilingualism • Enhanced consideration of the benefits of cooperative learning in classrooms • Revised and updated section on educational media, with special attention to the influence of video game play on diverse aspects of cognitive development • Updated section on U.S. academic achievement in international perspective

CHAPTER 13 New evidence addressing effects of person praise and process praise on children's mastery orientation • Expanded coverage of cognitive and cultural influences on achievement-related attributions • Updated section on peer acceptance and rejection • Revised and updated Biology and Environment box on bullies and their victims, with special attention to cyberbullying • Recent changes in children's stereotyped beliefs about achievement • Updated evidence on children's development in gay and lesbian families • Expanded coverage of effects of fathers' employment on child development • Updated discussion of children's fears, including school refusal • Revised and updated Cultural Influences box on the impact of ethnic and political violence on children • Updated evidence on child sexual abuse, including global prevalence estimates and long-term developmental consequences • Enhanced discussion of resilience, introducing the concept of developmental cascade • New research on social and emotional learning interventions, with special emphasis on the 4Rs program

Pedagogical Features

Maintaining a highly accessible writing style—one that is lucid and engaging without being simplistic—continues to be one of our major goals. We frequently converse with students, encouraging them to relate what they read to their own lives. In doing so, we aim to make the study of child development involving and pleasurable.


chapter 7

Emotional and Social Development in Infancy and Toddlerhood

"The Mother and Child"
Ruvini Ariyaranthna Kahingala
16 years, Sri Lanka

A mutual embrace reflects the strong, affectionate bond between this mother and

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As Caitlin reached 8 months of age, her parents noticed that she had become more fearful. One evening, when Carolyn and David left her with a babysitter, she wailed as they headed for the door—an experience she had accepted easily a few weeks earlier. Caitlin and Timmy's caregiver Ginette also observed an increasing wariness of strangers. When she turned to go to another room, both babies dropped their play to crawl after her. At the mail carrier's knock at the door, they clung to Ginette's legs, reaching out to be picked up.

At the same time, each baby seemed more willful. Removing an object from the hand produced little response at 5 months. But at 8 months, when Timmy's mother, Vanessa, took away a table knife he had managed to reach, Timmy burst into angry screams and could not be consoled or distracted.

All Monica and Kevin knew about Grace's first year was that she had been deeply loved by her destitute, homeless mother. Separation from her, followed by a long journey to an unfamiliar home, had left Grace in shock. At first she was extremely sad, turning away when Monica or Kevin picked her up. But as Grace's new parents held her close, spoke gently, and satisfied her craving for food, Grace returned their affection. Two weeks after her arrival, her despondency gave way to a sunny, easygoing disposition. She burst into a wide grin, reached out at the sight of Monica and Kevin, and laughed at her brother Eli's funny faces. Among her first words were the names of family members—"Eli," "Mama," and "Dada." As her second birthday

What's Ahead in chapter 7

Erikson's Theory of Infant and Toddler Personality
Basic Trust versus Mistrust • Autonomy versus Shame and Doubt

Emotional Development
Basic Emotions • Understanding and Responding to the Emotions of Others • Emergence of Self-Conscious Emotions • Beginnings of Emotional Self-Regulation

Temperament and Development
The Structure of Temperament • Measuring Temperament • Stability of Temperament • Genetic and Environmental Influences • Temperament and Child Rearing: The Goodness-of-Fit Model

BIOLOGY AND ENVIRONMENT
Development of Shyness and Sociability

Development of Attachment
Bowlby's Ethological Theory • Measuring the Security of Attachment • Stability of Attachment • Cultural Variations • Factors That Affect Attachment Security • Multiple Attachments • From Attachment to Peer Sociability • Attachment and Later Development

SOCIAL ISSUES: HEALTH
Does Child Care Threaten Attachment Security and Later Adjustment?

CULTURAL INFLUENCES
The Powerful Role of Paternal Warmth in Development

Self-Development
Self-Awareness • Categorizing the Self • Self-Control

245

120 CHAPTER 3 Prenatal Development

Ask Yourself

- **REVIEW** List psychological factors during pregnancy that predict parenting effectiveness after childbirth.
- **APPLY** Megan, who is expecting her first child, recalls her own mother as cold and distant. Suggest steps she can take to form a confident, positive picture of herself as a new parent.
- **REFLECT** Ask your parents and/or your grandparents to describe attitudes and experiences that fostered or interfered with their capacity to build a positive parental identity when they were expecting their first child. Do you think building a healthy picture of oneself as a parent is more challenging today than it was in your parents' or grandparents' generation?

Summary

Motivations for Parenthood (p. 91)

3.1 How has decision making about childbearing changed over the past half century, and what are the consequences for child rearing and child development?

- Adults in Western industrialized nations are freer today to choose whether, when, and how to have children. Motivations for parenthood have increasingly emphasized personal fulfillment and deemphasized societal obligations.
- In industrialized nations, family size has declined over the past half century, reflecting in part the need to balance career and family. Birth order and spacing are unrelated to children's intelligence. The greater number of births to low-SES mothers accounts for the link between large family size and children's lower intelligence test scores.

PHOTODISC/GETTY IMAGES

- Although older parents may be better equipped financially and emotionally to rear children, reproductive capacity declines with age, particularly as women reach their late thirties. Advanced maternal and paternal age is associated with increased risk of chromosomal and genetically influenced disorders.

Prenatal Development (p. 95)

3.2 List the three phases of prenatal development, and describe the major milestones of each.

- The first prenatal phase, the germinal period, lasts about two weeks, from fertilization and formation of the zygote through **implantation** of the **blastocyst** in the uterine lining. During this time, structures that will support prenatal growth begin to form, including the **placenta** and the **umbilical cord.**

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- During the period of the **embryo,** from weeks 2 to 8, the foundations for all body structures are laid down. Initially, the nervous system develops fastest, forming the **neural tube,** the top of which swells to form the brain. Other organs, including the reproductive system, follow. At the end of this period, the embryo responds to touch and can move.
- The period of the **fetus,** lasting until the end of pregnancy, involves a dramatic increase in body size and completion of physical structures. At the end of the second **trimester,** most of the brain's neurons are in place. In the third trimester, between 22 and 26 weeks, the fetus reaches the **age of viability.** The brain continues to develop rapidly, and new sensory and behavioral capacities emerge: The fetus distinguishes different voices and language and musical sounds. Gradually the lungs mature, and the fetus fills the uterus.

Prenatal Environmental Influences (p. 101)

3.3 What are teratogens, and what factors influence their impact?

- **Teratogens** are environmental agents that cause damage during the prenatal period. Their impact varies with the amount and length of exposure, the genetic makeup of mother and fetus, the presence or absence of other harmful agents, and the age of the organism at time of exposure. The developing organism is especially vulnerable during the embryonic period. In addition to immediate physical damage, some health outcomes may appear later in development, and physical defects may have indirect psychological consequences.

3.4 List agents known to be or suspected of being teratogens, and discuss evidence supporting their harmful impact.

- Drugs, cigarettes, alcohol, radiation, environmental pollution, and infectious diseases are teratogens that can endanger the developing organism. Currently, the most widely used potent teratogen is isotretinoin, a drug used to treat severe acne. The prenatal impact of many other commonly used medications, such as aspirin and caffeine, is hard to separate from other factors correlated with drug taking.

JOHN JAMES WOOD/GETTY IMAGES

Chapter Introductions and Vignettes About Children

To provide a helpful preview of chapter content, we include an outline and overview in each chapter introduction. To help students construct a clear image of development and to enliven the text narrative, each chronological age division is unified by case examples woven throughout that set of chapters. For example, within the infancy and toddlerhood section, we look in on three children, observe dramatic changes and striking individual differences, and address the impact of family background, child-rearing practices, parents' and children's life experiences, and child-care quality on development. Besides a set of main characters, many additional vignettes offer vivid examples of development among children.

End-of-Chapter Summaries

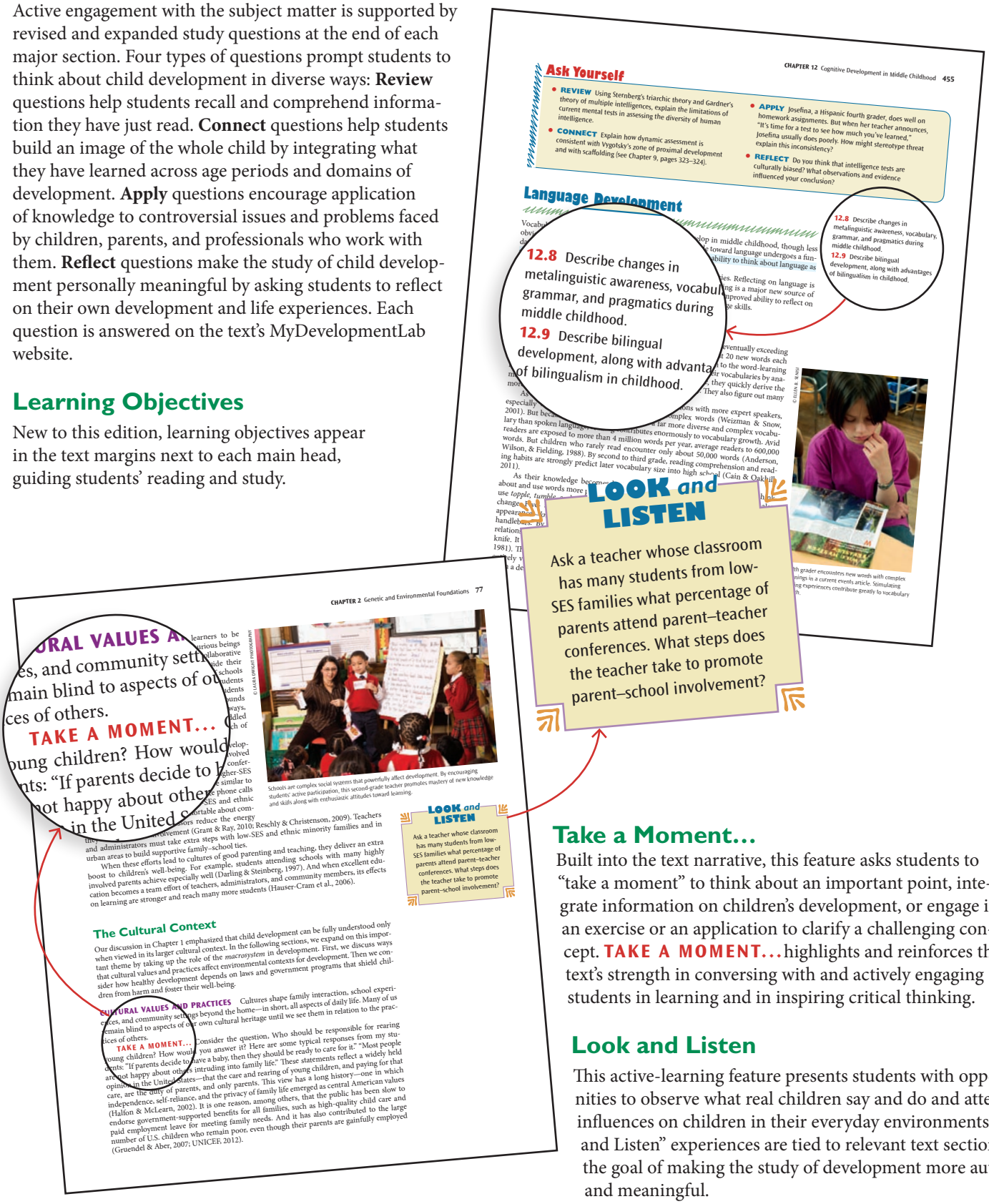
Comprehensive end-of-chapter summaries, organized according to the major divisions of each chapter and highlighting important terms, remind students of key points in the text discussion. Learning objectives are included in the summary to encourage focused review.

Ask Yourself Questions

Active engagement with the subject matter is supported by revised and expanded study questions at the end of each major section. Four types of questions prompt students to think about child development in diverse ways: **Review** questions help students recall and comprehend information they have just read. **Connect** questions help students build an image of the whole child by integrating what they have learned across age periods and domains of development. **Apply** questions encourage application of knowledge to controversial issues and problems faced by children, parents, and professionals who work with them. **Reflect** questions make the study of child development personally meaningful by asking students to reflect on their own development and life experiences. Each question is answered on the text's MyDevelopmentLab website.

Learning Objectives

New to this edition, learning objectives appear in the text margins next to each main head, guiding students' reading and study.



Take a Moment...

Built into the text narrative, this feature asks students to "take a moment" to think about an important point, integrate information on children's development, or engage in an exercise or an application to clarify a challenging concept. **TAKE A MOMENT...** highlights and reinforces the text's strength in conversing with and actively engaging students in learning and in inspiring critical thinking.

Look and Listen

This active-learning feature presents students with opportunities to observe what real children say and do and attend to influences on children in their everyday environments. "Look and Listen" experiences are tied to relevant text sections, with the goal of making the study of development more authentic and meaningful.

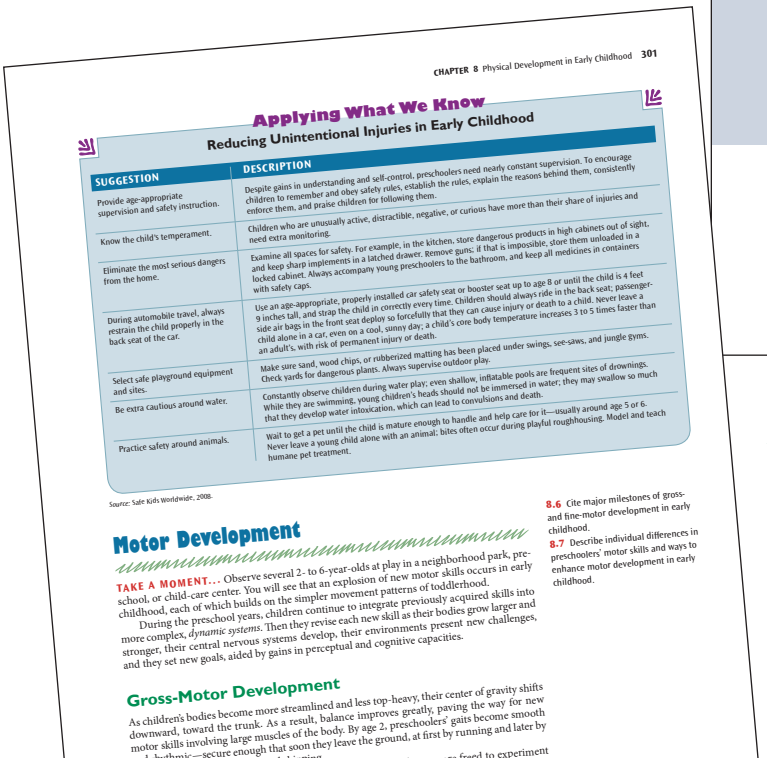
Three Types of Thematic Boxes

Thematic boxes accentuate the philosophical themes of this book:

Social Issues boxes discuss the impact of social conditions on children and emphasize the need for sensitive social policies to ensure their well-being. They are divided into two types: **Social Issues: Education** boxes focus on home, school, and community influences on children's learning—for example, *Children Learn About Gender Through Mother–Child Conversations; School Recess—A Time to Play, a Time to Learn;* and *Media Multitasking Disrupts Attention and Learning.* **Social Issues: Health** boxes address values and practices relevant to children's physical and mental health. Examples include *Family Chaos Undermines Children's Well-Being, U.S. Public Policy Changes Improve Infant Feeding Practices in Low-Income Families,* and *Family Stressors and Childhood Obesity.*

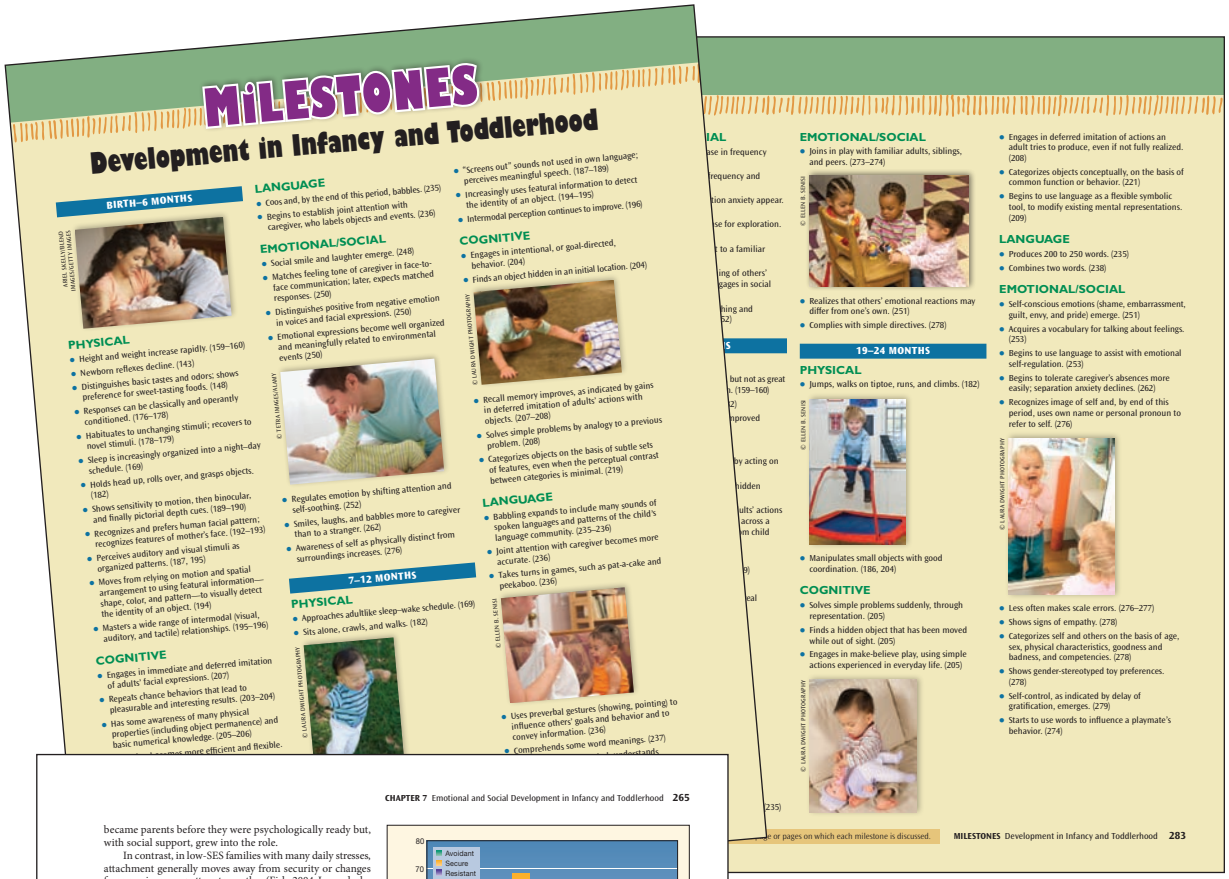
Biology and Environment boxes highlight growing attention to the complex, bidirectional relationship between biology and environment. Examples include *The Prenatal Environment and Health in Later Life, Deaf Children Invent Language,* and *Autism and Theory of Mind.*

Cultural Influences boxes deepen the attention to culture threaded throughout the text. They highlight both cross-cultural and multicultural variations in child development—for example, *Immigrant Youths: Adapting to a New Land; Why Are Children from Asian Cultures Advanced in Drawing Skills?;* and *The Flynn Effect: Massive Generational Gains in IQ.*



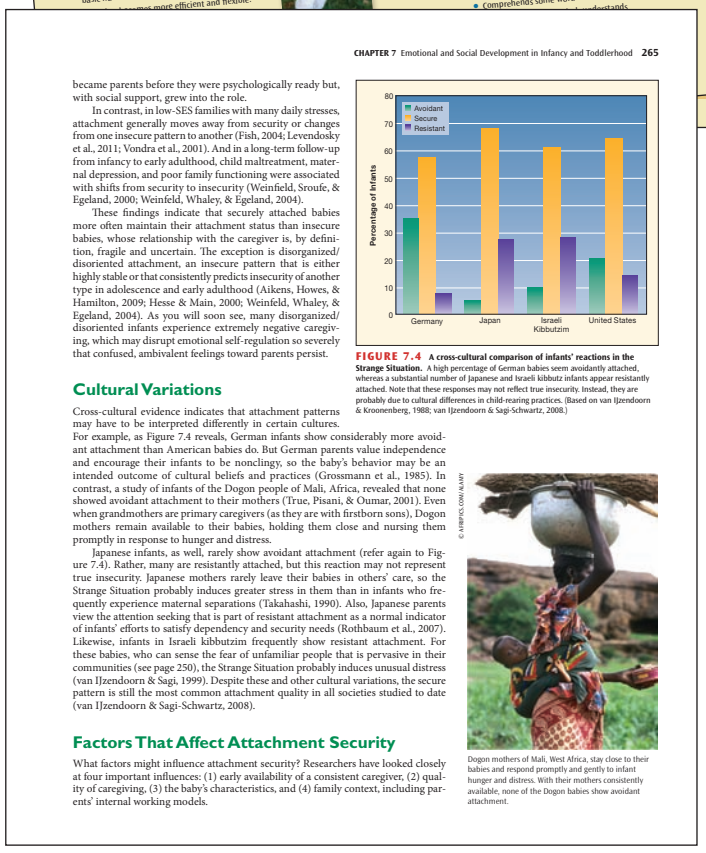
Applying What We Know Tables

In this feature, we summarize research-based applications on many issues, speaking directly to students as parents or future parents and to those pursuing different careers or areas of study, such as teaching, health care, counseling, or social work. The tables include *Supporting Early Language Learning, Helping Children Manage Common Fears of Early Childhood,* and *Regulating Screen Media Use.*


MILESTONES
Development in Infancy and Toddlerhood
BIRTH–6 MONTHS
PHYSICAL
LANGUAGE
EMOTIONAL/SOCIAL
COGNITIVE
7–12 MONTHS
PHYSICAL
LANGUAGE
COGNITIVE
EMOTIONAL/SOCIAL
19–24 MONTHS
PHYSICAL
LANGUAGE
EMOTIONAL/SOCIAL
COGNITIVE
MILESTONES Development in Infancy and Toddlerhood 283

Milestones Tables

A Milestones table appears at the end of each age division of the text. The tables summarize major physical, cognitive, language, emotional, and social attainments, providing a convenient aid for reviewing the chronology of child development.


CHAPTER 7 Emotional and Social Development in Infancy and Toddlerhood 265
Cultural Variations
Factors That Affect Attachment Security
FIGURE 7.4 A cross-cultural comparison of infants' reactions in the Strange Situation.

Enhanced Art and Photo Program

The art and page-layout style present concepts and research findings with clarity and attractiveness, thereby aiding student understanding and retention. Each photo has been carefully selected to complement the text discussion and to represent the diversity of children around the world.

CHAPTER 6 Cognitive Development in Infancy and Toddlerhood 243
Language Development (p. 231)
Important Terms and Concepts

In-Text Key Terms with Definitions, End-of-Chapter Term List, and End-of-Book Glossary

Mastery of terms that make up the central vocabulary of the field is promoted through in-text highlighting of key terms and definitions, which encourages students to review the terminology of the field in greater depth by rereading related information. Key terms also appear in an end-of-chapter page-referenced term list and an end-of-book glossary.

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The dedicated contributions of a great many individuals helped make this book a reality and contributed to refinements and improvements in this eighth edition.

Reviewers

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Deborah Winters, New Mexico State University
Ilona Yim, University of California, Irvine
Nicole Zarrett, University of South Carolina, Columbia

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Janet J. Boseovski, University of North Carolina Greensboro
Kate Fogarty, University of Florida
Dominic Gullo, Drexel University
Shanta Hattikudur, Temple University
Hiu-Chin Hsu, University of Georgia
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Maggie Renken, Georgia State University
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Joan E. Test, Missouri State University
Virginia Tompkins, Ohio State University

Editorial and Production Team

We have been fortunate to collaborate with a highly capable editorial team at Pearson Education. It has been a great pleasure to work once again with Tom Pauken, Managing Editor, who oversaw the preparation of the fourth and seventh editions of *Infants and Children* and who returned to edit this eighth edition as well as its supplements package. We cannot capture in words Tom's amazing contributions: His careful review of manuscript, keen organizational skills, responsive day-to-day communication, insightful suggestions, astute problem solving, interest in the subject matter, patience, thoughtfulness, and sense of humor (at just the right moments) greatly enhanced the quality of the text and made it possible for us to keep pace with Pearson's tight revision time frame. Tom is truly our editor extraordinaire: We greatly look forward to working with him on future projects.

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Rachael Payne prepared the ad copy and informative e-mails to the sales representatives and the field about *Infants and Children,* Eighth Edition. She also designed our text website, *www.infantschildrenandadolescents.com.* Rachael's insightful and creative work also appears within Pearson's product website, *www.pearsonhighered.com/berk-ica-8e-info.* We thank, as well, Lindsey Gill, Marketing Manager, for day-to-day marketing efforts aimed at ensuring that up-to-date information about the text and its instructor resources reaches Pearson Education's sales force.

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Laura E. Berk and Adena B. Meyers

mydevelopmentlab

MyDevelopment Lab is a collection of online homework, tutorial, and assessment products, integrated with the eText, that is designed to improve students' learning. Authored by Laura Berk and Adena Meyers, MyDevelopmentLab for *Infants and Children,* Eighth Edition, engages students through active learning and promotes in-depth mastery of the subject matter, thereby fostering more thorough preparation for class, quizzes, and exams.

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About the Chapter Opening Art

We would like to extend grateful acknowledgments to the International Museum of Children's Art, Oslo, Norway; to the International Child Art Foundation, Washington, DC; and to the World Awareness Children's Museum, Glens Falls, New York, for the exceptional cover image and chapter opening art, which depict the talents, concerns, and viewpoints of young artists from around the world. The awe-inspiring collection of children's art gracing this text expresses family, school, and community themes; good times and personal triumphs; profound appreciation for beauty; and great depth of emotion. We are pleased to share with readers this window into children's creativity, insightfulness, sensitivity, and compassion.

"A Child's Dream of Parents with More Time"
Mia Koch
16 years, Norway

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Infants and Children
Prenatal Through Middle Childhood
Eighth Edition

RENOWNED PROFESSOR, RESEARCHER, AND AUTHOR **Laura Berk** is joined by new coauthor **Adena Meyers** to create the latest edition of this best-selling text. As faculty colleagues in the Department of Psychology at Illinois State University, they have collaborated on numerous projects, and their distinct areas of specialization and tremendous expertise make them a superb team for coauthoring this new edition.

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ABOUT THIS SPECIAL PREVIEW COPY

We created this CourseSmart **PREVIEW** sample to provide you an opportunity to review and evaluate the new edition of *Infants and Children,* weeks before publication. Whether you need to meet a bookstore ordering deadline, are a new user planning your course for the first time, or a current user interested in seeing the new edition, this preview copy is for you!

Please Note: *This preview includes all chapter content (Chapters 1–13) of Berk & Meyers,* Infants and Children, *Eighth Edition. The three Milestones tables, front matter, and end matter have not been included. There also may be small errors that will be corrected in the final, published version of the title.*

On March 6, 2015, the missing sections will be added and the corrections made, and this special PREVIEW sample will be replaced with a ***FINAL*** *CourseSmart version, available for sale to students, and to instructors for their adoption review.*

Printed examination copies of *Infants and Children,* Eighth Edition, will be in our warehouse and available for review by March 10, 2015. To request an examination copy, contact your sales representative (*www.pearsonhighered.com/replocator*).

chapter 1

History, Theory, and Research Strategies

REPRINTED WITH PERMISSION FROM THE INTERNATIONAL CHILD ART FOUNDATION, WASHINGTON, DC

"Me and My World"
Lizaveta Lenkevich
9 years, Belarus

With bold brush strokes and vibrant color, this artist conveys the energy and beauty of her town and the various pathways through it. Chapter 1 will introduce you to a multiplicity of ways to think about and study child development.

In a café not far from our university offices, we held our first meeting to discuss the exciting collaborative journey before us—preparing this eighth edition of *Infants and Children*. As we delved into the task, our conversation turned to child development as we had personally experienced it. We exchanged stories about our own children—the amusing things they had said as preschoolers, their varied personalities and interests, and the differences in their childhood experiences, given that our two families are a generation apart in age.

Three decades ago, Laura noted, a free day usually meant that her sons David and Peter hurried out the door after breakfast to join neighborhood playmates in climbing trees, organizing a game of pickup baseball, or building a backyard fort. The out-of-school hours of today's children, in contrast, are more often devoted to a flurry of prearranged learning opportunities—dance, music, and karate lessons; academic tutoring; and parent-organized play dates—leaving little time for unstructured play. Similarly, school life for present-day children seems speeded up: Charlie and Isabel, Adena's son and daughter, mastered in kindergarten much of what David and Peter had been expected to learn in first and second grade. And Charlie and Isabel's world is replete with high-tech media—fast-action video games, cell phones, iPads, iPods, and countless other modern gadgets that didn't exist when David and Peter were young.

As we talked, we touched on our own childhood experiences and how they contributed to who we are today. Laura remembered weekends helping her father in his downtown clothing shop, the year her mother studied to become a high school teacher, and Sunday outings to museums and the seashore. Adena described frequent moves to new cities as her father, a professor, changed jobs every few years, along with the excitement and challenges of adapting to new neighborhoods, schools, and peer groups.

We also spoke about our childhood friends and what we know about their present lives. Laura's high school classmate Phil—shy, anxious, and cruelly teased because of his cleft lip—now owner of a thriving chain of hardware stores and member of his city council. Adena's inventive, extroverted friend Ally, who grew up in a low-income family, served as Adena's campaign manager when she ran for student council, and saved for college by crushing and selling pop cans—today a successful CEO of a nonprofit organization. Julio, immigrant from Mexico who joined Laura's class in third grade—currently director of an elementary school bilingual education program and single parent of an adopted Mexican boy. And finally, Laura's next-door neighbor Rick, who picked fights at recess, struggled with reading, dropped out of high school, and moved from one job to another over the following 10 years.

As you begin this course in child development, perhaps you, too, are wondering about some of the same questions that crossed our minds during our café conversation:

- In what ways are children's home, school, and neighborhood experiences the same today as they were in generations past, and in what ways are they different?
- How are young children's perceptions of the world similar to adults', and how are they different?

What's Ahead in chapter 1

The Field of Child Development
Domains of Development • Periods of Development

Basic Issues
Continuous or Discontinuous Development? • One Course of Development or Many? • Relative Influence of Nature and Nurture? • A Balanced Point of View

■ **BIOLOGY AND ENVIRONMENT**
Resilient Children

Historical Foundations
Medieval Times • The Reformation • Philosophies of the Enlightenment • Scientific Beginnings

Mid-Twentieth-Century Theories
The Psychoanalytic Perspective • Behaviorism and Social Learning Theory • Piaget's Cognitive-Developmental Theory

Recent Theoretical Perspectives
Information Processing • Developmental Neuroscience • Ethology and Evolutionary Developmental Psychology • Vygotsky's Sociocultural Theory • Ecological Systems Theory • Development as a Dynamic System

■ **SOCIAL ISSUES: HEALTH**
Family Chaos Undermines Children's Well-Being

Comparing Child Development Theories

Studying the Child
Common Research Methods • General Research Designs • Designs for Studying Development • Improving Developmental Designs • Ethics in Research on Children

■ **CULTURAL INFLUENCES**
Immigrant Youths: Adapting to a New Land

- What determines the features that humans have in common and those that make each of us unique—physically, mentally, and behaviorally?
- How did Julio, transplanted at age 8 to a new culture, master its language and customs and succeed in its society, yet remain strongly identified with his ethnic community?
- Why do some of us, like Kathryn and Rick, retain the same styles of responding that characterized us as children, whereas others, like Phil, change in essential ways?
- How do cultural changes—employed mothers, child care, divorce, smaller families, and new technologies—affect children's characteristics?

These are central questions addressed by **child development,** an area of study devoted to understanding constancy and change from conception through adolescence. Child development is part of a larger, interdisciplinary field known as **developmental science,** which includes all changes we experience throughout the lifespan (Lerner et al., 2011). Great diversity characterizes the interests and concerns of the thousands of investigators who study child development. But all have a common goal: to describe and identify those factors that influence the consistencies and changes in young people during the first two decades of life. ■

1.1 What is the field of child development, and what factors stimulated its expansion?

1.2 How is child development typically divided into domains and periods?

The Field of Child Development

The questions just listed are not just of scientific interest. Each has *applied,* or practical, importance as well. In fact, scientific curiosity is just one factor that led child development to become the exciting field of study it is today. Research about development has also been stimulated by social pressures to improve the lives of children. For example, the beginning of public education in the early twentieth century led to a demand for knowledge about what and how to teach children of different ages. Pediatricians' interest in improving children's health required an understanding of physical growth and nutrition. The social service profession's desire to treat children's emotional and behavior problems and to help them cope with challenging life circumstances, such as the birth of a sibling, parental divorce, poverty, bullying in school, or the death of a loved one, required information about personality and social development. And parents have continually sought advice about child-rearing practices and experiences that would promote their children's development and well-being.

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Child development research has great practical value. Findings on how children learn best in school have contributed to new approaches to education that emphasize exploration, discovery, and collaboration.

Our large storehouse of information about child development is *interdisciplinary*. It has grown through the combined efforts of people from many fields. Because of the need to solve everyday problems concerning children, researchers from psychology, sociology, anthropology, biology, and neuroscience have joined forces with professionals from education, family studies, medicine, public health, and social service, to name just a few. Together, they have created the field

of child development as it exists today—a body of knowledge that is not just scientifically important but also relevant and useful.

Domains of Development

To make the vast, interdisciplinary study of human constancy and change more orderly and convenient, development is often divided into three broad domains: *physical, cognitive,* and *emotional and social*. Refer to Figure 1.1 for a description and illustration of each. Within each period from infancy through adolescence, we will consider the three domains in the order just mentioned. Yet the domains are not really distinct. Rather, they combine in an integrated, holistic fashion to yield the living, growing child. Furthermore, each domain influences and is influenced by the others. For example, in Chapter 5 you will see that new motor capacities, such as reaching, sitting, crawling, and walking (physical), contribute greatly to infants' understanding of their surroundings (cognitive). When babies think and act more competently, adults stimulate them more with games, language, and expressions of delight at their new achievements (emotional and social). These enriched experiences, in turn, promote all aspects of development.

You will encounter instances of the interwoven nature of all domains on nearly every page of this book. In the margins of the text, you will find occasional *Look and Listen* activities—opportunities for you to see everyday illustrations of development by observing what real children say and do or by attending to everyday influences on children. Through these experiences, we hope to make your study of development more authentic and meaningful.

Also, look for the *Ask Yourself* feature at the end of major sections, designed to deepen your understanding. Within it, we have included *Review* questions, which help you recall and think about information you have just read; *Connect* questions, which help you form a coherent, unified picture of child development; *Apply* questions, which encourage you to apply your knowledge to controversial issues and problems faced by parents, teachers, and children; and *Reflect* questions, which invite you to reflect on your own development and that of people you know well.

FIGURE 1.1 **Major domains of development.** The three domains are not really distinct. Rather, they overlap and interact.

Periods of Development

Besides distinguishing and integrating the three domains, another dilemma arises in discussing development: how to divide the flow of time into sensible, manageable parts. Researchers usually use the following age periods, according to which we have organized this book. Each brings new capacities and social expectations that serve as important transitions in major theories:

- *The prenatal period: from conception to birth*. In this nine-month period, the most rapid time of change, a one-celled organism is transformed into a human baby with remarkable capacities for adjusting to life in the surrounding world.
- *Infancy and toddlerhood: from birth to 2 years*. This period brings dramatic changes in the body and brain that support the emergence of a wide array of motor, perceptual, and intellectual capacities; the beginnings of language; and first intimate ties to others. Infancy spans the first year; toddlerhood spans the second, during which children take their first independent steps, marking a shift to greater autonomy.
- *Early childhood: from 2 to 6 years*. The body becomes longer and leaner, motor skills are refined, and children become more self-controlled and self-sufficient. Make-believe play blossoms, reflecting and supporting many aspects of psychological development. Thought and language expand at an astounding pace, a sense of morality becomes evident, and children establish ties with peers.
- *Middle childhood: from 6 to 11 years*. Children learn about the wider world and master new responsibilities that increasingly resemble those they will perform as adults. Hallmarks of this period are improved athletic abilities; participation in organized games with rules; more logical thought processes; mastery of fundamental reading, writing, math, and other academic knowledge and skills; and advances in understanding the self, morality, and friendship.
- *Adolescence: from 11 to 18 years*. This period initiates the transition to adulthood. Puberty leads to an adult-sized body and sexual maturity. Thought becomes increasingly complex, abstract, and idealistic, and schooling is directed toward preparation for higher education and the world of work. Young people begin to establish autonomy from the family and to define personal values and goals.

© UWE OMMER, *1,000 FAMILIES*, TASCHEN

Child development is so dramatic that researchers divide it into periods. This large South African family includes children in infancy (child in arms), early childhood (seated boys), middle childhood (girl standing in front row), and adolescence (boy standing at far left).

For many contemporary youths in industrialized nations, the transition to adult roles has become increasingly prolonged—so much so that some researchers have posited a new period of development called *emerging adulthood,* extending from age 18 to the mid- to late-twenties. Although emerging adults have moved beyond adolescence, they have not yet fully assumed adult roles. Rather, during higher education and sometimes beyond, these young people intensify their exploration of options in love, career, and personal values before making enduring commitments. Because emerging adulthood first became apparent during the past few decades, researchers have just begun to study it (Arnett, 2007, 2011). Perhaps it is *your* period of development.

With this introduction in mind, let's turn to some basic issues that have captivated, puzzled, and sparked debate among child development theorists. Then our discussion will trace the emergence of the field and survey major theories. We will return to each contemporary theory in greater detail in later chapters.

Basic Issues

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

Research on child development did not begin until the late nineteenth and early twentieth centuries. But ideas about how children grow and change have a much longer history. As these speculations combined with research, they inspired the construction of *theories* of development. A **theory** is an orderly, integrated set of statements that describes, explains, and predicts behavior. For example, a good theory of infant–caregiver attachment would (1) *describe* the behaviors of babies around 6 to 8 months of age as they seek the affection and comfort of a familiar adult, (2) *explain* how and why infants develop this strong desire to bond with a caregiver, and (3) *predict* the consequences of this emotional bond for future relationships.

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

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

Within the field of child development, many theories offer very different ideas about what children are like and how they change. The study of child development provides no ultimate truth because investigators do not always agree on the meaning of what they see. Also, children are complex beings; they change physically, cognitively, emotionally, and socially. No single theory has explained all these aspects. But the existence of many theories helps advance knowledge because researchers are continually trying to support, contradict, and integrate these different points of view.

Although there are many theories, we can easily organize them by looking at the stand they take on three basic issues: (1) Is the course of development continuous or discontinuous? (2) Does one course of development characterize all children, or are there many possible courses? (3) What are the roles of genetic and environmental factors—nature and nurture—in development? Let's look closely at each of these issues.

Continuous or Discontinuous Development?

A mother reported with amazement that her 20-month-old son Angelo had pushed a toy car across the living room floor while making a motorlike sound, "Brmmmm, brmmmm," for the first time. When he hit a nearby wall with a bang, Angelo let go of the car, exclaimed, "C'ash!" and laughed heartily.

"How come Angelo can pretend, but he couldn't a few months ago?" his mother asked. "And I wonder what 'Brmmmm, brmmmm' and 'Crash!' mean to Angelo. Does he understand motorlike sounds and collision the same way I do?"

Angelo's mother has raised a puzzling issue about development: How can we best describe the differences in capacities and behavior among small infants, young children, adolescents, and adults? As Figure 1.2 on page 8 illustrates, most major theories recognize two possibilities.

One view holds that infants and preschoolers respond to the world in much the same way as adults do. The difference between the immature and the mature being is simply one of *amount or complexity*. For example, little Angelo's thinking may be just as logical and well-organized as our own. Perhaps (as his mother reports) he can sort objects into simple categories, recognize whether he has more of one kind than of another, and remember where he left his favorite toy at child care the week before. Angelo's only limitation may be that he cannot perform these skills with as much information and precision as we can. If this is so, then

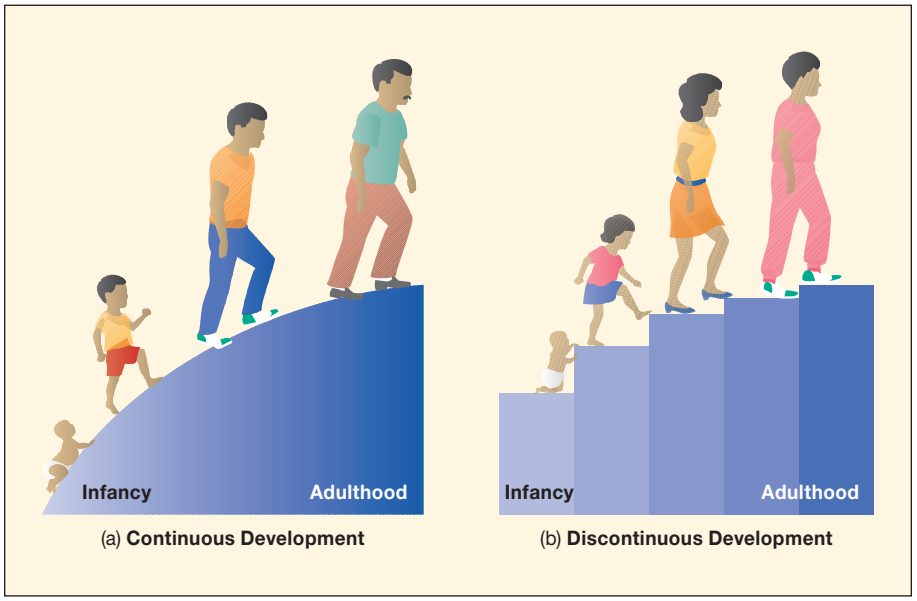

FIGURE 1.2 Is development continuous or discontinuous? (a) Some theorists believe that development is a smooth, continuous process. Children gradually add more of the same types of skills. (b) Other theorists think that development takes place in discontinuous stages. Children change rapidly as they step up to a new level and then change very little for a while. With each step, the child interprets and responds to the world in a qualitatively different way.

Angelo's development is **continuous**—a process of gradually adding more of the same types of skills that were there to begin with.

According to a second view, Angelo's thoughts, emotions, and behavior differ considerably from those of adults. His development is **discontinuous**—a process in which new ways of understanding and responding to the world emerge at specific times. From this perspective, Angelo is not yet able to organize objects or remember and interpret experiences as we do. Instead, he will move through a series of developmental steps, each with unique features, until he reaches the highest level of functioning.

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

Does development actually occur in a neat, orderly sequence of stages? This ambitious assumption has faced significant challenges (Collins & Hartup, 2013). Later in this chapter, we will review some influential stage theories.

One Course of Development or Many?

Stage theorists assume that people everywhere follow the same sequence of development. For example, in the domain of cognition, a stage theorist might try to identify the common influences that lead children to represent their world through language and make-believe play in early childhood, to think more logically and systematically in middle childhood, and to reason more systematically and abstractly in adolescence.

At the same time, the field of child development is becoming increasingly aware that children grow up in distinct **contexts**—unique combinations of personal and environmental circumstances that can result in different paths of change. For example, a shy child who fears social encounters develops in very different contexts from those of an outgoing agemate who readily seeks out other people. Children in non-Western village societies have experiences in their families and communities that differ sharply from those of children in large Western cities (Kagan, 2013a; Shweder et al., 2006). These different circumstances foster different cognitive capacities, social skills, and feelings about the self and others.

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

Relative Influence of Nature and Nurture?

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

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

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

Throughout this book, you will see that investigators disagree, often sharply, on the question of *stability versus plasticity*. Their answers have great applied significance. If you believe that development is largely due to nature, then providing experiences aimed at promoting change would seem to be of little value. If, on the other hand, you are convinced of the supreme importance of early experience, then you would intervene as soon as possible, offering high-quality stimulation and support to ensure that children develop at their best. Finally, if you think that environment is profoundly influential throughout development, you would provide assistance any time children or adolescents face difficulties, in the belief that, with the help of favorable life circumstances, they can recover from early negative events.

A Balanced Point of View

So far, we have discussed basic issues of child development in terms of extremes—solutions favoring one side or the other. But as we trace the unfolding of the field in the rest of this chapter, you will see that the positions of many theorists have softened. Today, some theorists believe that both continuous and discontinuous changes occur. Many acknowledge that development has both universal features and features unique to the individual and his or her contexts. And a growing number regard heredity and environment as inseparably interwoven, each affecting the potential of the other to modify the child's traits and capacities (Goldhaber, 2012; Kagan, 2013b; Overton, 2010). We will discuss these new ideas about nature and nurture in Chapter 2.